EATING DISORDERS
PREVENTION, TREATMENT & MANAGEMENT:

An Evidence Review

The National Eating Disorders Collaboration

Prepared for
the Commonwealth Department
of Health and Ageing

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The National Eating
Disorders Collaboration
Led by

The Butterfly Foundation

Supporting Australians with Eating Disorders

EATING DISORDERS
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Acknowledgements

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Review Forum Membership

Four Review Forums were established across the topic areas of Promotion and Prevention; Identification and Early Intervention, Treatment Standards and Strategies, and Consumers and Carers to input to activities and deliverables of the National Eating Disorder Collaboration project. Review Forum members were invited to view and provide feedback on working drafts of this evidence review during the development process. The overall Review Forum membership comprised over 100 individuals from across Australia and included individuals with a lived experience of an Eating Disorder, family members, and carers; health and allied professionals (including psychologists, dietitians, counsellors, general practitioners, pharmacists, paediatricians, psychiatrists, social workers, occupational therapists, nurses); primary, secondary, and tertiary education professionals; representatives from community-based Eating Disorder associations, support groups, and professional or charitable incorporated organisations (e.g., Eating Disorder, pharmaceutical, counselling, carer); researchers; and media professionals. All individuals had an interest in Eating Disorders and were self-nominated or invited to participate following communication about the National Eating Disorders Collaboration Project.

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Acronyms and Abbreviations

AN	anorexia nervosa
BN	bulimia nervosa
BED	binge eating disorder
BMI	body mass index
BT	behavioural therapy
BWL	behavioural weight loss
BWLgsh	behavioural weight loss guided self-help
CAT	cognitive analytic therapy
CBT	cognitive behavioural therapy
CBTgsh	cognitive behavioural therapy guided self-help
CBTpsh	cognitive behavioural therapy pure self-help
CD	cognitive dissonance
DBT	dialectical behavioural therapy
DSM	Diagnostic and Statistical Manual of Mental Disorders
EDNOS	eating disorder not otherwise specified
EDNOS-AN	eating disorder not otherwise specified – anorexia nervosa subtype
EDNOS-BN	eating disorder not otherwise specified – bulimia nervosa subtype
EOIT	ego-oriented individual therapy
FBT	family-based treatment
HW	healthy weight intervention
IPT	interpersonal psychotherapy
ML	media literacy
PIP	psychodynamic interpersonal psychotherapy
RCT	randomised controlled trial

Executive Summary

Eating Disorders are serious illnesses associated with a high level of morbidity and burden of disease. They have a significant negative impact on cognitive, physical, social, and psychological aspects of health, and are associated with the high levels of mortality.

Bulimia Nervosa and Anorexia Nervosa are the 8th and 10th leading causes, respectively, of burden of disease and injury in females aged 15 to 24 in Australia, as measured by disability-adjusted life years[1]. Standardised mortality rates for eating disorders are 12 times higher than the annual death rate from all causes in females aged 15 to 24 years of age with up to 10% of those affected dying as a direct result of their disorder[2,3,4,5].The standardised mortality rate for suicide among those with Eating Disorders is 23.14 – the highest of any psychiatric illness[6].

There are several types of Eating Disorders, including anorexia nervosa, bulimia nervosa, and a group of disorders classed as 'Eating Disorders Not Otherwise Specified', which includes binge eating disorder. Eating Disorders involve both abnormal eating behaviours and psychological disturbance. Abnormal eating behaviours include excessive dietary restriction (e.g., fasting, skipping meals, and cutting out entire food groups), binge eating (consuming large amounts of food in a short period of time with a sense of loss of control), and behaviours designed to rid oneself of food and/or control shape or weight, such as self-induced vomiting, excessive exercise, laxative misuse, diet pills, diuretics, and illicit drugs. Psychological disturbances may include an intense fear of becoming fat, disturbed body image, and exaggerated emphasis on weight and shape in relation to one's self worth.

Eating Disorders defy classification solely as mental illnesses as they not only involve considerable psychological impairment and distress, but they are also associated with major wide-ranging and serious medical complications, which can affect every major organ in the body. Despite this knowledge, the recognition of Eating Disorders as significant physical and mental health conditions has often been lacking.

Eating Disorders and disordered eating are believed to affect a significant number of Australians, although the absence of large, Australian community-based prevalence studies makes exact estimates difficult. In the absence of Australian data we are reliant on large international studies to make such estimates. The lifetime prevalence of anorexia nervosa in women is estimated to be between .3% and 1.5%; the lifetime prevalence of bulimia nervosa is estimated to be between .9% and 2.1%; and the lifetime prevalence of binge eating disorder is estimated to be between 2.5% and 4.5%. Rates of eating disorders are significantly less in men with rates of anorexia nervosa, bulimia nervosa and binge eating disorder estimated to be between .1% to .5%, <.1% to 1.1%, and 1.0% to 3.0%.

There are two peak risk periods for the onset of Eating Disorders, early adolescence and in the late teens, though Eating Disorders may first present at any age. Eating Disorders appear to have an array of biopsychosocial causes though these are not clearly understood. Important risk factors for the development of an Eating Disorder include dieting, disordered eating, and poor body image. Of concern, is that research has shown that disordered eating increased two-fold among Australian males and females from the 1990s to 2000s and that in Mission Australia national surveys body image was identified as the number one concern among Australian youth aged 12 to 25 years.

Eating Disorders are a significant public health problem, not only because they are associated with substantial psychological and medical comorbidity, functional impairment, and high medical costs, but because they are often poorly recognised and undertreated. In order to address this issue, Eating Disorders must be recognised as a mainstream health priority in Australia.

Action is required to prevent Eating Disorders and to support identification, early intervention, and readily accessible, evidence-based treatment throughout all stages of the illness process.

This report considers several key areas relevant to Eating Disorders including prevention, early intervention, and treatment. Evidence for this report was collated by systematically reviewing the existing scientific evidence base. Scientific databases were systematically searched and the National Health and Medical Research Council level of evidence scheme was applied to address key questions pertaining to both youth and adult populations. Views and roles of persons with lived experience, carers, community-based organisations and professional associations are also considered in this report.

Promotion and Prevention

Initiatives to prevent Eating Disorders could potentially translate to significant human and economic cost savings. A review of research into prevention initiatives suggests that there are evaluated prevention programs that successfully reduce Eating Disorder risk. Health promotion and prevention initiatives for diseases work by modifying risk factors, enhancing protective factors, and/or reducing early warning signs, and ultimately aim to reduce the incidence of a disease. Prevention initiatives occur across a spectrum from universal (i.e., general community or entire populations with no known risk factors) to selective (i.e., populations or groups at elevated risk) to indicated (i.e., groups with early warning signs), though indicated prevention methods are generally seen as a form of early intervention. Evidence summarised within this report from randomised, controlled trials identifies efficacious interventions to reduce Eating Disorder risk across all three prevention categories of universal, selective, and indicated.

The most validated approach in universal prevention is media literacy, which promotes media advocacy and critical evaluation of the thin body ideal and media body ideals. The most validated approaches in selective prevention are cognitive-behavioural, which promote healthier and balanced thinking on body image, shape, eating, and weight, nutritional and exercise knowledge and behaviours, critical thinking on the thin body ideal, and social support, self esteem, and coping; and cognitive dissonance, which engages individuals in activities that require adoption of an anti-thin stance (i.e., brainstorming the costs associated with pursuing an ultraslender body ideal) – thereby creating attitudinal dissonance that weakens the desire to pursue thinness. The prevention interventions summarised have generally been evaluated among students in classroom settings or among university-aged individuals, either face-to-face or in a computer-based format. These programs affect various risk and protective factors such as desire for thinness, negative emotionality, body dissatisfaction, self-esteem, shape and weight concern, and may prevent Eating Disorder symptoms such as disordered eating behaviours. While the evidence base is promising, it is limited primarily by generally short follow-up periods and the pragmatic time and resource challenges that impede evaluation of impact upon Eating Disorder incidence. There is a need for additional Level I and II research to examine the effectiveness of interventions over an extended time and to explore promising initiatives such as interventions for perfectionism and peer-based prevention programs. Although there are effective prevention programs available, the dissemination and uptake of these programs in the Australian community is low.

One of the dangers of prevention initiatives for Eating Disorders is that non-evidence-based initiatives may actually be harmful, particularly if they contain content or overt discussion on Eating Disorders and disordered eating. Individuals who are at-risk may learn and apply extreme weight and shape control practices. Another danger prevails if the content is delivered in a manner that moralises eating patterns or intensifies eating, weight, and shape concern. For instance, consider the prevention educator who discusses "good" versus "bad" foods rather than focusing on healthy balanced eating and moderation in food choices, draws public attention to individuals' weights or body mass index, or conveys inappropriate personal

attitudes on body shape and weight. The golden rule guiding all prevention initiatives for Eating Disorders should be "first, do no harm", and evaluation for harm and benefit should be a built-in requirement of any dissemination strategy.

While evidence for effectiveness should be weighted significantly when considering the way forward for Eating Disorders prevention, the means by which evidence is defined and collected limits the scope of approaches that are considered effective. Potentially valuable applied prevention initiatives such as public awareness and media campaigns, media codes of conduct, campaigns to enhance community mental health literacy (i.e., knowledge, skills, and beliefs that enable the prevention, identification, and management of mental health issues), training and education for health and education professionals, and whole-of-school or community-based programs, are less amenable to evaluation with randomised, controlled, methodology, yet their potential contribution is significant.

Finally, there are existing prevention programs and messaging in place in Australia that target related conditions, including obesity and body image concerns. Partnerships, collaboration, and integration, rather than stand-alone models, warrant consideration, so that public health concerns can be addressed jointly, intelligently, and effectively. There is currently a lack of collaboration between the Eating Disorders and obesity sectors in Australia, despite overlap in behaviours and attitudes targeted and comorbidity, which may ultimately detract from the success of initiatives in either sector.

Identification and Early Intervention

Identification and early intervention are a critical part of the mental health promotion spectrum. Public, policy-maker, and administrator attention is arguably most commonly cast on acute treatment and prevention, so this spectrum component can appear to "fall through the gap". Individuals who are showing warning signs of Eating Disorders are at much higher risk of developing an Eating Disorder, and partial syndrome Eating Disorders alone carry heightened risk of impairment. Further, research shows significantly improved outcomes for individuals who are identified and treated early in the course of illness.

Indicated prevention is a form of early intervention targeted to those showing early signs of a problem or illness, or individuals identified as at very high-risk of developing a disorder. There is randomised, controlled trial evidence of the effectiveness of indicated programs that successfully reduce risk factors for Eating Disorders. Intervention approaches such as cognitive-behavioural therapy, cognitive dissonance, media literacy, and multicomponent interventions are among the most validated.

Consideration of the evidence and literature reveals many important issues that are relevant to addressing Eating Disorder identification and early intervention in Australia. Like the universal and selective prevention field, evidence-based early intervention programs are available, yet have limited availability across Australia.

There are many promising early interventions that have not been systematically evaluated. Training and education for health, education, and fitness professionals, and public awareness campaigns that enhance mental health literacy are likely to be of value. Interventions shown to be successful in other psychological conditions that have not been investigated in those at risk of developing Eating Disorders represent a promising research direction. Self-help cognitive-behavioural interventions, used alone or in a guided format with brief sessions with a therapist, have been validated on individuals with acute Eating Disorders, but not those showing early warning signs. Given that self-help cognitive-behavioural interventions form the first step within an evidence-based stepped care approach to treating Bulimia Nervosa and Binge Eating Disorder, these interventions are likely to be effective for those with early warning signs.

Individuals with Eating Disorders delay treatment-seeking for an average of eight years, suggesting significant barriers to help-seeking, with one principal barrier being stigma. The public mental health initiative *beyondblue* successfully improved public knowledge and attitudes toward depression, and a similar model applied to Eating Disorders would likely yield considerable benefit for bulimia nervosa and binge Eating Disorder, it would be reasonable to expect that they are likely to be effective for individuals with early illness characteristics.

Finally, there are gaps in our knowledge of the naturalistic course of Eating Disorder illnesses,

particularly among populations such as boys, very young children, ethnic minorities, and those with less investigated types of Eating Disorders. Research is needed to help understand prodromal and subsyndromal presentations, and relationships to full clinical syndromes, so that early detection and intervention pathways can be strengthened.

Treatment Standards and Strategies

Many individuals with Eating Disorders recover successfully through appropriate care and treatment, particularly if treatment is accessed in a timely manner. Although the clinical picture is bright for many people with Eating Disorders, significant gaps remain in the treatment research. Among adults, treatment approaches for bulimia nervosa and binge eating disorder are among the most well-validated and empirically supported, relative to the other Eating Disorders. Cognitive-behavioural treatment, delivered face-to-face, or in a self-administered or therapist-assisted self-help format are efficacious in reducing core symptoms such as binge eating and self-induced vomiting. Empirically-supported programs typically span 12 to 20 weeks duration. Pharmacological interventions, in particular, antidepressant medications may have a role in treating bulimia nervosa and binge eating disorder in adults. Binge eating disorder is often comorbid with obesity, given the excess of energy intake relative to energy expenditure, and there was evidence that specific obesity medications could assist with weight management. For adults with anorexia nervosa, the evidence base is more limited, and is complicated by small sample sizes, high treatment drop-out rates, and a general lack of comparison of active treatment approaches. Approaches that may be helpful include cognitive analytic therapy, cognitive-behavioural therapy, interpersonal psychotherapy, focal psychoanalytic psychotherapy, and family interventions that focus on reducing symptoms of Eating Disorders. Pharmacological interventions for anorexia nervosa in adults do not currently have a strong evidence base. For youth with anorexia nervosa, the treatment picture is more promising, with support for the effectiveness of a specific type of family therapy, Maudsley family-based treatment (FBT), administered over 6 to 12 months duration. FBT focuses on addressing Eating Disorder symptoms through three phases of assisting parents to re-feed their child (weight restoration phase), handing control over eating back to the young person following normalisation of eating patterns, and finally, addressing developmental issues of relevance to the young person. For youth with bulimia nervosa, an adapted version of Maudsley FBT has received preliminary support.

Evidence from randomised, controlled trials is not the only information to consider when planning the path forward for effective treatment standards and strategies. Although these trials confer high-quality evidence of treatment effectiveness, they are not generally set up to evaluate complex treatment models. Eating Disorders are characterised by impairment to cognition, behaviour, psychological and social functioning, feeding and nutrition practices, physiological processes, and medical status, therefore a monotherapeutic, "one-size fits all" approach to treatment may be a tragically short-sighted and ill-fitting one. If one considers treatment within a "hub-and-spokes" paradigm, specific treatment interventions can be considered the "spokes" of treatment while the professionals, disciplines, and service and practice models form the treatment "hub". Randomised, controlled trials evaluate specific treatment interventions, yet do not typically evaluate the treatment "hub" and underlying service models. The clinical Eating Disorder literature clearly recognises the importance of a cross-sector, multidisciplinary approach, supporting availability of medical, psychiatric, psychological, dietetic, and allied health care, across a continuum of care from inpatient to day patient to outpatient, when indicated. This is not to say that all acute Eating Disorder presentations are sufficiently severe to warrant or require multidisciplinary, intensive management; in some cases, self-help

treatment or psychotherapy on an outpatient basis may be sufficient to obtain a clinically significant benefit. Given that there are effective treatment approaches that have been identified, particularly for bulimia nervosa and binge eating disorder in adults, and anorexia nervosa in youth, and that service models have been articulated and are operational in private and public primary, secondary, and tertiary health contexts across Australia, it would seem an appropriate time to articulate standards of care to advance access to high quality, safe, effective care. A potential way forward to managing Eating Disorders in Australia would be to allow sufficient access to empirically-supported treatments under the Medicare scheme – there is currently inadequate access to support duration and quality of care. Research gaps in treatment include insufficient understanding of the effective management of anorexia nervosa, in acute and chronic presentations, limited support for existing service models to rigorously evaluate outcomes, treatments for individuals with illnesses that fall into the diagnostic classification 'eating disorder not otherwise specified' (besides binge eating disorder), and methods to prevent treatment drop-out.

Consumers and Carers

Research data indicates that individuals with a lived experience of Eating Disorders value a range of therapeutic approaches, such as nutritional, psychotherapeutic, and pharmacological interventions. They value a range of program models, including outpatient, day patient, and inpatient settings, and view specialist Eating Disorder centres as particularly beneficial because of the specialist knowledge of staff, greater focus on Eating Disorder symptoms, and support from peers facing similar challenges. Individuals with lived experience, carers, and families generally report treatment as more acceptable if it is inclusive of carers and loved ones.

The management of Eating Disorders concerns care systems that extend beyond primary, secondary, and tertiary health services through to home and community contexts.

Carers and families play an instrumental role in supporting and caring for individuals with Eating Disorders. A carer may be a parent, child, sibling, grandparent, partner, friend, neighbour, or other individual in the person's life. Carers are an essential but often overlooked component of the health care system and require support and assistance to effectively carry out their role. Carers' needs and preferences for support vary, though may include information and knowledge, skills-based training, financial support, community-based support, co-ordination or case management services, advocacy training and services, assistance to overcome barriers to paid employment, and support for physical and psychological wellbeing.

Community-based organisations, such as charitable incorporated consumer-based organisations and professional associations, play an important role within the health system. They support and advocate strategies for promotion and prevention, identification and early intervention, treatment of Eating Disorders, and carer support. Community-based organisations may fulfil functions such as advocacy, public education, information and referral, peer support, carer support, and skills training and education for professionals and community members. Professional associations represent people working within a sector of the workforce and provide advocacy, leadership, public education, networking, and training and education opportunities for workforce training. Building and supporting community capacity to improve the health and development of individuals is imperative to building a healthier society.

Eating Disorders: The Way Forward for Australia

The evidence and discussion summarised in this report contributes a clinical and empirical foundation for advancement of Eating Disorders promotion and prevention, early intervention, and treatment in Australia.

CHAPTER 1
BACKGROUND

In recognition that body image and Eating Disorders are a pressing issue within the Australian community, the Commonwealth of Australia commissioned this report to be prepared by Butterfly Foundation ("Butterfly") on behalf of the National Eating Disorders Collaboration (NEDC).

The NEDC is a collaboration of over 80 organisations with a strong interest in Eating Disorders and body image, and Butterfly is the appointed lead agency of this collaboration. The Commonwealth Department of Health and Ageing requested a review of evidence on the health promotion and prevention, identification and early intervention, and treatment of Eating Disorders, as part of a strategy to identity the way forward for Eating Disorder management in Australia.

Overview

Eating Disorders carry one of the highest burdens of disease in Australia and potentially involve high human and economic cost. Body image and disordered eating are related, significant issues.

Body Image

Body image involves the thoughts, perceptions, and feelings that individuals experience toward their bodies. The cognitive component is measured in terms of satisfaction or dissatisfaction with one's body shape or weight, and is the typically used method to assess degree of body image disturbance. In Western society, dissatisfaction with body image has become a cultural norm. Australia's national 2007 survey[7] of 29 000 young people identified body image as the number one concern amongst both males and females. In the Australian Longitudinal Study on Women's Health, only 22% of women in the healthy weight range reported being happy with their weight, and 74% of the entire cohort wanted to weigh less, including 68% of women of healthy weight and 25% of underweight women[8]. Body image and Eating Disorders are one of the primary reasons that young people access the email-based counselling service offered through Kids Helpline[9]. While body image dissatisfaction has typically been more prevalent among females, particularly young women, the rate of dissatisfaction is increasing among boys and men, where levels of body image concern are similar in 11 to 24 year old Australian females and males (35% versus 28%). However, unlike females, males are more likely to desire a lean, muscular appearance rather than a low body weight or thin figure, although this ideal can vary depending on the sociocultural context the individual identifies with.

Body image is an issue of major national public health concern because poor body image longitudinally predicts reduced mental and physical health on multiple indices, including increased depression, lowered social functioning, and poor lifestyle choices in Australian males and females at different age

phases[10,11]. Individuals with poor body image are more likely to engage currently or prospectively in dangerous dietary practices and weight control methods, excessive exercise, substance abuse, and unnecessary surgical interventions to alter appearance. As well as lowering quality of life and endangering a spectrum of physical and mental health outcomes, poor body image is a well-established pathway to disordered eating, one of the most robust risk factors identified for Eating Disorder development to date. Body image disturbance is one of the diagnostic criteria of anorexia nervosa (AN). Not withstanding the association between body image and Eating Disorders, body image is a significant issue in its own right and deserving of serious consideration given that a poor or good body image is associated with different physical, social, and mental trajectories.

Disordered Eating

- Between 1995 and 2005, the prevalence of disordered eating behaviours increased two-fold among both males and females aged 15 years and older[12].
- 90% of 12 to 17 year old girls and 68% of 12 to 17 year old boys have been on a diet of some form[13].
- Within a one-year time period, almost half (46%) of young women reported dieting specifically to lose weight[14].
- In a general population sample of women aged 18 to 42 years, the point prevalence for the regular use of specific weight control methods was 4.9% for excessive exercise, 3.4% for extreme dietary restraint, 2.2% for diet pills, 1.4% for self-induced vomiting, 1.0% for laxative misuse, and .3% for diuretic misuse[15].
- One in 16 adolescent females reported fasting (e.g., going without food for a day or more) at least once a week[16] and 1 in 5 reported fasting in the preceding month[17].
- In adolescent girls of whom 15% were overweight, 55% were normal weight, and 30% were underweight, 47% reported currently trying to lose weight[17]. Of those that were underweight, approximately 50% perceived themselves to be of normal weight and approximately 20% perceived themselves to be overweight[17].
- In a preceding one-month period, 36% of 14 to 16 year old girls reported using one of the following weight control methods; fasting, "crash" dieting, slimming tablets, diuretics, laxatives, or cigarettes (specifically to control weight)[17].

Disordered eating is the single most important proximal indicator of onset of Eating Disorders, yet even in the absence of a clinical Eating Disorder, disordered eating is associated with a range of mental, physical, and social impairments. Disordered eating "subsyndromes" comprise illness prodromes in a small subset of individuals. Research conducted in Australia has shown that adolescent females who diet at a severe level are 18 times more likely to develop an Eating Disorder within 6 months[18]. Over 12 months, they have a 1 in 5 chance of developing an Eating Disorder[18]. An international longitudinal study found that all new cases of AN had exhibited a subsyndromal precursor at a study measurement point prior to Eating Disorder onset[19]. For an excellent summary of the relation between Eating Disorder subsyndromes, prodromes, and full syndromes, the interested reader may refer to Le Grange and Loeb (2007)[20]. The pathway from disordered eating to Eating Disorders is of substantial societal concern given that in our society the rate of extreme dieting, particularly among women and adolescent females, is high and increasing.

Eating Disorders

Eating Disorders are a serious group of psychiatric disorders with a high level of impairment. They involve a poor body image, abnormal eating behaviours, overemphasis of the importance of weight and shape, and the use of extreme weight control behaviours. Eating Disorders are often poorly understood and underestimated in contemporary society. There are mistaken beliefs that Eating Disorders are about vanity, a dieting attempt gone wrong, an illness of "choice", a cry for attention, or a person "going through a phase". These types of misconceptions are not evidenced solely by the general public, but are commonly the responses and explanations sufferers receive when they present for help from general practitioners[21]. Yet, the origins of Eating Disorders are complex and multifaceted, and the illness pathology is characterised by severe psychiatric and medical manifestations. Eating Disorders have a cultural history that pre-dates the relatively recent Western sociocultural fusion of thinness with "beauty ideal". AN was first medically documented simultaneously in separate parts of the world by Gull, a British physician, in 1874[22] and Lasegue, a French neuropsychiatrist, in 1873[23], and since this time, has been understood by the psychiatry profession to be a serious disorder with substantial medical and psychiatric pathology. Prior to medical documentation, other reports existed, such as a description in 1689[24] of a "nervous consumption" syndrome resembling what we understand as AN. Best estimates of incidence over time and cross-culturally have remained markedly stable, including among non-Western societies and cultures that do not overvalue thinness. Bulimia nervosa (BN) was described in 1979[25] and was formally recognised as a distinct disorder in the third edition of the Diagnostic and Statistical Manual of Mental Disorders in 1980[26]. This illness is also of marked pathological significance, yet expert opinion suggests that BN has likely arisen in the context of emerging Western society. Binge eating disorder (BED), an Eating Disorder specified within the "eating disorder not otherwise specified" (EDNOS) category of Eating Disorders, was identified in the 1990s, where it was made a provisional research diagnosis in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders; it has yet to be formally recognised as an Eating Disorder though is expected to be in the next revision of this manual.

Diagnostic Nomenclature

The Diagnostic and Statistical Manual of Mental Disorders fourth edition (DSM-IV)[27] recognises three clinically diagnosable Eating Disorders. These are AN, BN, and EDNOS. Specific diagnostic criteria for these disorders are listed in Table 1. It is important to note that there are limitations to the present diagnostic nomenclature and professional workgroups are reviewing the criteria and classifications in preparation for the next revision of the Diagnostic and Statistical Manual of Mental Disorders - tentatively scheduled for publication in 2012. It is our understanding that the changes that will be made will be conservative and will not have an unduly negative impact on the utility of the large research and evidence base that has accumulated to date.

Table 1. Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV)[27] Diagnostic Criteria for Eating Disorders

Anorexia Nervosa

- Refusal to maintain body weight at or above a normal level for age and height or failure to make expected weight gain during a period of growth (i.e. weight is less than 85 percent of that expected)[a].
- Intense fear of becoming fat, despite being substantially underweight.
- Disturbed body image, undue influence of weight and shape on self-evaluation, or denial of the seriousness of one's low body weight.
- Absence of at least three consecutive menstrual cycles in postmenarcheal female[b].

Restricting subtype: **During the episode of anorexia nervosa, the person has not regularly engaged in binge eating episodes or purging behaviours.**
Binge-Eating/Purging subtype: **During the episode of anorexia nervosa, the person has regularly engaged in binge eating episodes and purging behaviours.**

Bulimia Nervosa

- Recurrent episodes of binge eating, defined as eating an unusually large amount of food within a discrete time period (e.g., two hours) accompanied by a sense of loss of control.
- Recurrent and inappropriate compensatory behaviours to prevent weight gain (e.g., vomiting, misuse of laxatives, diuretics, diet pills, enemas, medications; fasting; or compulsive exercise).
- Binge-eating and purging occur at least twice weekly for three months[c].
- Undue influence of weight and shape on self-evaluation.
- Symptoms do not occur within an episode of anorexia nervosa.

Purging subtype: **During the episode of bulimia nervosa, the person has regularly engaged in purging behaviours (i.e. self-induced vomiting or the misuse of laxatives, diuretics or enemas).**
Non-purging subtype: **During the episode of bulimia nervosa, the person has used other compensatory behaviours (i.e. fasting; excessive exercise), but has not regularly engaged in purging behaviours (i.e. self-induced vomiting or the misuse of laxatives, diuretics or enemas).**

Eating Disorder Not Otherwise Specified

- For females, all criteria for anorexia nervosa are met except the individual has a regular menstrual cycle
- All criteria are met for anorexia nervosa, except despite a significant amount of weight lost, the individual's weight is in the normal range
- All criteria for bulimia nervosa are met, except that binge eating and inappropriate compensatory behaviours occur less regularly than twice weekly or for less than three months
- Recurrent use of inappropriate compensatory behaviours by a person of normal weight following consumption of small amounts of food
- Recurrent chewing and spitting out, but not swallowing, large amounts of food
- Binge eating disorder: recurrent episodes of binge eating without the use of inappropriate compensatory behaviours

a Likely to be revised upward in DSM-V (i.e. DSM fifth edition).
b Likely to be removed in DSM-V.
c Likely to be revised downward in DSM-V.

Anorexia Nervosa

AN involves having a body weight that is 15 percent lower than normal, a relentless AN involves having a body weight that is 15 percent lower than normal, a relentless pursuit of thinness, a disturbed view of one's actual shape and weight, a lack of menstruation among girls and women, and an intense fear of gaining weight or becoming fat. A poor body image is a central feature of this disorder, as is the over importance attributed to attaining a desired body weight and shape, such that one's shape and weight become the individual's reference point for self-evaluation. Females with AN typically overvalue thinness and a low body weight, while males with anorexia are more likely to value and strive toward a lean body shape that is muscular and low in fat. Despite being starved or malnourished, individuals with AN see themselves as overweight, and become intensely preoccupied with eating, food, and shape and weight control. They engage in a range of extreme weight-control behaviours, including severely restricting their food intake, compulsive exercising, laxative and diuretic use and abuse, and purging to expel calories. They may eat small quantities and portions of food, skip meals, and become overly concerned about the macronutrient content of food, particularly avoiding fats and, to a lesser extent, carbohydrates.

In the early phase of the illness, AN may be difficult to distinguish from normal dieting or weight loss, which typically involves restricting certain foods and portions of food, and increasing physical activity. Unlike normal dieting, individuals with AN continue to restrict dietary intake even when a "normal" weight is achieved. Physical activity is distinguishable in degree and intensity. In the initial phase of the illness increased physical activity may appear healthy, yet in AN it can progress to excess, consuming many hours of the day in apparent (e.g., running, cycling, gym classes) or subtle (e.g., increased incidental walking, tensing and flexing muscles) ways.

There are two subtypes of AN, a restrictive subtype and a binge-and-purge subtype. Those with the restrictive subtype engage in severe dietary restriction, and those with the binge-and-purge subtype demonstrate binge eating and purging behaviours.

Bulimia Nervosa

BN is characterised by recurrent episodes of binge-eating, described as consuming a very large amount of food within a short period of time with an accompanying sense of loss of control, and regular use of inappropriate behaviours designed to compensate for binge eating. These behaviours include fasting, vomiting, laxative and diuretic misuse, enemas, diet pills, and compulsive exercising. If these behaviours occur in an instance in which all criteria for AN are satisfied, then the diagnosis of AN is ascribed and not BN. Like AN, BN involves a strong drive to attain overvalued body shape and weight goals and one's body image becomes an overvalued means of evaluating self-worth. A vicious cycle of self-starvation, binge eating, and purging, is typical of individuals with BN. Individuals with BN are typically of average weight for their age and height, although it is not uncommon for their weight to fluctuate. The behavioural features of the illness are similar to AN.

Eating Disorder Not Otherwise Specified

EDNOS is a diagnostic category for individuals who present with other extreme disturbances in eating behaviours and body image, that are sufficiently distressing and disabling as to warrant classification as a psychiatric condition. This category "captures" individuals who do not meet full criteria for AN or BN, but nonetheless evidence disordered eating behaviours to a clinically significant degree. For instance, a woman may present with all diagnostic features of anorexia – emaciation, disturbed body image, and an intense fear of becoming fat – but still have a regular menstrual cycle. As well as those disorders resembling AN and BN, the EDNOS category contains BED. BED is defined by recurrent episodes of binge eating without the regular use of compensatory behaviours.

The category of EDNOS also describes those Eating Disorders that involve the use of inappropriate compensatory behaviours in the absence of binge eating, repeated chewing and spitting of food, and extreme caloric restriction despite insubstantial weight loss.

The diagnostic category of EDNOS is sometimes mistakenly assumed to describe individuals with milder or less serious forms of Eating Disorders. This is an incorrect assumption; individuals with EDNOS experience psychological and physiological morbidity and secondary impairment that is comparable to AN and BN[28,29,30,31]. This group represent between 40% and 60% of treatment-seekers at Eating Disorder specialty clinics[31].

Medical Morbidity

People with Eating Disorders can become seriously unwell and many will require access to hospital treatment. Common reasons for hospitalisation include medical complications (e.g., cardiac abnormalities, electrolyte disturbance, bradycardia, hypotension), suicidal behaviour, and lack of response to outpatient treatment in a very underweight patient. New South Wales data have suggested that 11% are admitted with a life-threatening complication[32], up to 61% if child inpatients are considered only[33]. Young people can experience significant impairment in growth and physical development when developing an Eating Disorder before completing puberty.

Anorexia Nervosa

The starvation syndrome that accompanies AN induces physical changes that substantially elevate risk of medical problems. There are a host of medical complications of AN, the most serious being death due to cardiac arrest. Medical and physical consequences include fluid depletion, electrolyte imbalances, increased sensitivity to the cold, growth of fine downy hair to assist with warmth retainment, muscle wastage, bloating, constipation, and loss of hair from the scalp. Insufficient nutrient intake frequently results in calcium deficiency and anaemia, and elevated cholesterol, abnormal lipid profiles, and electrolyte disturbance may occur. If starvation is prolonged it can have a very severe, long-lasting impact on the physical health of the individual, impacting upon nearly all bodily systems and major organs. AN can damage the heart, the liver, kidneys, stomach and bowels, muscles and bones, and reproductive system. Arising from this damage can include health problems such as kidney failure, heart failure, osteoporosis, infertility, and even sudden cardiac arrest[34]. Children and adolescents with AN can experience additional physical consequences, such as arrested growth and development, and even after resolution of the Eating Disorder will, as adults, experience significantly higher levels of anxiety disorders, cardiovascular symptoms, chronic fatigue, pain, depressive disorders, limitations in activities due to poor health, insomnia, neurological symptoms, and suicide attempts[35].

Bulimia Nervosa

The most common physical consequences of BN are dental and gum problems. Self-induced vomiting erodes dental enamel, contributes to cavities, can disturb electrolyte levels, and reduce the level of potassium in the blood. Low potassium concentration can cause weakness and disturb electrical impulses in the heart. Other medical and physical consequences include inflammation of the lining of the digestive tract, swollen salivary glands, mouth sores, gastrointestinal bleeding, and gastric rupture has been reported to occur in some instances.

Eating Disorder Not Otherwise Specified

Individuals with BED are at increased risk of weight gain and the physical and medical complications associated with overweight and obesity[36]. Conditions observed among these individuals include Type II diabetes, high blood pressure, menstrual problems, and gastrointestinal problems[37]. Data on women with BED indicate that they experience a higher rate of medical problems than women who are obese without BED[38]. With respect to eating pathology, general psychopathology, and physical health, it is important to note that there

is no difference from AN and BN with respect to the following EDNOS groupings – individuals who fail to meet amenorrhea and/or weight criterion, and individuals who binge eat less than twice per week[31]. Little is known about the medical consequences of other forms of Eating Disorders within EDNOS.

Epidemiology

Prevalence

Epidemiological estimates of Eating Disorders vary across studies and Australian epidemiological data are sparse. Nevertheless, based on international epidemiological data, the lifetime prevalence of AN in women is estimated to be between .3% and 1.5%; the lifetime prevalence of BN is estimated to be between .9% and 2.1%; and the lifetime prevalence of BED is estimated to be between 2.5% and 4.5%. Rates of eating disorders are significantly less in men with rates of AN, BN and BED estimated to be between 0.1% to 0.5%, <.1% to 1.1%, and 1.0% to 3.0%[39].[1]

In relation to Australian epidemiological research, certain studies warrant mention. Two independent, cross-sectional epidemiological surveys[12,40] separated by a 10-year period were carried out in South Australia to assess the prevalence of disordered eating and to compare these rates against international findings. In a 1995 survey, 3 001 individuals of a mean age of 43 (SD = 19.2) years were interviewed and asked standardised questions on frequency of current binge eating, purging (self-induced vomiting, laxative, or diuretic misuse), and strict dieting or fasting. Regular engagement in these behaviours (defined as at least once a week over the previous three months) was 3.1% for binge eating, .7% for purging, and 1.6% for strict dieting or fasting. Compared to 1995, participants surveyed in 2005 were 2.4 times more likely to report binge eating, 2.9 times more likely to report purging, and 2.6 times more likely to report strict dieting or fasting, and significantly higher rates of all behaviours were reported in 2005 among both males and females. The point-prevalence of BN was .9% (95% confidence interval = .5% to 1.4%), BED was 2.3% (95% confidence interval = 1.7% to 2.9%), other EDNOS was 1.9% (95% confidence interval = 1.3% to 2.5%), and "possible" AN was .3% (95% confidence interval = .02% to .5%) (i.e., some of the psychological criteria of AN were not assessed).

The reported lifetime prevalence in a twin study conducted among 1002 female twin pairs from the Australian Twin Registry, aged 28 to 39 years, was 1.9% for AN (4.3% including partial AN) and 3.5% for BN[41].

In a recent review of the epidemiology of Eating Disorders across studies from Australia/New Zealand, Europe, North America, and utilising DSM-IV criteria over the lifetime in women, the prevalence of AN was found to range from .9% to 2.2% and the addition of partial AN syndromes increased the prevalence to between 3.0% and 4.6%[42]. Typically, delineation of these partial syndromes requires waiving the requirement for amenorrhea, and thus if the changes in DSM-V incorporate criteria for AN that does not include amenorrhea, this will clearly make a major difference in cited prevalence rates for this disorder in future studies. Lifetime BN ranged from 1.5% to 4.6%, with the addition of partial BN syndromes increasing this to between 4% and 6.7%. Lifetime BED is less studied, but ranged from .6% to 3.5%. The studies consistently show that men are substantially less likely to experience lifetime Eating Disorders, where AN ranges from .1% to .4% and BN has been estimated at .5%. Overall, incorporation of EDNOS suggests that between 8.7% and 15.9% of women will suffer from a clinically significant Eating Disorder in their lifetime.

1 These figures are 95% confidence intervals computed from data reported in Hudson, J. I., Hiripi, E., Pope Jr, H. G., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry, 61,* 348-358.

Mond and colleagues[15] surveyed disordered eating behaviours in a community sample of women aged 18 to 42 years in the Australian Capital Territory using a gold standard self-report measure of Eating Disorder symptoms. Of 10 000 mailed surveys, 5 255 were returned. The frequency of regular occurrence (i.e. weekly) of specific Eating Disorder behaviours over the previous 28 days was 10.6% for objective binge episodes, 12.7% for subjective binge episodes, 1.4% for self-induced vomiting, 1.0% for laxative misuse, 2.2% for diet pill use, and .3% for diuretic use. In addition, 3.4% reported abstaining from eating for 8 hours or more in order to control weight or shape, and 4.9% reported the use of '"hard" exercise for weight or shape reasons' at least five times a week over the previous four weeks.

Age of Onset

Eating Disorders appear to have a bimodal age of onset with peak periods occurring at puberty and late adolescence. For AN, the average age of onset is around 17 years, with some data indicating bimodal peak onset at 12 to 14 years and 17 to 18 years. Individuals with BN tend to develop the illness at a later stage, around 16 to 18 years. BED appears to have an average onset in early adulthood (i.e., early to mid-twenties)[43].

Gender Distribution

Eating Disorders are much more common in females than males, with approximately 90% of cases of AN and BN occurring in females[27]. For BED, the gender distribution is approximately equal. Among children, 25% of those diagnosed with AN are male.

Psychiatric Comorbidity

Depression and anxiety disorders are the most common psychiatric illnesses accompanying Eating Disorders, though substance use and personality disorders are also common. Approximately 45% to 86% of individuals with Eating Disorders have comorbid depression[44] and approximately 64% have a comorbid anxiety disorder[45]. Personality disorders are present in approximately 58% of individuals with Eating Disorders[46], particularly Cluster C disorders in AN restrictive subtype (including avoidant, dependent, and obsessive-compulsive personality disorder) and Cluster B (particularly borderline personality disorder) and Cluster C disorders in BN and AN binge-eating/purging subtype. The standardised mortality rate for suicide among those with Eating Disorders is 23.14 – the highest of any psychiatric illness[6].

Burden

Eating Disorders are associated with substantial economic and social burden. BN and AN are the 8th and 10th leading causes, respectively, of burden of disease and injury in females aged 15 to 24 years in Australia, as measured by disability-adjusted life years[47]. Eating Disorders are the 12th leading cause of hospitalisation costs due to mental health within Australia[48], and the expense of treatment of an episode of AN has been reported to come second only to the cost of cardiac artery bypass surgery in the private hospital sector in Australia[49]. The percentage of disability-adjusted life years associated with Eating Disorders (6.3%) is comparable to schizophrenia (5.1%)[48]. In Australian youth between the ages of 15 and 24 years of age, BN and AN are the 8th and 10th leading causes of burden of disease respectively[1]. Eating Disorders are associated with substantial burden, yet the findings of studies within the Australian context need to be interpreted cautiously given that estimates of burden are derived using international prevalence rates, due to the lack of Australian epidemiological data.

Aetiology

The etiology of Eating Disorders is complex and is not well understood. No single cause of Eating Disorders has been identified. Like most other psychiatric and health conditions, the conceptualisation of these disorders is multifactorial with many theorised contributants, which alone may be neither necessary nor sufficient for the development of an Eating Disorder. In addition to genetic vulnerability, risk of onset increases with cumulative exposure to biological, psychological, sociocultural, and other implicated determinants.

There is some evidence that Eating Disorders have a genetic basis. Familial transmission of AN, BN, and BED has been established, and most implicated genes are within biological systems that govern food intake, appetite, metabolism, mood, and reward-pleasure responses[50,51]. These include serotonin, norepinephreine, dopamine, neuropeptide, catecholamine, and opioid biological systems. Biological etiology is not well understood, given that most study samples are conducted during the acute or recovery phase of illness, rather than premorbid, and there are physiological changes associated with prolonged starvation and Eating Disorder-related behaviours that complicate investigation.

Research among AN and BN, in particular, has identified personality traits that are present before, during, and after recovery from illness. These include perfectionism, obsessive-compulsiveness, neuroticism, negative emotionality, harm avoidance, low co-operativeness, core low self-esteem, and traits associated with avoidant personality disorder[52]. Specific additional personality traits may be associated with each type of Eating Disorder, for instance, individuals with AN are characteristically low in novelty-seeking, and high in constraint and persistence, while individuals with BN have a tendency to be impulsive, high in sensation-seeking, and to possess traits in the borderline personality disorder spectrum. As Ancel Key's well-known experimental research among healthy military refusers[53] of more than sixty years ago highlights, it is difficult to discern cause from effect when prolonged starvation induces change in cognition, behaviour, and interpersonal characteristics.

Sociocultural influences are theorised to play a role in the genesis of Eating Disorders, particularly among individuals who internalise the Western beauty ideal of thinness; these individuals are at elevated risk of body dissatisfaction which can lead to negative emotionality and efforts to restrict food intake, which are likely pathways to bulimic symptoms[54].

A comprehensive review of etiology is beyond the scope of this document; for recent reviews of the field see Wonderlich, Mitchell, de Zwaan, and Steiger (2008)[55].

Risk Factors

Risk factors are characteristics that increase the likelihood that an individual will experience a particular illness-related outcome. Risk factors may be *modifiable*, and amenable to change, or *non-modifiable*, such as fixed characteristics like age, gender, and family history. To be considered a true risk factor, the characteristic must have chronological precedence in relation to the outcome; the risk factor should be able to segregate individuals into classes of high- and low-risk, with the outcome significantly more prevalent in the high-risk group; and the potency of the risk factor should be correlated with the severity of the outcome[56]. Determining risk factors is a complex research task, requiring prospective longitudinal study designs, and intensive resource support to permit waves of data collection and to prevent loss of subjects through attrition. As such, it often takes a long time to determine whether a characteristic of interest is a *causal risk factor* or a *proxy risk factor*, the difference between these being whether the characteristic is associated causally or not. Risk factors underlying Eating Disorders have primarily been identified using cross-sectional study designs, and may not fit the definition of risk factor proposed until validated in longitudinal research.

Many risk factors for Eating Disorders have been proposed and empirically studied. The single most important and convincing risk factor for the development of Eating Disorders is *dieting*. Research conducted in Australia has shown that adolescent females who diet at a severe level are 18 times more likely to develop an Eating Disorder within six months[18]. Over 12 months, they have a 1 in 5 chance of developing an Eating Disorder[18]. This pathway is enormously concerning, given that in Australian society the rate of extreme dieting, particularly among women and adolescent females, is high.

In addition to dieting, several other risk factors have been identified, and are outlined in Table 2. Some risk factors appear to generically increase the risk of developing any Eating Disorder, while some are more specific to the development of a particular Eating Disorder. The majority of the risk factors outlined can be considered modifiable, including genetic vulnerability which can be moderated by environmental variables or epigenetic mechanisms, and therefore can be changed by health promotion and prevention initiatives.

Protective Factors

Contrary to risk factors, protective factors lower the likelihood of an illness-related outcome. Protective factors have been less commonly studied in the Eating Disorder field in comparison to risk factors[57]. Research and clinical literature have suggested that specific individual factors may protect against Eating Disorders and/or disordered eating behaviours, such as high self-esteem, positive body image, critical processing of media images, emotional well-being, school achievement, being self-directed and assertive, successfully performing multiple social roles, and possessing a genetic predisposition to thinness[58,59,60]. Family protective factors that may promote resistance to Eating Disorders and disordered eating include family connectedness, belonging to a family that does not overemphasise weight and physical attractiveness, and eating meals together regularly as a family[58,59,61]. Sociocultural factors may include a sociocultural climate that accepts a range of body shapes and sizes, sporting contexts that value successful performance and not merely physical attractiveness and aesthetics, relationships with individuals who are not highly concerned with weight and shape, and social support[59]. There is a strong need for quality, prospective research to further our understanding of this important area, an arguable challenge given the ethical preclusion of robust study designs involving randomization and the confounds associated with "real-world" prospective designs.

Table 2. Risk Factors for Eating Disorders

	Common Across All Eating Disorders	Anorexia Nervosa	Bulimia Nervosa	Binge Eating Disorder
Genetics	■ No specific genes yet identified ■ May influence a variety of other risk factors, e.g., BMI, temperament ■ Shared genetic risk with other psychopathology e.g., depression	■ 31% to 76% of the variance[62]	■ 28% to 83% of the variance[62]	■ 17% to 39% of the variance[62]
Trauma and Life Experiences	■ Childhood sexual abuse ■ Neglect ■ Full- or sub-threshold post-traumatic stress disorder			
Temperamental and Cognitive	■ Low self esteem ■ Body dissatisfaction ■ Negative emotionality ■ Overvaluation of the importance of weight and shape ■ Life dissatisfaction ■ Difficulty regulating emotional states ■ Obsessive compulsive personality disorder traits ■ Perfectionism ■ Social anxiety ■ Internalisation of the thin sociocultural ideal ■ Vulnerability to media exposure on weight and thin, idealised portrayals	■ Guilt and suppressed anger ■ Impaired set-shifting	■ Impaired set-shifting ■ Impulsivity ■ Guilt and covert hostility	■ Impulsivity
Family and Childhood Experiences	■ Bullying ■ School adjustment problems and lack of friends ■ Parental eating behaviour, attitudes, and weight	■ Insecure attachment ■ Early separation anxiety	■ Insecure attachment ■ Early separation anxiety ■ Parental high expectations	
Biological and Developmental	■ Adolescence ■ Overweight\high BMI ■ Low stature ■ Early menarche	■ Female	■ Female ■ Type I diabetes ■ Childhood eating problems ■ Childhood obesity	■ Early adulthood ■ Childhood obesity ■ Type I diabetes
Social and Cultural	■ Industrialised country ■ Participation in aesthetic sports (e.g., ballet, gymnastics, synchronised swimming, figure skating) ■ Exposure of the body in public (elite athletes, modelling) ■ Critical comments or teasing from others about weight/shape/eating			
Current or Family Psychopathology	■ Family history of an Eating Disorder ■ Attention-deficit hyperactivity disorder		■ Substance use	■ Substance use ■ Parental mood and substance disorders
Premorbid Indicators	■ Dieting and unhealthy weight control behaviours ■ Preoccupation with food, eating, and shape ■ Eating in secret ■ Desire for a completely empty stomach ■ Fear of losing control over eating	■ Compulsive exercise		

CHAPTER 2
METHODOLOGY

Evidence Review

Key Review Questions

The overarching questions guiding this review of evidence relate to the prevention, early intervention, and treatment of Eating Disorders. The key questions link to particular populations of interest and intervention points across the spectrum of mental health promotion.

Key Questions	
Promotion and Prevention:	
Key Question #1	What is the evidence for the efficacy of universal prevention interventions for Eating Disorders?
Key Question #2	What is the evidence for the efficacy of selective prevention interventions for Eating Disorders?
Identification and Early Intervention:	
Key Question #3	What is the evidence for the efficacy of indicated prevention interventions for Eating Disorders?
Treatment Standards and Strategies:	
Key Question #4	What is the evidence for the efficacy of treatments or combinations of treatments for AN in a) young people and b) adults?
Key Question #5	What is the evidence for the efficacy of treatments or combinations of treatments for BN in a) young people and b) adults?
Key Question #6	What is the evidence for the efficacy of treatments or combinations of treatments for BED in adults?

The scope of the evidence review on the treatment of Eating Disorders is limited to the diagnoses of AN, BN, and BED, a diagnosis contained within the EDNOS category. It is not yet feasible to examine the efficacy of other conditions that fall within the EDNOS spectrum, given the limited availability of data[63].

Level of Evidence Scheme

Studies differ in their level of methodological quality, with RCTs considered the most appropriate study design to address questions on efficacy. A level of evidence scheme (outlined in Table 3) was used to organise the study retrieval and selection process, so that studies of very high methodological quality were considered first. Studies from lower levels are used to inform the evidence review process if data from a hierarchically adjacent upper level is absent. The level of evidence scheme adopted a priori for this review was developed by the National Health and Medical Research Council[64,65]. This scheme informed the study retrieval process, such that Level I and II studies were targeted first for retrieval for each key question.

Table 3. Level of Evidence Scheme

Level I	**A systematic review of randomised controlled trials**
Level II	**At least one well-designed randomised controlled trial**
Level III-1	**A well-designed pseudo-randomised controlled trial**
Level III-2	**A comparative study with concurrent controls:** ■ Non-randomised experimental trial ■ Cohort study ■ Case-control study ■ Interrupted time series with a control group[a]
Level III-3	**A comparative study without concurrent controls:** ■ Historical control study ■ Two or more single arm study ■ Interrupted time series without a parallel control group[a]
Level IV	**Case series with either post-test or pre-test and post-test outcomes**

[a] Not applicable to a research question that concerns an indicated intervention[65], defined as a 'screening intervention' by the National Health and Medical Research Council[65].

Criteria for Inclusion in the Evidence Review

To be included in the evidence review, studies needed to (a) be relevant to at least one key review question (b) have a publication date of 2004 or more recent, or in the case of systematic reviews or meta-analyses, an original or updated search date of 2004 or more recent [these criteria were chosen because of the volume of available literature, because non-recent randomised controlled trials (RCTs) will be evaluated within recent systematic reviews, and because recent systematic reviews eclipse non-recent systematic reviews] (c) report on at least one standardised outcome measure assessing a risk or protective factor, a biomarker of Eating Disorders, a psychological or psychiatric outcome, or an Eating Disorder-related outcome (d) have data that can be reported in a useable form; and (e) have undergone peer-review prior to publication. As stated above, a level of evidence scheme was adopted for each review question such that upper-level studies (e.g., Level I and Level II) were targeted first for retrieval for each key question.

An absence of Level I or Level II studies for a key question would necessitate consideration of evidence at a lower level within the level-of-evidence hierarchy.

Studies on mixed Eating Disorder samples were excluded, unless they reported on outcome by single-diagnosis subgroups (descriptive data or inferential results) or reported a moderator analysis which examined the influence of diagnosis. Non-English studies and unpublished theses were excluded.

Studies pertaining to Key Questions 4 to 6 were only included if the study focus was on individuals with a primary standardised diagnosis of AN, BN, or BED[2] using accepted nomenclature.

2 Weight-restored patients with AN were included and studies on relapse prevention samples

Literature Search Methodology

To identify relevant systematic reviews and RCTs to address Key Questions 1 to 6, electronic searches were conducted in the databases Medline (1985 to July 2009), PsycINFO (1985 to July 2009), EMBASE (1980 to July 2009), SCOPUS (1960 to June 2009), and the Cochrane Collaboration Library, and a handsearch of the contents of the International Journal of Eating Disorders was conducted from January 2004 to July 2009. Medline and EMBASE databases were searched with search filters developed by British Medical Journal[66], and PsycINFO was searched using the search filter developed for the Wales Health Evidence Bulletins[67]. Search filters used for this review are provided in Appendix A. The search for systematic reviews retrieved 163 items in Medline, 485 items in PsycINFO, 281 items in EMBASE, 465 items in SCOPUS, and 23 items in the Cochrane Collaboration Database of Systematic Reviews (total = 1 417). After de-duplication, 829 items remained. The search for RCTs retrieved 837 items in Medline, 1 100 items in PsycINFO, 714 items in EMBASE, 1 982 items in SCOPUS, and 1 059 items in the Cochrane Collaboration's Central Register of Controlled Trials (total = 5 692). After de-duplication, 3 391 items remained. Overall, 34 reviews pertaining to treatment, 6 reviews pertaining to prevention, 115 possible RCTs pertaining to treatment, and 57 possible RCTs pertaining to prevention were published in 2004 or more recent, and were considered for inclusion and full-text sought.

Data Collection and Analysis

All identified citations were imported into Endnote Version X2. Data from RCTs meeting inclusion criteria were recorded in evidence tables which are contained in this report. Study and sample characteristics that were recorded included primary author, year, country, intervention setting, study design, population, number of participants in total and by intervention arm, length of intervention and follow-ups, inclusion and exclusion criteria, source of study funding, attrition, and outcomes (focusing on within-group and between-group outcome analyses where available). Due to the limited time frame and lack of resources, it was not possible to quantitatively analyse aggregated data (e.g., compute pooled effect sizes using meta-analysis). Qualitative summaries of outcomes presented by the study authors are reported (i.e. statistically significant within- or between-group change, or other relevant information such as remission rate).

Selection of Studies

The authors scrutinised abstracts and full-text articles, when abstract information was insufficient, to determine whether identified studies met inclusion criteria. Peer-review status of journal sources was checked in Ulrich's Periodical Directory.

Quality Assessment

A reviewer assessed the quality of systematic review methodology using the Overview Quality Assessment Questionnaire (OQAQ)[68]. The OQAQ contains 9 items and each item ranges from a score of 0 points ("no"), 1 point ("partially" or "cannot tell") to 2 points ("yes"). The total score is the sum of the item scores, with a maximum possible score of 18. Overall quality is graded as "poor" (meets < 50% criteria), "adequate" (meet ≥ 50% of criteria), or "good" (meets all criteria). Overall the nine included systematic reviews were of adequate quality with an average quality score of 15.0 (standard deviation = 3.2, minimum = 8, maximum = 17). The most common flaws were insufficient measures taken to avoid selection bias and failure to assess the validity and quality of included studies. The critical appraisal of systematic reviews is summarised in Appendix B. It was beyond the scope of this report to assess risk of bias of RCTs.

Methodological Limitations

Due to resource constraints, reporting of evidence is limited to qualitative summary of outcomes reported by the original study authors, primarily whether statistically significant differences on key outcome measures occurred pre- to- post-intervention, or whether statistically significant differences in outcomes were present between intervention or intervention and control conditions. The identification of a statistically significant difference is partly a function of sample size. Studies with large sample sizes may find a statistically significant difference that is not clinically meaningful; conversely, studies with a small sample size may fail to find a statistically significant difference between groups despite the occurrence of a clinically meaningful difference in outcome. A *priori* power analysis is a statistical safe-guard that researchers can implement at study inception to identify the proportion of participants required to generate a meaningful statistical difference, however, it is often poorly implemented. A limitation of this evidence review is that it summarises only statistically significant differences reported within studies, and it was beyond the scope of the review to assess the clinical meaningfulness of those differences.

Beyond identifying and describing the levels of evidence for particular interventions, an important extension to the systematic review process is to conduct meta-analysis; this was beyond the scope of the present project. Meta-analysis is a quantitative analysis which involves combining all of the available evidence from multiple trials to draw more reliable conclusions about a given topic. Meta-analysis provides an insightful method for summarising outcomes from systematic reviews, yet a caveat is that it is labour- and resource-intensive.

Ideally, systematic reviews should assess individual studies for risk of bias, however, no specific quality appraisal tool was used for this review due to time and resource limitations. Employing a level-of-evidence scheme goes some way to achieving the goal of summarising evidence with high quality and internal validity, yet is not sufficient in itself to remove sources of bias that may confound study outcomes.

The review of treatment-related evidence was limited to studies of AN, BN, and BED, and not EDNOS or sub-threshold Eating Disorder populations. Due to resource constraints, analytical challenges, and the questionable meaningfulness of interpreting the efficacy of a treatment in more heterogenous clinical presentations, it was not considered viable to examine this evidence. It is acknowledged that there are high-quality treatment studies (particularly among youth with Eating Disorders) that have been conducted within the Eating Disorder field that are not considered within this evidence review. Similarly, to address the key review questions, it was necessary to limit study selection to those that had a predominant age of focus (i.e., youth or adults), rather than studies with mixed age groups, therefore there may be additional RCT evidence available (e.g.,[69]) that was not included.

Some RCTs that have been conducted prior to 2004 may not be represented in the evidence review. The year inclusion limits (systematic review with search date between 2004 and June 2009; RCT publication date between 2004 and June 2009) were chosen so that evidence could be collected from systematic reviews (Level I evidence) in the field (i.e., within which data from historical studies is summarised up to the specified search date) and more recent RCT research that may not have been published for a sufficient duration to attract inclusion in a systematic review. Although high-quality systematic reviews on treatment were located, there was a noticeable absence of Level I evidence on prevention, except for one review which limited age of population to children and adolescents. The review therefore may have failed to include prevention programs for adults (i.e., college-age students) evaluated in RCTs published prior to 2004. This impact of the year inclusion limits is limited to the prevention (universal through to indicated) research literature only as relatively more extensive Level I treatment evidence was identified.

Search strings used to ascertain RCTs from academic databases were reasonably comprehensive, and were designed to access RCTs relevant to Eating Disorders, whether prevention or treatment-related. The search strings were unlikely to have detected studies that evaluated prevention programs for non-Eating Disorder mental or physical health conditions but included measurement of Eating Disorder-related variables. For instance, some interventions designed to enhance physical activity or improve nutritional status may assess factors related to Eating Disorders, yet would not necessarily have been located during database searches. Despite this potential absence of evidence, the most impactful prevention programs for Eating Disorders are likely to be those that are specially designed and tailored to address Eating Disorder risk factors.

Annotated Bibliography

In addition to the systematic review of evidence, this is an opportune occasion to acknowledge the significant contribution that Australian researchers and institutions make to the advancement of research on Eating Disorders. Scientific contributions have spanned all areas considered in this review – promotion and prevention, identification and early intervention, treatment standards and strategies – and more. The strong collaborative networks Australian Eating Disorder researchers have built nationally and internationally play a vital role in sustaining the capacity for diverse, innovative, high-quality research with practical and clinical application.

The reading audience is invited to consider these contributions; the past decade of research by Australia-based researchers is summarised in an annotated bibliography contained in Appendix C. Many citations that appear within the bibliography formed the background literature of this document, and the evidence to address key questions.

Literature Search Methodology

The Annotated Bibliography of Australian Eating Disorder research comprises publications listed in the Scopus database (on or before 3rd December 2009) that fulfilled the following criteria:

1. Contained the words "eating" and "disorder" in the title, abstract, or keywords;
2. Were published in 2000 or later;
3. Australia is the country of affiliation for one or more authors;
4. The type of publication is one of the following: Article, Article in Press, Abstract Report, Book, Conference Paper (if a written paper in conference proceedings), Report, Review. [*Note*: All of the valid references that were included were found to be journal articles.]

References are listed in reverse chronological order by year. Within each year, publications are alphabetised by first author surname. Each entry comprises: an American Psychological Association style reference (5th ed.); footnotes indicating Australian authors' affiliations, and; a brief summary of each publication's theme or purpose, key question, population of reference, and main findings. The references differ from APA style on one account: the inclusion of all authors (so that all are acknowledged).

CHAPTER 3
FINDINGS I: PROMOTION AND PREVENTION

This chapter considers the Level I and Level II evidence available on health promotion and prevention for Eating Disorders, and the scope covers universal and selective prevention only.

The key questions guiding this chapter are:

Key Question #1	**What is the evidence for the efficacy of universal prevention interventions for Eating Disorders?**
Key Question #2	**What is the evidence for the efficacy of selective prevention interventions for Eating Disorders?**

Universal prevention involves promoting healthy development in the general populous by enhancing protective factors that promote resistance to problem onset and/or reducing risk factors that increase the likelihood of problem onset[70]. Eating Disorders have a bimodal pattern of onset with two peak periods of risk at early adolescence and early adulthood (i.e., approximately 18 years). Universal programs for Eating Disorders are typically aimed at adolescent schoolchildren or college-age individuals to coincide with peak risk periods and aim to circumvent illness onset. Examples of universal prevention approaches include billboard advertising and an intervention provided to a whole school without restriction to a particular at-risk group.

Selective prevention programs target a population at elevated risk of a problem by proxy of the presence of at least one non-modifiable or modifiable risk factor[70]. Selective prevention programs for Eating Disorders are typically conducted around the same peak age risk periods, and participants are selected on the basis of one or more risk factors (see Chapter 1 for a review of risk factors). The most common, practical risk identifier for the implementation of Eating Disorder selective prevention programs has been female sex, though other examples are athletic participation, overweight, and the presence of Type I diabetes. An example of a selective prevention intervention is an intervention program specifically delivered to early teenage girls in a school environment.

Of 3 391 items retrieved in the scientific database search, 6 reviews pertaining to prevention and 57 RCTs published in 2004 or more recently were inspected for inclusion in the evidence review. One systematic review, conducted by Pratt and Woolfenden[49] (original search date 2002, updated to 2004), met inclusion criteria. This review evaluated the efficacy of Eating Disorder prevention programs delivered to children and adolescents, and included RCTs that focused on general population or high-risk youth with no known Eating Disorder and that reported data from at least one standardised outcome measure in useable form. Pratt and Woolfenden retrieved 1 016 potentially relevant studies, of which 22 reported using randomised controlled methodology. Twelve of these satisfied Pratt and Woolfenden's inclusion criteria,[71,72,73,74,75,76,77,78,79,80,81,82] and were included in pooled analyses of effect, where amenable and appropriate. For the purpose of providing evidence for the present evidence review, only pooled analyses summarising outcomes on universal prevention only or selective prevention only are reported in this chapter, and not pooled analyses on studies with mixed prevention approaches. Of the twelve studies, nine were published [71,72,73,74,75,76,77,78] and additional results from these trials are presented, with the exception of one trial[71], which had a selection process that meant that the sample could not be clearly delineated into a universal or selective population for the purpose of this review.

Studies in this chapter are summarised and discussed according to the predominant intervention approach used, though this method of organising study findings has limitations. Distinctive characteristics of the prevention literature that became apparent during the review process included; many interventions had an atheoretical basis, intervention content frequently included many and varied prevention strategies, and some interventions were oriented in multiple theoretical models. These characteristics made it challenging to classify and group studies in a straightforward manner. However, many of the interventions had a dominant strategy within the intervention content (e.g., psychoeducation, media literacy, etc), and this created substantive overlap among studies. Organising the literature by intervention strategy was considered the most useful means for organising the presentation of evidence over other alternatives. A serious caveat of this method is that intervention content within individual studies summarised is not "pure", nor is it homogenous within studies that claimed to use a particular approach.

Consensus from leading experts suggests that intensity is an important factor underlying the effectiveness of prevention interventions, and particularly, that one-shot (i.e., single session) interventions are an inferior approach to preventing Eating Disorders compared to multisession interventions.[83,84] Therefore, research findings from one-shot studies are summarised together separately despite varying theoretical orientations.

Characteristics and abbreviated details of included studies are located in Appendix D (systematic review) and Appendix E (RCTs). The availability of program manuals and curriculum is delineated and information to facilitate access to publicly available programs (i.e., published or web-based) is included in the reference list.

Universal Prevention

Cognitive Behavioural Therapy

CBT programs encourage individuals to adopt healthy, balanced attitudes on body image, eating, and weight, and seek to reduce the importance placed on body shape and weight for defining one's success and self-worth. CBT programs aim to modify thinking styles and behaviours that place an individual at risk for developing an Eating Disorder. Topics may include challenging unhelpful thinking and attitudes about body shape and weight, the physical and psychological effects of dieting, sociocultural and media pressure to be thin, and balanced nutrition and physical activity.

One systematic review (identifying one RCT) and one RCT (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

Pratt and Woolfenden identified one RCT (Dalle Grave, De Luca, & Campello, 2001)[72] that compared a 6-week group face-to-face program [unpublished protocol] based on a cognitive behavioural model of Eating Disorders to usual-school control among 106 preadolescents (11 to 12-year olds). Analysis revealed a condition × time (assessments taken at baseline, post-intervention, 6- and 12-month follow-up) interaction on knowledge learned, favouring greater learning in the intervention condition. Both conditions showed a reduction in severity of eating attitudes and behaviours over time, however, the intervention condition had higher severity than the control group at baseline and all other time points. Given that the groups were not statistically equated on this baseline difference within the analysis it is difficult to interpret this finding. All groups experienced a significant reduction over the course of the

study in global Eating Disorder psychopathology, weight concern, shape concern, eating concern, and restraint over time, with the intervention condition outperforming the control condition on the measure of eating concern only. Both groups experienced a significant improvement in self-esteem over time, with no between-group difference.

Level II Evidence

Escoto Ponce de Leon and colleagues (2008)[85] evaluated the efficacy of a program [manual published in Mexican] designed to influence attitudes about shape and weight, eating behaviours, the influence of body ideals, and self-esteem, among 120 primary school students. The program contained 8 weekly sessions, and included psychoeducation and cognitive behavioural elements, within a social-cognitive theoretical framework. The program was compared in two formats, interactive or didactic, and the two study arms were compared to a control condition, though the type of control was not specified. Within the interactive condition, boys and girls experienced significantly greater improvement in body satisfaction, whilst participants in the other conditions showed no change. Boys in the interactive condition only reported less overeating and significant improvement in self-esteem at follow-up relative to baseline. The results are consistent with earlier studies, such as those by Stice, which have found that interactive delivery of preventative interventions is associated with better outcomes than didactic delivery. There were no significant improvements on the remaining outcomes measured, including influence of body aesthetic models and Eating Disorder symptoms, in any condition.

Media Literacy

Media literacy (ML) programs aim to analyse, discuss, and critically appraise media messages. They explain how images are digitally altered to enhance the thinness of models and encourage critical evaluation of media messages related to thinness. They teach advocacy and activism skills to counter unhelpful media messages.

One systematic review (identifying one RCT) and one RCT (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

Pratt and Woolfenden identified an Australian study by Wade, Davidson, and O'Dea (2003)[86] that compared a 5-session ML program ***GO GIRLS!***[87] to a 5-session self-esteem enhancement program ***Everybody's Different*** [curriculum has subsequently been published[88]] and control (religious education) among 86 secondary school students. Analyses controlled for baseline measurements and outcomes were reported at post-intervention and 3-month follow-up. At post-intervention, those that participated in ML had significantly lower weight concern compared to control, though this difference was not maintained to the 3-month follow-up. At 3-month follow-up, the ML condition had significantly higher self-ratings of close friendships compared to control, and children in the control condition had higher self-reported behavioural conduct than children in the ML condition. There were no other significant differences in outcomes between those in ML compared to control or self-esteem enhancement.

Level II Evidence

In an Australian study, Wilksch and Wade (2009)[89] compared an 8-session program of ML, '***Media Smart'*** [unpublished curriculum] to control (classes as usual) among 540 secondary school students. Measurement occurred at baseline, post-intervention, and at 6- and 30-month follow-up. Analyses examined time, condition, gender effects, and their interactions. Post-hoc testing on significant findings revealed that girls that participated in the Media Smart program had higher self-esteem at post-intervention and were less concerned with their weight and shape at 30 months than girls that did not participate in Media Smart. Boys that participated in Media Smart had lower dieting at post-test and 6 months, were more satisfied with their bodies at post-test and 6 months, had higher self-esteem at post-test, and were less concerned

with their weight and shape at 6 months, relative to boys that did not participate in Media Smart.

Multicomponent

Multicomponent is a label used for the purpose of this review to describe programs that utilise a combination of approaches to target risk factors. For instance, a multicomponent program might incorporate ML, CBT, and self-esteem enhancement strategies, as opposed to using one predominant approach.

One systematic review (identifying one RCT) and two RCTs (post-2003) evaluated a multicomponent prevention program and met inclusion criteria.

Level I Evidence

Pratt and Woolfenden identified an RCT by Killen and colleagues (1993)[73] that compared an 18-lesson school-based prevention curriculum [unpublished curriculum] to classes-as-usual among 931 school students (11- to 13-year olds). The curriculum aimed to instate healthy eating attitudes and prevent unhealthy weight regulation methods, such as dieting, binge eating, and self-induced vomiting. The program involved psychoeducation on normal pubertal processes (e.g., weight gain), healthy eating, physical activity, the ineffectiveness of dieting, and instilled skills to resist sociocultural pressures of thinness and dieting. Students that participated in the prevention program showed greater improvement in relevant knowledge (assessed at baseline, 18 weeks, and 7 months), but there were no significant between-group differences on measures of bulimic symptomatology or appearance concern (assessed at baseline, 18 weeks, 14 months, and 24 months), weight concern or purging behaviours (assessed at baseline, 7 months, 14 months, and 24 months), or BMI kg/m^2 (assessed at baseline, 18 weeks, 7 months, 14 months, and 24 months).

Level II Evidence

McVey, Tweed, and Blackmore (2007)[90] evaluated an initiative titled 'Healthy Schools-Healthy Kids', which included a teacher-led classroom curriculum (Every BODY is a Somebody'[91], nurse-led peer support groups for girls (Empowering Adolescent Girls[92]), psychologist-led workshops, school-wide activities, and a boys' focus group. This universal prevention initiative drew the involvement of students, parents, teachers, school administrators, and public health professionals. The intervention was multifaceted and utilised multiple theoretical orientations and models (e.g., CBT, social-cognitive theory, dual-pathway model, non-specific vulnerability model) to target a comprehensive range of risk factors implicated in Eating Disorder onset. Four schools were randomised to the prevention program or the comparison (no prevention program) condition, and 982 male and female middle-school students and 91 teachers participated and were evaluated. Measurements were taken at baseline and at the end of the 8-month intervention on body satisfaction, internalisation of media body ideals, size acceptance, disordered eating, weight-based teasing, weight loss and muscle-gaining behaviours, and perceptions of the school climate (teacher-reported only). The program had a superior impact relative to control upon internalisation of media body ideals among males and females, and on disordered eating in the short-term among females (i.e., difference between groups not significant at 6-month follow-up). Fewer students that received the prevention program reported trying to lose weight at follow-up (20% versus 27%). The program appeared to be more effective at producing positive change among those at high-risk (i.e., reported currently dieting at baseline) compared to those at low-risk (i.e., reported not currently dieting at baseline). No differences as a function of the intervention emerged among teachers' self-reports of body satisfaction, internalisation of media body ideals, disordered eating, or school climate.

Cousineau, Franko, Watt, Brevard, and Pappas (2007)[93] evaluated a web-based program, ***Trouble on the Tightrope: In Search of Skateboard Sam*** with content covering six main areas of puberty, nutrition, physical activity, ML, self-esteem, and social relationships.

The study was conducted with 289 school students (mean age of 11 years) who were randomised to either the program or control, which consisted of science-based websites, for three 45-minute class periods. Outcome measures included puberty knowledge, internalisation of the media body ideal, and self-esteem measures, and were taken at baseline, post-intervention, and at 3-month follow-up. The intervention group demonstrated superior improvement on puberty knowledge, which was maintained to 3-month follow-up, and internalisation of the media body ideal, though this was not maintained to follow-up. There was no impact of the program on self-esteem.

Obesity Prevention

Obesity prevention programs aim to reduce the incidence and prevalence of obesity by modifying obesity risk factors. Most typically, these programs target nutrition and physical activity. Only a minority of obesity studies have included measurement of ED risk factors in their evaluation.

Two RCTs (post-2003) evaluated Eating Disorder risk factors as outcomes in the context of obesity prevention and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Huang, Norman, Zabinski, Calfas, and Patrick (2007)[94] conducted secondary data analysis on an RCT by Patrick and colleagues (2006)[95] to evaluate the impact of a 1-year health promotion program on disordered eating risk factors. The program [unpublished protocol] was designed to modify behaviours associated with childhood obesity, and involved an interactive computer program for assessment and goal-setting, and counselling with a physician and trained health counsellor. The focus of the trial was on whether the program improved physical activity and dietary behaviours among adolescents. Participants were assessed at pre-intervention and at 6 and 12 months, and 657 adolescents (median age of 13 years, 53% female) had data available at each of these measurement occasions. Huang and colleagues reported on the outcomes of self-esteem, body image, and BMI kg/m^2. For the outcome of body image, there were no significant changes over time for boys or girls in either the intervention or control condition, and there were no differences across the groups at any time point. The same was true of self-esteem for girls, but boys in both conditions experienced a significant improvement over time. Girls in the intervention condition who lost or maintained body weight over the study period had improvements in their body image over time, in contrast to those who gained weight, whose body image remained stable over time. Weight loss or maintenance was not associated with any changes in self-esteem over time for girls, or any significant between-group differences. In contrast, no effect of time or weight status was observed on body image for boys, but overall, boys who participated in the intervention experienced gains in self-esteem over the course of the study. The obesity intervention was not associated with any appreciable change in self-esteem or body image satisfaction among males generally or females whose weight increased, but participation improved body image among girls that lost or maintained weight. It is important to note that this obesity intervention program was not associated with any increases in Eating Disorder risk among the risk factors measured.

Austin, Kim, Wiecha, Troped, Feldman, and Peterson (2007)[96] evaluated data from an obesity prevention program undertaken within 13 middle schools to determine the impact on the incidence of disordered eating behaviours, specifically, purging or laxative/diet pill use. Schools were randomised to control or intervention, which involved implementation of the ***Planet Health***[97] curriculum and a school framework, ***School Health Index for Physical Activity and Healthy Eating***[98], and named the ***5-2-1 Go!*** program, to promote physical activity and nutrition within the school environment. The program was implemented for 19 months, and 1 664 of the original cohort of 1 839 middle school students (90.5%) completed assessment at endpoint and were considered the longitudinal

sample. Students who reported disordered eating behaviours prior to the intervention or had missing baseline data on disordered eating or sex were excluded from data analysis, leaving 1 451 students (52% girls). At the endpoint assessment, 4% of girls in control schools and 1% of girls in intervention schools reported onset of purging or laxative/diet pill use. Estimation of the odds ratio indicated that the likelihood of developing disordered eating behaviours was reduced by two-thirds for girls in the intervention group compared to control. The protective impact of the program was not observed for boys, of whom 3% in control schools and 2% in intervention schools developed disordered eating behaviours.

Psychoeducation

Psychoeducation programs aim to provide education and information on social, cultural, and biological Eating Disorder risk factors. Topics covered may include physical changes associated with puberty, healthy eating, body image, social pressure for thinness, peer pressure and teasing, and attitudes toward food and meals. Some psychoeducation programs include discussion of the nature of Eating Disorders. The programs may be designed for different audiences, such as teachers or students. When delivered to a student audience, the facilitator is generally given background information on Eating Disorders and their prevention.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

McVey, Gusella, Tweed, and Ferrari (2009)[99] evaluated a web-based package for teachers and health professionals, The Student Body: Promoting Health at Any Size[100], in recognition that education and health professionals can potentially modify crucial Eating Disorder risk factors. The content of the program spans the domains of media and peer pressure, nutrition and healthy eating, physical activity, teasing, adult role models, and school climate and physical environment. Teachers and public health practitioners (n = 167) were recruited to participate in the study and those in the intervention condition were given 60-day access to the web-based program, while those in the control condition did not have access to the program. Participants were assessed on knowledge and attitudes on a range of variables relevant to Eating Disorders and Eating Disorder risk factors at baseline and at the end of the intervention period. The program was effective in improving teachers' knowledge of facts about dieting, and in improving efficacy to fight weight bias among the health practitioners, though limited change was observed on the array of other factors measured.

Despite the lack of significant shifts in knowledge that occurred with delivery of the prevention program, the study is unique because it represents the first evaluation of a web-based program aimed specifically at teachers and health professionals, as opposed to mid-adolescents or an indicated population. This approach warrants further investigation.

Self-Esteem Enhancement

Self-esteem enhancement programs aim to build skills to enhance self-esteem, a risk factor for Eating Disorders. Influences on body image are explored and strategies to develop and maintain a positive body image are given, such as seeking positive feedback from others, challenging stereotypes, building relationship and communication skills, and identifying personal strengths and sources of self-esteem.

One systematic review (summarising two RCTs) and one RCT (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

Pratt and Woolfenden reported on one pooled analysis of two RCTs (O'Dea & Abraham, 2000; Wade, Davidson, & O'Dea, 2003)[86,101] examining self-esteem enhancement. Both trials were

conducted among Australian students in early-to-mid adolescence, and the age range of participants was 11 to 14 years in one study (n = 470)[101] and a mean of 13 years in the other[86]. The intervention programs evaluated were ***Everybody's Different***[88] and the ***GO GIRLS! Program***[86]. The control groups were classes-as-usual. The pooled analysis reported no significant difference between intervention and control groups on self-evaluations of close friendships (standardised mean difference = -.01, 95% confidence interval = -.09 to .06) or social acceptance (standardised mean difference = -.03, 95% confidence interval = -.10 to .04). In one RCT[101], the intervention condition showed significantly greater improvement on self-concept, body dissatisfaction, and self-rating of physical appearance as perceived by self and others (this condition improved and the control condition deteriorated), though the latter two differences were not maintained to the 12-month follow-up. No between-group differences were observed over the course of the study on drive for thinness, interoceptive awareness, or proportion of students who reported currently trying to lose weight. The control group experienced a significant reduction in percent ideal body weight over time, while the intervention group experienced a significant increase. Both groups had equivalent proportions of post-menarchal females and post-pubertal males at 12-month follow-up. In the other RCT[86] there were no significant differences between the control and self-esteem intervention condition over time on weight concern, shape concern, dietary restraint, perceived close friendships, perceived social acceptance, and self-evaluation of behavioural conduct. The control condition perceived themselves as having significantly greater scholastic competence at 3-month follow-up compared to the self-esteem condition. Overall, the self-esteem program was ineffective in reducing specific and general Eating Disorder risk factors in the study sample relative to the control condition or an active comparator of ML.

Level II Evidence

Ghaderi, Martensson, and Schwan (2005)[102] compared the 9-week program **Everybody's Different**[88] to classes-as-usual control among 164 preadolescent schoolchildren. There were no significant condition × time interactions, indicating no differences in rate of change on any outcomes between the two groups from pre-intervention to post-intervention. The conditions did not significantly differ on any of the outcomes over the course of the study. Both conditions experienced pre-post improvement on dieting, restricting and purging, food preoccupation, eating attitudes and behaviours, and depression, but no change in anxiety, self-concept, oral concern, weight concern, and actual-ideal weight discrepancy. The study findings did not support the efficacy of the self-esteem enhancement program.

Selective Prevention

Cognitive Behavioural Therapy

CBT programs encourage individuals to adopt helpful, balanced attitudes on body image, eating, and weight, and seek to reduce the importance placed on body shape and weight for defining one's success and self-worth. CBT programs aim to modify thinking styles and behaviours that place an individual at risk for developing an Eating Disorder. They may cover topics such as challenging unhelpful thinking and attitudes about body shape and weight, the physical and psychological effects of dieting, sociocultural and media pressure to be thin, and balanced nutrition and physical activity.

Four RCTs (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

An RCT conducted by Abascal, Bruning Brown, Winzelberg, Dev, and Taylor (2004)[103] investigated the effectiveness of the computer-based program ***Student Bodies***[104] delivered over 6 weeks to randomly allocated classes in a selective or indicated prevention format. Female secondary school students aged 13 to 16 years ($n = 78$) were screened prior to the start of the program and categorised as either high-risk/high-motivated ("hrhm") or high-risk/low motivated, low-risk/low-motivated, and low-risk/high-motivated ("other") on the basis of scores on a weight and shape concern scale and a motivation measure. The objective of the study was to determine if "hrhm" students would benefit more from participating in program content given the assumption that they were likely to experience the program in a more supportive, online environment, and with 'like-minded' peers. Results indicated that "hrhm" students improved significantly from pre-to-post on some Eating Disorder outcomes but not others, and that improvement was largely unaffected by whether they received the program in a universal or indicated format, although there was a trend toward greater improvement among those who received the program in the universal format. The students in the "other" category that received the program alone or within the universal format showed almost no improvement on Eating Disorder outcomes, with effect sizes ranging from .05 to .33.

Low, Charanasomboon, Lesser, Reinhelter, Martin, Jones, and colleagues (2006)[105] conducted a study to compare ***Student Bodies***[104] with modifications to the delivery format. Female college students ($n = 72$) were randomised to control or one of three versions of the intervention program with either a clinically moderated discussion group, an unmoderated discussion group, or no discussion group. The type of control group was not described. The program lasted 8 weeks and completers ($n = 61$) were followed up 8 to 9 months after post-test assessment. Outcomes assessed included drive for thinness, shape and weight concern, body dissatisfaction, and bulimia concerns. Differences between the intervention groups at post-test and follow-up were very modest with outcomes marginally favouring the condition with the unmoderated online discussion group. Based on this finding, the researchers collapsed the three intervention groups together and compared this amalgamated group to control. Compared to control participants, those receiving Student Bodies achieved significantly lower scores and a greater rate of improvement on drive for thinness and body dissatisfaction over the duration of the study. There were no significant differences between the two groups in scores or rate of change on the measure of bulimia concerns. Weight and shape concerns remained stable in the intervention group and increased over time in the control group. The overall study findings are consistent with previous research showing that the program was associated with improvement and a protective effect on Eating Disorder-related outcomes relative to control, yet indicated that the inclusion of therapist moderation in the online discussion groups conferred no additional benefit on outcome.

Jacobi, Morris, Beckers, Bronisch-Holtze, Winter, Winzelberg and colleagues (2007)[106] conducted an RCT to determine whether the 8-week computer-based ***Student Bodies***[104] program could be successfully transported to a German population. The package was translated and adapted to make it culturally relevant and 100 female college students who wanted to improve their body image were randomly assigned to the intervention or wait-list control conditions. Of the full sample, 78% were assessed at baseline as low-risk and 22% as high-risk based on a validated cut-off on a measure of weight concern. The results for the full sample are discussed here and the results for the high-risk sample are discussed in Chapter 4. At post-test, the intervention group was superior on restraint, drive for thinness, and weight concern, and there were no differences between groups on BMI kg/m^2, body dissatisfaction, general psychological symptoms, or knowledge about the content of the program. At 3-month follow-up, there were significant between-group differences favouring the intervention condition on drive for thinness

and knowledge about the program content only. Effect sizes for the intervention group for the range of outcomes at follow-up were modest only. Consistent with other research, the findings indicated that the preventative intervention produces change on important risk factors and Eating Disorder warning signs in women considered to be at higher-risk. The results also support the feasibility of transporting efficacy-support internet-based prevention programs cross-culturally.

Doyle, Goldschmidt, Huang, Winzelberg, Taylor, and Wilfley (2008)[107] randomised 80 overweight adolescents aged 12 to 17 years to a 16-week program of usual care or the computer-based program ***Student Bodies 2*** [unpublished program], an adaptation of the original version that was designed to help overweight adolescents lose weight (focus of initial 8 weeks) and to promote positive body image (focus of latter 8 weeks). Usual care involved basic handouts on nutrition and physical activity with no behavioural weight loss strategies. The improvement in BMI kg/m^2 was significantly greater for those in the intervention condition from pre- to post-test, but there were no differences between conditions from pre- to follow-up, with a trend for both conditions of increased BMI kg/m^2 between post-test and follow-up. There was a significant pre-post increase in dietary restraint for the intervention condition but not the control condition, and both groups reported a significant decrease in shape concern between baseline and follow-up, though this reduction was significantly larger in the usual care condition. There were no other differences on remaining outcomes of eating concern, weight concern, and binge eating and vomiting frequency. The authors concluded that the program was "modestly effective for weight control in the short term and that Eating Disorder risk factors were not significantly affected either positively or negatively" (p. 177).

Cognitive Dissonance

Cognitive dissonance-based programs target personal beliefs about the importance of being thin and the thin beauty ideal; a significant Eating Disorder risk factor. The rationale underlying this approach is that belief in the thin beauty ideal can be weakened through activities that encourage the individual to adopt an "anti-thin ideal" stance (e.g., exploring the costs associated with pursuing extreme thinness). The dissonance and psychological discomfort created by holding conflicting views leads to a shift in attitude to restore consistency, with the result being a weakened belief in the importance of the thin beauty ideal.

Six RCTs (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Wiseman, Sunday, Bortolotti, and Halmi (2004)[108] compared a 6-session cognitive-dissonance based intervention to an attention control among 188 female secondary school students (50 located in the United States, 138 located in Italy). At post-test, there were no significant differences between conditions on perfectionism, self-esteem, interoceptive awareness, interpersonal distrust, body dissatisfaction, maturity fears, hunger, restraint, and disinhibition. There was a significant intervention effect on drive for thinness, although only among the Italy-based students.

Becker, Smith, and Ciao (2005)[109] compared ***Cognitive Dissonance (Stice version)*** [manual subsequently published[110]] to psychoeducation on the thin ideal [unpublished protocol], with a third study arm of wait-list control. The study aimed to extend findings of an earlier trial which had been conducted to differentiate the relative effectiveness of the structured activities of the CD approach ("active" components) with the educational content of the CD

approach ("passive" components). The original trial found that both interventions were effective in reducing dietary restraint, eating psychopathology, and body dissatisfaction, among at-risk female sorority members, and that the active, but not the passive treatment modality, was associated with improvement on additional relevant outcomes. In the 2005 study the authors extended the previous research by incorporating a wait-list control group and including both low- and high-risk female college sorority students. No difference was found between the active and passive conditions over time (pretreatment, posttreatment, 1 month follow-up) on restraint, eating pathology, or body dissatisfaction, though both conditions improved significantly compared to the control condition. There was no significant difference between the active and passive conditions on thin-ideal internalisation over time[3], but only the active condition had superior change on thin-ideal internalisation relative to the control condition. There were no differences across outcomes as a function of low- or high-risk status. In summary, both interventions were superior to "no-treatment" in terms of reducing eating pathology and particular Eating Disorder risk factors, with the active condition showing greater benefit than the passive intervention.

Becker, Smith, and Ciao (2006)[111] compared CD to ML [both modified from the ***Cognitive Dissonance (Stice Version)***[110] program] among 80 female college sorority students. The interventions were facilitated by trained peers and comprised two 2-hour sessions. Analyses were conducted on time (baseline, post-intervention, 7 week and 8 month follow-up), condition, and condition × time effects. A significant condition × time interaction emerged on dietary restraint, thin-ideal internalisation[3], and body dissatisfaction, but not eating pathology, and significant time effects emerged on all measures. Overall, both groups showed significant improvement on outcomes over time, with the rate of change in outcomes varying between the groups among the different time point comparisons. The researchers did not conduct post hoc analyses on the interaction effects, making it difficult to interpret comparative outcomes. Inspection of mean scores over time suggested that the ML participants did not maintain intervention gains as well as the CD participants. Effect sizes provided at the two follow-up points suggested small to moderate intervention effects on outcomes for the CD condition and negligible to small intervention effects for the ML condition, suggesting that CD outperformed ML and was associated with lasting gains on characteristics that increase risk for Eating Disorders.

Becker, Bull, Schaumberg, Cauble, and Franco (2008)[112] conducted a trial comparing CD to ML [both modified from the ***Cognitive Dissonance (Stice Version)***[110] program] with the aim of replicating the findings of the earlier 2006 trial among a larger sample and exploring the impact among females at high- and low-risk for an Eating Disorder. Two-session programs with sessions spaced weekly were administered to 188 female college sorority students. Although the study participants were from a selective sample, the authors identified low- and high-risk students on the basis of body dissatisfaction scores at baseline, and included risk status as a moderator in analyses, and reported results separately for low-risk and high-risk (i.e. indicated) participants. When risk status significantly predicted an outcome, outcomes for the whole sample (i.e. selected sample) were not reported on by the study authors. Risk status significantly predicted restraint, suggesting that the low- and high-risk members responded differently to CD and ML over the course of the study. High-risk individuals that received ML showed greater improvement in restraint than low-risk individuals, and high- and low-risk individuals that received CD showed a similar rate of improvement over time. Effect sizes on outcomes for these groups of individuals were generally in the small to moderate range, with the exception of low-risk individuals in the ML condition who worsened between the 7-week and 8-month follow-up, demonstrating restraint at a level higher than at baseline.

3 *Thin-ideal internalisation* refers to the importance an individual places on the societal appearance standard of thinness, including awareness of the "thin body ideal" and the desire to emulate this body standard.

Thin-ideal internalisation improved in all groups from baseline to 7-month follow-up, however those at high-risk had significantly higher internalisation over time. There was a significant condition × time × risk status interaction on body dissatisfaction and bulimic pathology; low- and high-risk participants in CD improved equivalently; and high-risk participants improved more with ML than low-risk participants. Body dissatisfaction was significantly higher in the high-risk participants over the course of the study compared to low-risk participants. At the follow-up points, CD was associated with somewhat higher effect sizes than ML on the outcomes for low- and high-risk participants combined.

An RCT conducted by Green, Scott, Diyankova, and Gasser (2005)[113] compared a 2-week program of CD delivered at a "high" or "low" level [unpublished protocols] to a no-treatment control. The high dissonance condition participated in a CD-based approach that involved a high input of effort, public attitude expression, and the perception that participation was voluntary. The "low" dissonance approach involved activities requiring less effort, private attitudes, and the perception that participation was less voluntary. Participants were 155 female college students who were randomised to one of the three conditions. Those in the experimental conditions participated in two face-to-face sessions with various CD-based activities. Participants were evaluated at post-intervention and 4-week follow-up using a measure of global Eating Disorder psychopathology. Although global Eating Disorder psychopathology was significantly higher at post-test among those in the "high" condition versus those in the "low" condition, there were no significant differences between the active conditions and the control condition. Therefore, the intervention did not effectively reduce individuals' Eating Disorder psychopathology, such as weight and shape concern, dietary restraint, and concerns about eating, relative to no-treatment. However, a significant limitation of the study was that no baseline measurements on outcomes were collected, therefore conditions could not be statistically equated on baseline characteristics, and, importantly, the outcomes could therefore be artefacts of differences in baseline severity.

Media Literacy

ML programs aim to analyse, discuss, and critically appraise media messages. They explain how images are digitally altered to enhance the thinness of models and encourage critical evaluation of media messages related to thinness. They teach advocacy and activism skills to counter unhelpful media messages.

One systematic review (summarising two RCTs) and three RCTs (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

Pratt and Woolfenden reported on one pooled analysis of two RCTs (Neumark-Sztainer, Sherwood, Coller, & Hannan, 2000[114]; Kusel, 1999[115]) examining ML. One RCT compared the ML program ***Free to be Me*** [unpublished protocol] to a stress management control condition[114], and the other compared ML to a no-intervention control condition[115]. Participants were 226 female scouts[114] with a mean age of 10 years and 172 female preadolescent students[115] with a mean age of 10 years (as cited in Paxton[116]). Both studies reported on the effect of these programs at follow-up (between 3- and 6 months post-intervention). Girls who received ML were significantly less likely to internalise the thin ideal or accept dominant sociocultural attitudes related to appearance compared to girls who did not receive any training in ML (standardised mean difference = -.28, 95% confidence interval = -.51 to -.05).

In the original RCT among girl scouts, there were no significant differences between intervention and control at post-intervention or 3-month follow-up on a range of dieting behaviours. Girls in the intervention condition had a marginally, but significantly higher acceptance of a range of body sizes at post-intervention, though this did not continue to 3-month follow-up. Girls in the intervention condition had superior self-efficacy to influence weight-related social norms at post-intervention and follow-up. At follow-up, there were significant between-group differences favouring the intervention group on internalisation of the thin ideal.

Level II Evidence

Becker, Smith, and Ciao (2006)[111] compared the efficacy of ML and CD [both modified from the ***Cognitive Dissonance (Stice Version)*** program] among 80 female college sorority students. Trained sorority peers delivered the interventions over two consecutive weekly sessions. Analyses were conducted on time (baseline, post-intervention, 7-week and 8-month follow-up), condition, and condition × time effects. There was a condition × time interaction on restraint, with participants in CD experiencing a consistent reduction over time and those in the ML condition improving from pre- to post-intervention, then relapsing across the follow-up periods. Participants in the CD condition internalised the thin ideal less and became more body satisfied over the course of the study, while those in ML improved from pre- to post-intervention, and then reverted after the intervention. Eating pathology ameliorated in both conditions over the course of the study. There were no significant main effects for condition on any of the outcomes, however, effect sizes provided at the two follow-up points suggested small to moderate effects across outcomes for the CD condition and negligible to small intervention effects for the ML condition.

Becker, Bull, Schaumberg, Cauble, and Franco (2008)[112] compared a 2-session program of CD or ML among 188 female college sorority students. Both interventions were modified from the ***Cognitive Dissonance (Stice Version)*** program and were delivered by untrained, unpaid sorority peer leaders and participants completed assessments at baseline, post-test, 7-week follow-up, and 8-month follow-up. Individuals in each condition were classified as being at low- or high-risk for an Eating Disorder, based on a median split on a baseline measure of body dissatisfaction. Analyses of intervention effects over time suggested that low- and high-risk participants improved significantly on dietary restraint, thin-ideal internalisation, body dissatisfaction, and bulimic pathology with each of the interventions, but that those at high-risk improved significantly more with ML relative to low-risk cases. The researchers measured onset of Eating Disorders and reported that one individual in each of the conditions met criteria for EDNOS at 8-month follow-up. The findings suggest that ML and CD administered to a mixed group of individuals at low- or high-risk of Eating Disorders is associated with reduction of a range of Eating Disorder risk factors. Those at high-risk of an Eating Disorder experienced significantly greater benefits from the ML intervention relative to those at low-risk, but the individuals at low-risk also experienced significant benefits. The study indicates that delivery of the intervention by well-trained exogenous facilitators (i.e. sorority peer leaders), as opposed to doctoral-level psychologists who typically facilitate the interventions, is a feasible model of delivery.

In an Australian study, Wilksch, Durbridge, and Wade (2008)[133] compared the efficacy of two 8-lesson school curriculums targeting ML or perfectionism [unpublished curriculum], respectively, to control, among female secondary school students. Participants in the three conditions comprised 127 female mid-adolescents who were assessed at baseline, post-test, and at 3-month follow-up on a range of factors including dieting, shape and weight concern, media internalisation, perceived sociocultural pressure, perfectionism dimensions, and self-esteem. The ML participants experienced a comparable degree of change compared to control participants, while the perfectionism participants experienced some specific reductions in perfectionism domains. The degree of improvement observed for those who underwent the perfectionism program was higher among those at high-risk for an Eating Disorder.

Multicomponent

Multicomponent is a label used for the purpose of this review to describe programs that utilise a combination of approaches to target risk factors. For instance, a multicomponent program might incorporate ML, CBT, and self-esteem enhancement strategies, as opposed to using one predominant approach.

Four RCTs (post-2003) evaluated a multicomponent prevention program and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

McVey, Davis, Tweed, and Shaw (2004)[117] evaluated the efficacy of a school curriculum, ***Every BODY is a Somebody***[91], designed to target a range of Eating Disorder risk factors. The program was multifaceted and contained ML training, strategies for self-esteem enhancement, psychoeducation about shape, weight, healthy eating, and physical activity, and stress management with an emphasis on communication and social-problem solving to mitigate the impact of stressors on body image. Schools were randomly assigned to the intervention or to a control condition, and 258 female preadolescent students (mean age of 10 years) were assessed at baseline, 1 week after the intervention, and at 6-month and 12-month follow-up. Outcome measures included body image, self-esteem, eating attitudes and behaviours, and perfectionism. There was a significant group × time interaction on body image, with post-hoc testing indicating that the intervention group had significantly higher body image satisfaction at post-test compared to the control group, however this was not maintained to 6-month or 12-month follow-up. At 12 months, body image satisfaction had reduced to lower than the control group. The intervention condition experienced greater improvement in self-esteem over the course of the study relative to the control condition. Dieting reduced to a greater extent in the intervention condition, in particular, the intervention group experienced a significant decrease from baseline to post-test which was maintained at both of the follow-ups, and had a significantly lower degree of dieting at post-test compared to the control condition. Both groups experienced significant reduction in bulimic behaviours, self-oriented perfectionism, and socially prescribed perfectionism over the course of the study, and no changes were observed for the groups on a measure of oral control.

Franko, Mintz, Villapiano, Green, Mainelli, Folensbee, and colleagues (2005)[118] compared a 2-session CD-ROM prevention program, ***Food, Mood, and Attitude***[119] to an attention control among 240 female college students. Randomisation was stratified according to high- or low-risk status, determined by an Eating Disorder screening measure. Significant time x group x risk status interactions were found on outcomes related to internalisation of the thin ideal, shape concern, and weight concern, indicating greater improvement in intervention participants relative to control participants. However, improvement with the intervention appeared to be limited to high-risk participants only. Women that received the prevention program were more likely than women that participated in the control condition to reduce overeating and inappropriate use of compensatory methods (self-induced vomiting, or laxative or diuretic use). The findings suggest that the program was effective in modifying Eating Disorder risk factors among those at high-risk, but not at low-risk, for an Eating Disorder with a prevention approach that required minimal time commitment from participants. In addition, 97% of intervention participants rated satisfaction with the program as "very satisfied" or "extremely satisfied".

Favaro, Zanetti, Huon, and Santonastaso (2005)[120] evaluated the efficacy of a psychoeducation prevention program (although, inspection of the content of the program suggests that it contained additional elements such as ML, therefore it is described within the multicomponent section of this review)

[unpublished protocol]. The sample comprised 141 female older adolescents enrolled in vocational training (aged 16 to 18 years) who participated in 8 weeks of prevention or control. They were assessed at baseline and one year from baseline, and changes in key aspects of eating pathology and onset of new Eating Disorder cases were examined. At 1-year, participants in the prevention program were significantly less likely to have developed BN (0% versus 3%), and no differences were observed on incidence of AN, or sub-threshold AN or BN. Of those who were free from dieting at baseline, there was a greater likelihood of dieting abstinence at one year following participation in the prevention program versus control (3% versus 12%). There were no significant differences in terms of onset of weight control practices such as self-induced vomiting, laxative/diuretic use, and fasting. There were minimal between-group differences in change on other outcomes such as self-reported eating pathology outcomes, with the exception of symptoms of bulimia, which improved significantly in the prevention group and remained stable in the control group. This is one of the few studies to assess the impact of a prevention program prospectively on Eating Disorder caseness, rather than risk factors or discrete Eating Disorder symptoms. The interviewers who assessed caseness were blind to the intervention status of participants. The findings suggest that Eating Disorder risk can be reduced, and that exogenous trained individuals (i.e., teachers) can successfully deliver a prevention program.

Elliot, Moe, Goldberg, DeFrancesco, Durham, and Small (2006)[121] evaluated the efficacy of a disordered eating and body-shaping drug use prevention curriculum, ***Athletes Targeting Healthy Exercise & Nutrition Alternatives***[122], for female secondary school athletes. The 8-session scripted, coach-delivered curriculum contained psychoeducation, cognitive behavioural strategies, ML, and other components. Evaluation was conducted at baseline (immediately before sport season commencement) and within two weeks of the conclusion of the sports season. Experimental participants showed significantly reduced actual diet pill use, intentions to engage in vomiting to lose weight, intentions to use body-shaping drugs (diet pills and tobacco) following the intervention relative to control participants, and onset (e.g., "new" cases) of use of diet pills and athletic-enhancing substances (anabolic steroids, amphetamines, sports supplements) was significantly lower among intervention participants. Intervention participants demonstrated significantly greater improvements in strength-training self-efficacy, healthy eating behaviours, mood regulation ability, refusal skills, belief in the media, and perceptions of closest friends' body-shaping drug use, over the course of the program in comparison to control participants.

Obesity Prevention

Obesity prevention programs aim to reduce the incidence and prevalence of obesity by modifying obesity risk factors. Most typically, these programs target nutrition and physical activity. Only a minority of obesity studies have included measurement of Eating Disorder risk factors in their evaluation.

One RCTs (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Austin, Field, Wiecha, Peterson, and Gortmaker (2005)[123] examined the long-term impact of an obesity prevention program on Eating Disorder risk factors. Participants were 480 middle school students and the intervention involved implementation of the ***Planet Health***[124,125] curriculum. The study assessed participants at 21 months, and the data presented in this study came from a subset of female middle school students, who had complete pre- and post-intervention data, and reported no use of diet pills or purging at baseline (i.e., 480 of 1 560). At the 21-month point, 6.2% of girls in control schools and 2.8% of girls in intervention schools had onset of purging or diet pill use behaviours, a statistically significant difference. The same

outcome was investigated by segregating analyses according to baseline dieting behaviour. Of those who were 'dieters' at baseline, 7.7% in control schools and 8.8% in intervention schools reported onset of purging or diet pill use (a non-significant difference), and of 'non-dieters', 5.6% in control schools and .5% in intervention schools reported onset of purging and diet pill use (a significant difference). The intervention program conferred a protective benefit on these outcomes only for girls who were not dieting at baseline. An odds ratio analysis estimate suggested that 59% of new cases of eating-disordered behaviour in the control condition could have been prevented had control individuals received the prevention program.

One-Shot

For the purposes of this review, a one-shot prevention program describes any intervention delivered within a single-session format, irrespective of the type approach used. These studies have been consistently associated with lower treatment effects than multiple-session programs, hence are grouped separately.

Four RCTs (post-2003) evaluated a one-shot prevention approach (i.e., any intervention type delivered within a single-session format) and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

The aim of Roehrig, Thompson, and Cafri's (2008)[126] study was to examine the impact of Eating Disorder prevention messaging versus obesity prevention messaging on key outcomes. The study was conducted in recognition that some of the messages that society is exposed to from these two preventative fields are contradictive. For instance, Roehrig reported that "prodieting" messages perpetuated by the obesity prevention field suggest the importance for one's health and well-being of losing weight if overweight or maintaining a low body weight, of reducing portions and choosing lower-fat, lower calories foods to attain or maintain a low body weight, and of increasing physical activity. The "antidieting" messages promulgated by the Eating Disorders field tend to emphasise enjoying favourite foods in moderation without guilt, exercising moderately doing something that one enjoys, the dangers of dietary restraint, choosing portions by stopping when one feels full, and accepting a range of body shapes and sizes. The researchers used online health resources (e.g., United States Department of Health and Human Services, Centers for Disease Control, National Eating Disorders Association) to develop a one-shot messaging intervention representative of each field. Female undergraduates (n = 193) were randomly assigned to one of the intervention conditions or to control (exposed to messaging concerning flu prevention). Participants were assessed immediately prior to message exposure, which was conducted in a group setting in classrooms, and completed non-trait measures immediately after the intervention and trait measures at two weeks follow-up. Repeated measures analyses of variance indicated significant condition × time interactions on perceived pressure to lose weight (at follow-up: "obesity prevention" > "eating disorder prevention" = control), internalisation of the athlete ideal (at follow-up: "obesity prevention" = "eating disorder prevention" > control), and healthy eating (at follow-up: "obesity prevention" > "eating disorder prevention" = control); but not on drive for thinness, negative affect, body satisfaction, internalisation of the thin-ideal (general), dieting, bulimic symptoms, or exercise. Among the outcomes where no significant interactions were detected, there were significant time effects on drive for thinness, negative affect, and dieting, suggesting that all conditions experienced improvement over time. There were no changes across time on body dissatisfaction, thin-ideal internalisation (general), bulimic symptoms, and exercise. Univariate analyses of covariance controlling for baseline characteristics, showed significant differences between conditions at follow-up on perceived pressure to lose weight ("obesity prevention" > "eating disorder prevention" > control), dieting

intentions ("obesity prevention" > "eating disorder prevention" > control), internalisation intentions ("obesity prevention" > "eating disorder prevention" > control), and bulimic intentions ("eating disorder prevention" < control; "obesity prevention" = control and "eating disorder prevention"); but there were no significant between-group differences at follow-up on healthy eating intentions, exercise intentions, state body dissatisfaction, or state negative affect. The findings suggest that obesity and Eating Disorder prevention messaging differentially affect Eating Disorder risk factors.

In an Australian study, Dohnt and Tiggeman (2008)[127] examined the impact of exposure to a children's storybook, ***Shapesville***[128], which was authored by two psychology college students who received mentorship by leading Eating Disorder prevention experts (Professor Michael Levine and Professor Linda Smolak). The storybook is designed for young children and contains bright, engaging, illustrations, and the content focuses on accepting bodies of a range of shapes and sizes and on celebrating differences and special abilities. Female primary school students in Grade 1 and 2 ($n = 84$) were randomly allocated to the experimental (girls were read Shapesville in class) or control (girls were read a "control" storybook in class) condition. Interviews with the girls were conducted at baseline, post-test, and at 6-week follow-up. No significant effects of either condition were found on body image or desire for thinness at any time point. Girls in the experimental condition experienced significantly greater improvement on appearance satisfaction at post-test relative to the control condition, however this effect was not maintained at follow-up. Prior to the intervention, both conditions demonstrated underweight stereotyping, in that the majority believed that an underweight girl would be played with more by others, would be played with more by them personally, and would have more friends, relative to a normal weight girl. After the intervention, girls in the experimental condition shifted in these beliefs somewhat, and the control group did not, however the belief changes were not maintained to follow-up. Prior to the intervention, both groups demonstrated a high degree of overweight stereotyping, which at post-test and follow-up was unaffected by participation in either condition. Prior to the intervention, most girls reported that they wanted to look like television or pop stars. These beliefs decreased in both groups following the interventions, but more so within the experimental condition, a shift that was maintained to follow-up. Girls in the study were able to identify many special talents of sport, schoolwork, and activities such as singing, and were better able to do so after participating in either condition, but significantly more so in the experimental condition at post-test and follow-up. Girls in the experimental condition demonstrated a significant increase in their knowledge of the five food groups, which did not occur within the control condition. Every child ($n = 42$) in the experimental condition reported enjoying the book "Shapesville" 'a lot', and 40 reported enjoying this book 'a lot' at 6-week follow-up, indicating that the intervention was an acceptable, enjoyable means with which to promote at least short-term changes in body image, food knowledge, and identification of non-appearance domains that are linked to self-esteem.

In the context of National Eating Disorders Awareness week, Ridolfi and Vander Wal (2008)[129] examined the efficacy of a one-shot information session [unpublished protocol] designed to prevent Eating Disorders in women. The session provided information on body image, Eating Disorders, and addressed the portrayal of the female body in the media using ML strategies. Female undergraduate college students ($n = 81$) were recruited and randomised to the experimental condition or to a control condition, which instead received an information session on stress management. Individuals were assessed pre-intervention, post-intervention, and at 4-week follow-up, and analyses were conducted across this time period. Results showed no impact of the intervention on investment in physical appearance, degree to which one self-evaluates in terms of physical appearance, reasons for self-investment in physical appearance, degree to which body image affects quality of life, internalisation of the thin ideal, use of the media as an

information source, perceived media pressures, and internalisation of athletic figures. The effect sizes for these outcomes ranged from very small to small. One significant between-group difference was observed on body shape concern, favouring the experimental condition. Overall, there was little benefit associated with receiving the intervention, except for a reduction in concern about one's body shape.

Buchholz, Mack, McVey, Feder, and Barrowman (2008)[130] evaluated the efficacy of a preventative intervention, ***BodySense: A Positive Body Image Initiative for Female Athletes***[131] delivered to participants at gymnast clubs. Seven clubs were randomised to receive the intervention or control. The intervention involved a single-occasion workshop delivered to athletes and a separate single-occasion workshop delivered to parents and coaches, and materials to help participants to implement workshop advice. The workshop content addressed topics such as eating attitudes and beliefs, resisting pressure to diet, exercise for enjoyment, management of stress, self-esteem, attitudes toward body shape, and sport-life balance. The control condition received only the program prevention materials at the conclusion of the study. At post-intervention, athletes in the experimental condition reported significantly greater improvement relevant to the control condition on pressure to be thin. No significant change was apparent on self-reported outcomes of self-efficacy over dieting pressures in the sports club, body-esteem in relation to appearance, weight, and attributions, thin-ideal internalisation, awareness of a societal emphasis on appearance, and eating attitudes and behaviours. No significant intervention effects were found on parent-reported measures of perceived pressure for athletes within the club to be thin, beliefs surrounding thinness and success, and child self-efficacy over dieting pressures, or on parents and coach-reported measures of awareness of a societal emphasis on appearance and thin-ideal internalisation. The intervention did not significantly alter parents and coaches beliefs about body shape and weight, or promote significant changes in athlete body image-related outcomes, with the exception of perceiving a lower degree of pressure to be thin.

Boivin, Polivy, and Herman (2008)[132] manipulated positive or negative outcome expectancies regarding thinness [unpublished protocol] to determine whether the expectancies would predict dieting-related behaviours. Female college students (n = 63) were randomly assigned to a negative thinness expectancy condition (i.e. elucidation of thinness costs), a positive thinness expectancy condition (i.e. elucidation of benefits of thinness and costs of overweight), or an assessment-only control. At post-test and 4-week follow-up, there were significant differences between the experimental conditions on expectancies of rewards for thinness, with those in the negative expectancy condition endorsing fewer perceived rewards, yet neither experimental condition differed from control on this outcome. There were no differences between conditions at post-test or follow-up on drive for thinness. Individuals identified as "dieters" at baseline were significantly less likely to be classified as "dieters" at post-test and follow-up if they participated in the negative expectancy condition. Following the interventions, those in the negative expectancy condition were more likely than women in the other conditions to rate thin women as less attractive, and developed a more realistic and accurate definition of overweight relative to the other conditions. The study showed that manipulating negative outcome expectancies of thinness via the use of a cognitive-dissonance-based approach helped to modify reward expectancies and reduce dieting behaviour.

Perfectionism

Perfectionism interventions target the Eating Disorder risk factor of perfectionism and seek to reduce unhelpful perfectionistic beliefs and behaviours (e.g., performance checking or procrastination), and also help the person develop techniques for standing up to pressures from others to be perfect.

Level I Evidence

There is no level I evidence available.

Level II Evidence

In an Australian-based study, Wilksch, Durbridge, and Wade (2008)[133] compared a ML curriculum and a perfectionism curriculum [unpublished curriculums], to a control condition (classes as normal) among 127 female secondary students with a mean age of 15 years. Students were assessed at baseline, post-test, and at 3-month follow-up. There were minimal differences between groups at post-test, except that high-risk (high baseline shape and weight concern) students that received the perfectionism curriculum had lower personal standards (perfectionism domain) than those in the control condition. At 3-month follow-up, high-risk participants in the perfectionism condition had significantly lower concern over mistakes and personal standards relative to the control condition, and low-risk participants in the perfectionism condition had significantly lower concern over mistakes relative to the control condition. The findings suggested that ML had no impact upon outcomes in comparison to the other conditions, which is discrepant with earlier research showing evidence of the efficacy of this intervention approach. The researchers stated that this discrepancy could potentially be explained by differences in program content across studies, or because the perfectionism intervention may have been particularly potent within that particular study arm because perfectionism tends to have an onset at around 15 years of age.

Psychoeducation

Psychoeducation programs aim to provide education and information on social, cultural, and biological Eating Disorder risk factors. Topics covered may include physical changes associated with puberty, healthy eating, body image, social pressure for thinness, peer pressure and teasing, and attitudes toward food and meals. Some psychoeducation programs include discussion of the nature of Eating Disorders. The programs may be designed for different audiences, such as teachers or students. When delivered to a student audience, the facilitator is generally given background information on Eating Disorders and their prevention.

One systematic review summarised one RCT (Santonastaso et al., 1999)[134] that evaluated this prevention approach. Although this study targeted a selective population (i.e. female adolescents), the authors delineated the reporting of results by subgroup analysis on low- and high-risk status defined by degree of baseline Eating Disorder psychopathology, and did not amalgamate results, therefore trial results are presented in Chapter 4 only.

Level I Evidence

There is no level I evidence available.

Level II Evidence

There is no additional level II evidence available.

Self-Esteem Enhancement

Self-esteem enhancement programs aim to build skills to enhance self-esteem, a risk factor for Eating Disorders. Influences on body image are explored and strategies to develop and maintain a positive body image are given, such as seeking positive feedback from others, challenging stereotypes, building relationship and communication skills, and identifying personal strengths and sources of self-esteem.

One systematic review (summarising one RCT) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

Pratt and Woolfenden reported on an RCT (O'Dea & Abraham, 2000)[75] of a universal prevention delivered to male and female school students (aged 11 to 14 years). The program aimed to improve body image by building self-esteem, and involved nine weekly sessions of the ***Everybody's Different***[88] school-based curriculum. Although the program was universal, the researchers screened the sample at baseline and identified those at "high-risk" (116 of 470) for Eating Disorder development on the basis of low self-esteem and high anxiety scores on standardised measures. Assessments were conducted at baseline and at 3- and 12-months after baseline. Improvement in body satisfaction

at 3 and 12 months was observed among high-risk males and females, and drive for thinness improved significantly for females at 3 months but the effect was not significant at 12 months. Importance of physical appearance to self-concept remained stable in the intervention group from baseline to 3 months, but increased significantly over the same period among those in the control condition, who received usual classes. Importance of athletic competence to self-concept was significantly higher among those in the intervention group compared to those in the control group at 12 months. There was a significant difference between groups at 3 months on degree to which social acceptance was important to self-concept, with the intervention group showing a lower regard for this characteristic. At 12 months, close friendships were a more important determinant of self-concept among the intervention participants compared to the control participants.

Level II Evidence

There is no additional level II evidence available.

Summary of Research Findings

Table 4 summarises the universal and selective prevention evidence base as discussed more fully within in this chapter.

Table 4. Summary of Eating Disorder Universal and Selective Prevention Studies

Prevention Approach	Degree to Which Evaluated	Magnitude of Effect	Program Example
Universal prevention			
Cognitive-behavioural therapy	Moderate	Low	-
Media literacy	Moderate	Substantial	Media Smart
Multicomponent	Moderate	None	Healthy Schools-Healthy Kids
Obesity prevention	Some	Low	Planet Health
Psychoeducation (teachers)	Some	Low	The Student Body: Promoting Health At Any Size
Self-esteem enhancement	Moderate	Low	Everybody's Different
Selective Prevention			
Cognitive-behavioural therapy	Moderate	Substantial	Student Bodies
Cognitive dissonance	Moderate	Substantial	Stice version
Media literacy	Moderate	Moderate	-
Multicomponent	Moderate	Moderate	Everybody is a Somebody
Obesity prevention	Some	Low	Planet Health
One-shot	Moderate	None	-
Perfectionism	Some	Low	-
Psychoeducation	None	None	-
Self-esteem enhancement	Some	Low	Everybody's Different

Note: Degree to which evaluated: None = no Level I or Level II studies; Some = 1 to 2 Level II studies (RCTs); Moderate = > 2 Level II studies and/or Level I and II evidence available. Magnitude of effect at follow-up for Eating Disorder risk variables: None = no beneficial effect; Low = slight beneficial effect; Moderate = moderate beneficial effect; Substantial = substantial and persistent effect.

Universal Prevention Approaches

Universal Eating Disorder prevention programs are typically instigated prior to the two peak age-of-onset periods for Eating Disorders – adolescence and early adulthood, and, for convenience and transportability, have been classroom-delivered or computer-delivered through schools and colleges. Approaches that have been examined in RCTs include **cognitive-behavioural therapy**, **media literacy**, **multicomponent**, **psychoeducation**, and **self-esteem enhancement** programs. In addition, some researchers have conducted secondary data analysis on obesity prevention programs to determine the impact of these programs upon Eating Disorder risk factors and/or disordered eating – an important line of inquiry given concern that obesity initiatives may inadvertently increase Eating Disorder risk through the pathway of restrictive dieting.

Approaches that have had a "moderate" degree of evaluation include **media literacy**, **cognitive-behavioural therapy**, **multicomponent**, and **esteem enhancement**. Of these, **media literacy** was associated with a long-term reduction of risk. A large-sample Australian study conducted among secondary school students indicated preventative effects of **media literacy** persisting up to 30 months follow-up. This finding is of significance as it is the longest follow-up of a universal RCT prevention trial to date. Boys or girls that received the intervention experienced stronger, positive changes on Eating Disorder risk factors, such as self-esteem, weight and shape concern, body satisfaction, and dieting during the intervention period compared to their counterparts who received classes as usual, and some gains were maintained to 6- and 30-months follow-up. **Cognitive-behavioural therapy**, **psychoeducation** (teachers), **self-esteem enhancement**, and **obesity prevention** conferred a low degree of benefit, while the specific **multicomponent** programs that were identified had no benefit.

RCTs evaluating **cognitive-behavioural therapy** indicated minimal change in outcomes among the adolescents evaluated. In one study, primary school boys showed a greater improvement in overeating and self-esteem than students that did not receive the intervention. The specific content of the CBT interventions varied among studies, depending on the types of risk factors targeted.

For the **self-esteem enhancement** programs that have been examined, the Level I and II evidence summarised did not suggest a preventative effect on disordered eating behaviours or dysfunctional attitudes around weight, shape, or drive for thinness.

The RCTs that examined **multicomponent** programs did not show any substantial benefit; if benefits on Eating Disorder risk factors were present at post-intervention they were generally not maintained to follow-up. The studies assessed a range of outcomes such as disordered eating behaviours (e.g., dieting, binge eating, self-induced vomiting), Eating Disorder psychopathology (e.g., weight concern, body image), and additional risk factors (e.g., self-esteem, perfectionism, internalisation of media ideals), yet generally failed to discern short-term or durable preventative effects.

Health promotion programs for **obesity prevention** were examined in two RCTs included in this review and had "some" degree of support with a low magnitude of effect. One study found that an obesity prevention program reduced the incidence of purging and laxative/diet pill use among adolescent girls by two-thirds compared to no-intervention control, and another found minimal impact except for higher body satisfaction among adolescent girls that lost weight over the course of the intervention.

The RCT that evaluated **psychoeducation** delivered to teachers and examined teacher/school contextual risk factors as outcomes was not associated with any substantial benefit, though the outcome measures were not well-operationalised.

Selective Prevention Approaches

The selective prevention approaches that have had the greatest degree of evaluation and have been associated with the greatest magnitude of effect are **cognitive-behavioural therapy** and **cognitive dissonance**. Other approaches that have been associated with a moderate benefit are **media literacy** and specific **multicomponent** programs.

In all RCTs evaluating **cognitive-behavioural therapy**, the intervention was delivered in the format of a specific computer-based program called "Student Bodies". The program showed utility among female secondary and college students, such as reductions on drive for thinness and body dissatisfaction, with evidence of effectiveness up to 8 or 9 months post-intervention. An adaptation of the program for overweight adolescents was associated with a small, modest effect only, affecting few of the Eating Disorder risk factors examined, with some effects fading at the 4-month follow-up.

Many studies have evaluated a **cognitive dissonance** approach to Eating Disorder prevention, mostly based on the protocol developed by Stice and colleagues at the University of Texas. The rationale underlying this approach is that endorsement of the thin ideal can be weakened by encouraging adoption of an anti-thin ideal stance; the dissonance and psychological discomfort created by holding conflicting views leads to a shift in attitude to restore consistency. RCTs in female college student populations have shown benefit in comparison to no-treatment control on outcomes such as restraint, eating pathology, body dissatisfaction, and thin-ideal internalisation, with some benefits durable to one-year follow-up. In studies that compared CD to ML, stronger, more durable effects tended to be associated with CD. Although many RCTs supported a prevention effect, some RCTs did not, an inconsistency that requires further attention. A benefit of the CD approach is that it is short – a 3-session version is typically evaluated in efficacy trials which has been extended to a 4-session version for evaluation in effectiveness (i.e. "real-world") trials – and the program was recently manualised for facilitators[110].

Evaluations of **media literacy** have used a range of selected samples, including female girl scouts, early adolescents, secondary school students, college students, and sorority members. The findings have been mixed; with some studies reporting significant improvement on particular risk factors and others reporting no benefit. Among young girls (aged approximately 10 years), there is evidence that this approach reduces internalisation of the thin ideal. ML was inferior to CD in a study among sorority members, with those receiving the interventions showing reduced dieting, thin-ideal internalisation, eating pathology, and body dissatisfaction to post-treatment and 7-week follow-up, but only those who received CD had durable effects to 8-month follow-up. In another trial among sorority members conducted by the same research team, ML produced small to moderate prevention effects at 7-week and 8-months follow-up, but outcome depended on low- or high-risk status for an Eating Disorder. Although some studies have reported a benefit of ML, an Australian study among secondary school females did not find a benefit.

Multicomponent prevention programs have been evaluated with female preadolescents, older adolescents, college students, and adolescent athletes. The content of the programs has varied depending on the development strategy and risk factors targeted. Overall, these programs appear to have a moderate degree of benefit.

One RCT identified reported that an **obesity prevention** school curriculum was effective in preventing use of extreme weight control methods among a selective sample of female secondary school students.

Interventions aimed at **self-esteem enhancement** or **perfectionism** have resulted in change on particular domains of these risk factors, however, all of these approaches have been relatively less evaluated in comparison to other approaches, and evaluated on a limited set of selective populations.

The effect of **one-shot** (i.e., single-session) intervention programs has been negligible or small, and studies investigating these approaches generally do not incorporate follow-ups or the follow-up is short-term without substantial preventative impact.

Key Issues

The "Golden Rule" of Eating Disorders Prevention: "First, Do No Harm"

Inappropriate content within Eating Disorder prevention initiatives can potentially increase disordered eating or Eating Disorder risk factors in recipients. Authorities in the field of Eating Disorders have expressed concern that programs using education-based interventions (i.e., directly teaching individuals about Eating Disorders and symptoms of Eating Disorders) may be harmful to participants. This sentiment is expressed by professionals in the field and community-based organisation workers who have heard families and individuals recount stories about unhelpful triggers of Eating Disorder development. For instance, descriptions of the symptoms of Eating Disorders and morally-loaded eating messages (e.g., "good" versus "bad" foods), could negatively impact upon the child who is vulnerable to an Eating Disorder by promoting methods to achieve thinness, which is overvalued by these individuals, and invoking fear of food and weight gain. Unhelpful information provided to children and adolescents, though typically well-intentioned, has the potential to cause harm. All prevention initiatives require thorough piloting and evaluation to ensure that they are safe.

Promising Approaches Less Readily Evaluable with Controlled Trial Methodology

There are promising mental health promotion and prevention initiatives in use in specific contexts around the world, yet because they are more challenging to evaluate with RCT methodology, or because they tend to be disseminated naturalistically without built-in evaluation, they "fall out" of reviews that adopt a level of evidence classification scheme. Examples relevant to the Eating Disorder field include public awareness campaigns, training and education programs, and whole-of-school health promotion programs. These initiatives can potentially make a powerful and important contribution to the community.

Mental health literacy interventions, such as public awareness campaigns, have the capacity to communicate strong health promotion messages to the community that can promote knowledge and alter attitudes and behaviours. *Beyondblue*: *the national depression initiative* is one campaign example that appears to have had a large impact on Australian society's awareness, understanding, and destigmatisation of depression. Given that body image is the number one concern among youth in Australian society, the incidence of disordered eating is increasing, and that Eating Disorders are stigmatised, poorly understood and poorly recognised by the public, it would be valuable to disseminate a planned, evaluable public awareness campaign across the Australian community. Public awareness campaigns can have a far-reaching effect on attitudes and behaviours that culminate in a healthier society. Arguably, the Victorian Government's Office of Youth Positive Body Image Strategy has been one of the most commendable initiatives to date. The key message in the "*Real Life Doesn't Need Retouching*" campaign targets media awareness and literacy, which empirically reduce Eating Disorder risk. Other elements of the Victorian strategy have included Positive Body Image grants to support resources and education on body image in the community, and a Media Code of Conduct on Body Image to reduce exposure to idealised, unrealistic body images, and prevent poor body image and disordered eating. Although not a direct aim of this initiative, the media code appears "informally" to have raised public awareness of the risks associated with being underweight and ML regarding media manipulation of body images. Mental health literacy initiatives can play a pivotal role in reducing stigma. For instance, if the public knew that Eating Disorders are

highly heritable, biologically-based illnesses (i.e., 31% to 76% of the cause of AN, 28% to 83% of the cause of BN, and 17% to 39% of the cause of BED is genetic[62]) shame might be reduced and helpseeking initiated earlier. All key messaging and public awareness campaigns related to body image and Eating Disorders should undergo rigorous evaluation, including *a priori* evaluation (e.g., focus groups, etc), given the potential for causing inadvertent harm.

Training and education for health and education professionals is an essential strategy for health promotion and prevention of Eating Disorders. This intervention approach would support objectives across the entire spectrum of care across promotion, prevention, identification and early intervention, and treatment standards and strategies. Training on causes, risk factors, identification, screening, diagnosis, and referral and management options could improve mental health literacy specific to Eating Disorders among professionals groups, contributing to a healthier, informed community.

Whole-school programs, as opposed to classroom-based programs, have not been well-evaluated. Whole-school programs move beyond the students and facilitator (typically an exogenous facilitator), to encompass the whole school community, including a range of individuals involved in the young person's socialisation (e.g., teachers, school administration, health, and fitness personnel). School-based programs offer a broader psychosocial platform with which to reduce Eating Disorder risk that does not just rely on individual cognitive or behavioral change, but can incorporate substantive, positive adaptations to school policy and climate. Whole-school programs may represent a valuable method for reducing disordered eating and Eating Disorder risk.

Integration and Partnership with the Obesity Sector and Related Sectors

There is an imperative and substantial need for an integrated, partnered approach to Eating Disorder prevention. The Eating Disorder and obesity sectors are closely related and may disseminate potentially conflicting messaging and it is unclear whether messaging from one field inadvertently increases risk of illness in the contralateral field. Ideally, obesity and Eating Disorder prevention and public messaging initiatives should be integrated, with experts from each field involved in development and evaluation. Obesity initiatives currently in use should be evaluated for impact on Eating Disorder risk and symptomatology. The Eating Disorder and obesity sectors require clear, integrated, health-promoting public messaging. Partnerships between the Eating Disorder sector and other related sectors or overlapping initiatives, such as those in the area of body image, are important to consider also.

Integration with Existing Mental Health Frameworks

Mental health promotion programs are currently in use across many Australian schools (e.g., MindMatters), yet outcomes related to Eating Disorders are rarely evaluated. Mental health issues that are the focus of evaluation of these programs, such as depression, anxiety, substance use, and externalising behaviours, are commonly comorbid with Eating Disorders. Incorporating outcome assessment into existing paradigms and structures to evaluate benefit would convey a richness of prevention-relevant information that is presently lacking. While these programs are unlikely to confer as optimal a benefit to Eating Disorder prevention compared to programs where content is specifically designed to reduce Eating Disorder risk, they may nonetheless be prophylactic. Existing school-based programs and initiatives could also be used as frameworks for integrating Eating Disorder-specific prevention theory and evidence (e.g., as additional modules), rather

than "re-inventing the wheel" and burdening teachers with the onerous task of implementing multiple, separate classroom-based initiatives.

Research Gaps and Directions

Prospective and repeated follow-up over months and years is required to determine whether the benefits of prevention programs are durable and cost-effective. This is an area of research that is not generally well attended to in this field, in addition to assessing magnitude of risk reduction over time. Understandably, this poses practical and methodological challenges because of the generally small sample sizes used and the low incidence of Eating Disorders. These issues reduce the statistical power of analyses, so that even if a program was effective at reducing Eating Disorder incidence the analyses would have difficulty detecting this. The resource challenges inherent in following-up and assessing the diagnostic status of participants in a cohort is a further appreciable barrier.

Evaluating whether Eating Disorder programs reduce Eating Disorder incidence and disordered eating (i.e., behavioural features of Eating Disorders) is another method of assessing program effectiveness, yet researchers have been reticent to evaluate this because it necessitates exposing participants to knowledge of Eating Disorder symptoms via the evaluation measures, which arguably could increase Eating Disorder risk in some individuals by informing them about unhealthy weight control practices. While evidence to date suggests this may not be the case[135], this question requires further evaluation. It would be important to know whether prevention programs reduce the incidence of Eating Disorders and prevent disordered eating.

Further research into endophenotypes for Eating Disorders is required. Endophenotypes are measurable components unseen by the unaided eye along the pathway between genetic make-up and disease. Endophenotypes are defined as being (i) heritable, (ii) co-segregating with a psychiatric illness in the general population, (iii) manifests in the individual whether or not illness is active), and (iv) found in non-affected family members at a higher rate than in the general population[136,137]. Proposed endophenotypes for Eating Disorders are perfectionism, obsessionality, drive for thinness, anxiety, negative emotionality, dysregulation of food intake, increased physical activity, problems with cognitive set shifting, and impulsivity[138]. The clarification of endophenotypes has important implications for prevention, as well as identification and early intervention, and treatment development.

Exploring the role of the facilitator in the outcome of prevention programs is an important research direction. Many efficacy trials use exogenous facilitators, such as doctoral psychologists trained in the theoretical principles underlying the program, rather than endogenous facilitators, such as school teachers or peer leaders, who inhabit the prevention participants' environment. It would be worthwhile exploring whether programs have comparable efficacy when delivered by endogenous versus exogenous facilitators, as this comprises a more ecologically valid, naturalistic dissemination approach. There is some evidence that CD interventions can be effectively delivered by endogenous facilitators, though they tend to produce attenuated outcomes[139].

Whole-of-school programs have had minimal evaluation, yet involving the school community (i.e., teachers, administrators, health staff, students, parents) could convey a consistency in messaging and impact not afforded by classroom-based interventions alone, and would provide an opportunity for critical evaluation and enhancement of school policy and climate.

Peer-based prevention programs and initiatives have undergone insufficient evaluation, despite the consistent finding that peer influences (e.g., "dieting" talk, perceptions of the number of weight-loss strategies used by friends, degree of shape and weight concern among friends, friends' binge eating behaviours, peer investment in thinness, teasing about weight and shape, etc) are related to Eating Disorder correlates and indicators such as

body dissatisfaction, disordered eating, and dysfunctional attitudes and beliefs about weight, shape, and eating[140]. Prevention programs with a primary aim of modifying peer-based factors have not been rigorously evaluated. Preliminary Australian research on the peer-based program ***Happy Being Me***[141] showed promising outcomes[142].

Evaluation of program outcomes has generally been limited to program targets, yet there may be value in assessing the outcomes of individuals in the targets' immediate social environments, such as teachers or parents of children, if they have had involvement in the intervention process. Evaluation would ideally entail assessment of factors relevant to Eating Disorder risk (e.g., parental overconcern with child appearance, parental dietary practices, knowledge of media influence, knowledge of normal physical changes associated with puberty, etc).

Identification of clear, consistent and integrated, health-promoting messaging for the Eating Disorder and obesity fields is an important priority for future research. Research is needed to identify appropriate key messaging for the prevention of Eating Disorder symptoms, with consideration of the obesity field. The Eating Disorder and obesity prevention fields need to transition toward greater integration, partnership, collaboration, and sharing of expertise in order to enhance the achievement of respective aims. Partnership is necessary at each level of the health promotion spectrum, from promotion and prevention, to identification and early intervention, to standards and strategies for managing acute illness (obesity/Eating Disorders). Key messages, public awareness campaigns, and prevention programs for Eating Disorders require evaluation, particularly given the real possibility of inadvertent harm.

CHAPTER 4
FINDINGS II: IDENTIFICATION AND EARLY INTERVENTION

This chapter considers evidence available on the identification and early intervention of Eating Disorders, and includes a systematic review of Level I and Level II evidence for indicated prevention – generally understood as a form of early intervention.

Background for Early Identification

Full Syndrome

Individuals who are identified and treated early in the course of an Eating Disorder have a better chance of recovery compared to those with a longer history of illness[143,144]. This is particularly relevant among adolescents, where response to family-based treatment (FBT) for AN or BN is significantly better in individuals who are treated early in the course of the illness - a five-year follow-up found that 62% with an illness duration of less than three years had a good outcome compared to 21% with a good outcome among those ill for more than three years[145]. A follow-up of FBT for adolescents with AN[146] with an average illness duration of one year found that four years after treatment 89% were above 90% ideal body weight, 74% had eating attitudes within the normative range, and 91% of females had resumed menstruation.

Partial Syndromes

"Partial" Eating Disorder syndromes are subclinical conditions whereby an individual meets many, but not all diagnostic criteria, for a full syndrome Eating Disorder. These individuals might have a range of Eating Disorder disturbances including behavioural (e.g., fasting, self-induced vomiting, laxative misuse, binge eating), biological (e.g., ammenhorea), and psychological (e.g., extreme shape and weight concern).

Many rationales have been proposed for identifying individuals with partial Eating Disorder syndromes (for an excellent review see Le Grange & Loeb, 2007[147]), although the evidence base is limited. Burden (i.e., distress and impairment) in partial Eating Disorder syndromes, particularly those resembling AN, is often indistinguishable from the full syndrome. Some partial syndromes may be Eating Disorders in evolution that have not yet progressed to the full clinical level. It is a consistent finding that approximately 50% of individuals presenting for treatment of severe eating problems at specialist Eating Disorder services do not meet DSM-IV criteria for AN or BN[31,148]. Current assessment methods may not adequately detect some cases of full syndrome illness, therefore, it has been suggested that partial syndromes could be an artifact of poor assessment. Australian research which tracked a community sample of nearly 2000 adolescents over 10 years found that the presence of a partial Eating Disorder syndrome at first assessment was associated with a two to three times higher chance of depressive and anxiety symptoms, and a higher likelihood of substance misuse, in young adulthood[149]. More research is required to examine the morbidity and outcomes of those with partial syndrome Eating Disorders, and the impact of interventions for this subgroup.

Barriers to Care

Practical Barriers

Practical barriers to help-seeking include underrecognition of Eating Disorders in primary care, poor Eating Disorder literacy, and impediments to service access.

Research has shown that general practitioners frequently fail to identify Eating Disorders. This is particularly true of BN and EDNOS – which represent the majority of Eating Disorder cases. Individuals with these Eating Disorders are generally of average to above average weight and are more likely to be missed compared to AN, where low body weight and emaciation are distinctive characteristics. A United States study showed that less than 10% of individuals with BN or BED were recognised by general practitioners[150]. Individuals with AN are underrecognised too, with low rates of detection reported in studies from many countries[151]. An Australian study showed that nearly two-thirds of children aged 5 to 13 years with a newly diagnosed Eating Disorder had potentially life-threatening complications of malnutrition when first diagnosed[152].

This lack of recognition in primary care is complicated by the fact that a majority of people with Eating Disorders present seeking assistance for comorbid depression or anxiety symptoms, concerns of overweight, or because of the secondary medical complications of their illness rather than eating issues. United States data suggest that 71% of individuals with BN, BED, or partial syndromes identified via a general primary care sample had sought help from primary care for anxiety and depression symptoms in the previous 12 months, and within the same time frame only 12% had sought help for an "eating problem"[153]. Only one of the identified cases had ever been told by a health professional that they had an Eating Disorder. This is similar to United Kingdom epidemiological data, which showed that prior to Eating Disorder diagnosis, general practitioners had prescribed psychoactive medication to 45% and laxatives or diuretics to 27% of patients with BN[154]. Underrecognition is higher in populations less clearly at risk, such as men and young children.

Eating Disorder literacy refers to the knowledge, skills, and beliefs that enable the prevention, identification, and management of Eating Disorders. Gatekeepers are unlikely to have the capacity to intervene early without specialised training and education to enhance Eating Disorder literacy. Individuals with Eating Disorders, their families, and community members, will experience delays in identifying and responding to Eating Disorders if they have poor Eating Disorder literacy.

Impediments to service access include a lack of service availability, direct and indirect costs (e.g., transport), and distance to care. These barriers may be personal or systemically related to the broader health-care system.

Social and Emotional Barriers

Social and emotional barriers can be major obstacles to help-seeking. Negative attitudes exist in the community toward people with Eating Disorders (i.e., stigmatisation)[155,156]. This seems strongly connected to Eating Disorder myths, for instance, views that Eating Disorders are "self-centred" illnesses and "a choice". This is despite modern scientific understanding of Eating Disorders as complex, highly heritable, and biologically-based conditions (see Chapter 1). Through stigmatisation, individuals with Eating Disorders experience shame about their eating problem and have difficulty discussing the problem with others, including general practitioners.

Ambivalence toward accessing care is a typical experience among those with Eating Disorders, given that the illness can represent a coping structure for dealing with complex emotions and life events. Even when there has been substantial accumulation of morbidity the individual with an Eating Disorder may continue to deny illness. There is an emerging body of literature[157,158] accruing on the perceived pros and cons of Eating Disorders from the perspective of individuals with these illnesses, that may ultimately inform interventions to enhance motivation to seek and stay in treatment.

People with Eating Disorders may fear the ramifications of help-seeking. Some fear

weight gain as a result of treatment. In cases of underweight, treatment aims to restore weight to a healthy BMI range. Individuals who use compensatory behaviours may fear weight gain upon ceasing such behaviours (e.g., self-induced vomiting, laxative and diuretic misuse, excessive exercise for weight control). Some individuals may fear psychiatric hospitalisation or being labelled as "mentally ill" upon disclosing their illness.

Sociocultural and media messages about the importance of thinness comprise a significant barrier to help-seeking. Embedded in Western culture is a favourable regard for weight loss, and a corresponding unfavourable regard for weight gain. This milieu means that individuals in the early phases of progression to AN may be complimented on their slimming efforts, which encourages disordered eating and impedes recognition of the illness syndrome.

Screening Tools

If a patient presents to primary care with general psychological distress and medical issues that may arise with disordered eating or obesity, screening for the presence of an Eating Disorder is appropriate. A five-question screening tool, known as the "SCOFF" (Table 5) has been validated for use in primary care settings[159]. It takes two minutes to administer and requires no formal training. An Eating Disorder can be suspected with 85% sensitivity and 90% specificity if an individual responds "yes" to two or more questions[160] . With addition of two items assessing BN symptoms, the measure has a sensitivity of 100% and a specificity of 90% for detecting BN[161].

Validated structured interviews help specialists to identify and diagnose Eating Disorders. These include the Eating Disorder Examination[162,163], the Child Eating Disorder Examination[164], and the Structured Clinical Interview for DSM-IV[165].

Table 5. The SCOFF: An Eating Disorder Screening Instrument for Primary Care Settings

Five-Item Version	
	1. Do you make yourself *Sick* because you feel uncomfortably full?
	2. Do you worry that you have lost *Control* over what you eat?
	3. Have you lost more than *One* stone (6.35 kilograms) in a 3-month period?
	4. Do you believe yourself *Fat* when others say you are thin?
	5. Would you say that *Food* dominates your life?
With Two Additional BN Items	
	6. Do you ever eat in secret?
	7. Are you satisfied with your eating patterns?

Training Interventions

Gatekeeper training is an important strategy for enhancing early identification and intervention for Eating Disorders. Gatekeepers are people who have primary contact with those at risk for Eating Disorders, and who identify those at risk by observing risk factors, early warning signs and symptoms, or morbidity.

Specific groups of gatekeepers that are important to target Eating Disorder training to include health professionals, education professionals, and fitness professionals. The purpose of training interventions is to equip gatekeepers with the knowledge and skills to identify those at risk and to apply the appropriate management and referral strategy ("Eating Disorder literacy"). Training interventions may be stand-alone or integrated within tertiary training programs.

Early Intervention

Indicated Prevention

Recognising and detecting early signs of Eating Disorder illness and providing early intervention, is a critical, but sometimes neglected area of the mental health promotion spectrum. Having established that an Eating Disorder is associated with serious negative consequences (Chapter 1), the benefits of early intervention for those showing early warning signs are numerous and significant. Potential benefits include reducing the risk of progression to a full syndrome Eating Disorder resulting in significant cost savings and improved quality of life through mitigation of medical, psychological, occupational, academic, and economic disease burdens. This is particularly so in youth where malnutrition during key developmental phases is associated with increased physical and cognitive impairments.

Indicated prevention is a form of early intervention targeted to those showing early signs of an illness or those individually identified as at very high-risk of developing an illness[70]. With respect to Eating Disorders, early warning signs may include the presence of disordered eating, such as dieting, binge eating or purging, or cognitive or attitudinal symptoms, such as poor body image or clinically significant shape and weight concern. As highlighted in Chapter 1, individuals with subclinical Eating Disorder symptoms are at a much higher risk of progressing to a clinical Eating Disorder, with early signs or subsyndromes comprising illness prodromes in a subset of individuals. For this population, indicated prevention is an important method of early intervention. The majority of individuals that develop one or more symptoms of an Eating Disorder will not develop a clinical Eating Disorder, yet the subsyndromal state may cause significant burden and distress, and can place the individual at risk of other mental health issues in the future, supporting the importance of interventions targeted to this group.

The key question guiding the remainder of this chapter is:

Key Question #3
What is the evidence for the efficacy of indicated prevention interventions for Eating Disorders?

Six systematic reviews pertaining to prevention and 57 RCTs published in 2004 or more recently were inspected for inclusion in the evidence review. One systematic review, conducted by Pratt and Woolfenden[166] (original search date 2002, updated to 2004), met inclusion criteria. This review evaluated the efficacy of Eating Disorder prevention programs delivered to children and adolescents, and included RCTs that focused on general population or high-risk youth with no known Eating Disorder and that reported data from at least one standardised outcome measure in useable form. Further details of this study are provided in Chapter 3.

Studies within this chapter are summarised according to the predominant intervention approach used. This method of organising study findings was deemed the most appropriate in relation to alternatives considered (e.g., organising by setting, target characteristics, age of sample), yet this method of organising the prevention literature has limitations (as

discussed in Chapter 3). One-shot (i.e. single session) interventions are grouped separately.

Characteristics and abbreviated details of included studies are located in Appendix D (systematic review) and Appendix E (RCTs). The availability of program manuals and curriculum is delineated and information to help access available (i.e., published or web-based) programs is included in the reference list.

Cognitive Behavioural Therapy

CBT programs encourage individuals to adopt helpful, balanced attitudes on body image, eating, and weight, and seek to reduce the importance placed on body shape and weight for defining one's success and self-worth. CBT programs aim to modify thinking styles and behaviours that place an individual at risk for developing an Eating Disorder. They may cover topics such as challenging unhelpful thinking and attitudes about body shape and weight, the physical and psychological effects of dieting, sociocultural and media pressure to be thin, and balanced nutrition and physical activity.

Nine RCTs (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Zabinski, Wilfley, Calfas, Winzelberg, and Taylor (2004)[167] evaluated the efficacy of a computer-based "chat room" to reduce Eating Disorder risk factors among women who were screened as at high risk for an Eating Disorder. The program, ***Cognitive Behaviour Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168], was adapted for on-line delivery. High-risk weight-concerned female college students (exposure to an attention control to reduce body image disturbance. The sample comprised 45 female college students with extreme shape and weight concerns, and $n = 60$) were randomly assigned to the prevention program or to wait-list control for 8 weeks with a baseline, post-test, and 10-week follow-up assessment. Those that received the prevention program experienced significantly greater improvement over time in global Eating Disorder psychopathology, eating concern, weight concern, and self-esteem, relative to untreated participants, and both groups experienced a significant reduction in shape concern and a marginal but significant increase in BMI kg/m^2. Large effect sizes were apparent on most measures of eating pathology at follow-up, providing evidence for the efficacious nature of the online intervention among women at high-risk of an Eating Disorder and persistence of benefit to at least 10 weeks follow-up.

An RCT conducted by Abascal, Brown, Winzelberg, Dev, and Taylor (2004)[103] investigated the effectiveness of the computer-based program ***Student Bodies***[104] delivered over 6 weeks to randomly allocated classes in a selective or indicated prevention format. Female adolescent students aged 13 to 16 years ($n = 78$) were screened prior to the start of the program and categorised as either high-risk/high-motivated ("hrhm") or high-risk/low motivated, low-risk/low-motivated, and low-risk/high-motivated ("other") on the basis of scores on a weight and shape concern scale and a motivation measure. The objective of the study was to determine if "hrhm" students would benefit more from participating in program content given the assumption that they were likely to experience a more supportive, online environment with like-minded peers. Results indicated that "hrhm" students improved significantly from pre-to-post on some Eating Disorder outcomes but not others, and that improvement was largely unaffected by whether they received the program in a "universal" or "indicated" delivery format. There was a trend toward greater improvement among these students in the universal format. The students in the "other" category that received the program alone or within the universal format showed almost no improvement on Eating Disorder outcomes, with effect sizes ranging from .05 to .33.

Taylor, Bryson, Luce, Cunning, Doyle, Abascal, and colleagues (2006)[169] evaluated the efficacy of the computer-based program ***Student Bodies***[104] among 480 weight-concerned female college students. The study aimed to extend previous research by recruiting a larger sample, replicating the effectiveness of the program among college women, evaluating long-term impact, and evaluating whether the program could extend survival as a non-Eating Disorder case. Participants were randomised to the intervention or wait-list control for 8 weeks. Excluding subjects lost to follow-up, at post-test there were significant differences between conditions favouring the treatment group on weight concern, global Eating Disorder psychopathology, drive for thinness, and bulimic attitudes. These differences were maintained to 12-month follow-up with the exception of scores on the bulimia measure. There were no significant differences between groups at 12-month follow-up on BMI kg/m^2 or depressive symptoms. The rate of onset of new cases of Eating Disorders was equivalent across conditions throughout the follow-up period, with 43 overall reported as developing a subclinical or clinical Eating Disorder.

Delinksy and Wilson (2006)[170] focused on one component of a CBT approach to evaluate whether this strategy reduced Eating Disorder risk factors. Delinksy and Wilson compared a mirror-based exposure treatment [unpublished protocol] consisting of three face-to-face individual sessions. The control group received three sessions of non-directive supportive counselling. The sample comprised female college students with extreme shape and weight concerns. Across post-test and 4-week follow-up, the experimental group improved at a greater rate than the control group on body image avoidance, weight/shape concerns, dieting, depression, and self-esteem, and they engaged in significantly less body checking, had less concern with shape and weight, were less depressed, and had higher self-esteem. There was no intervention effect on body dissatisfaction. The findings suggested that mirror-based exposure can substantially improve body image cognitions and related behavioursand that these improvements are maintained for at least four weeks.

In an Australia-based study, Gollings and Paxton (2006)[171] compared face-to-face group versus computer-based delivery of the 8-week prevention program, ***Set Your Body Free***[172]. Women from the general community who responded to notices to participate in a program to reduce body dissatisfaction were screened for inclusion. Women with shape concern higher than the community norm and who met other eligibility criteria (n = 40) were randomised to the two intervention conditions. At post-test, both conditions showed significant improvement on all outcome measures, ranging from several eating-related outcome measures to indices of general psychological functioning. Both conditions maintained these improvements to the 2-month follow-up, with the exception of scores on the dietary restraint measure, which showed further improvement. There were no differences between groups in terms of rate of change on any of the outcomes. Consideration of effect size statistics showed that participation in the face-to-face format produced somewhat greater improvement on dietary restraint and extreme weight loss behaviours.

In another Australian study, Paxton, McLean, Gollings, Faulkner, and Wertheim (2007)[173] extended the earlier pilot study findings by comparing the face-to-face and computer-based versions of ***Set Your Body Free***[172] to a control condition and by incorporating a longer follow-up. General community women with elevated body image concern or bulimic symptoms (aged 18 to 35 years) (n = 116) were randomised to the face-to-face or computer-based intervention format, or wait-list control, for 8 weeks. BMI kg/m^2 and a range of eating-related and general psychological outcome measures were administered, including thin ideal internalisation, body shape concern, tendency to compare one's body to others, bulimic symptoms, dietary restraint, depression, and self-esteem. There were significant differences in pre-post change scores favouring the two intervention groups over control. Outcome on most variables was superior for the face-to-face

format relative to the computer-based format, tested in terms of the statistical significance of the difference in change scores. Six-month follow-up data indicated that gains were maintained across the two intervention groups. There was no effect of the interventions on BMI kg/m^2 at any time point. The study findings suggested that receiving the Set Your Body Free intervention was associated with a significant degree of improvement on a range of eating-related and general psychological outcomes relative to not receiving any intervention, that greater improvement accompanied receipt of the program in a face-to-face format, and that gains were maintained up to six months later.

In an Australian-based study, Heinicke, Paxton, McLean, and Wertheim (2007)[174] evaluated the computer-based program ***My Body, My Life*** [unpublished protocol] among 83 female secondary school students who self-identified as having body image or eating problems. The recruitment strategy occurred through school counsellors to approximate a naturalistic, real-world dissemination approach. Students were randomised to the intervention or wait-list control for six weeks and evaluated at 2- and 6-month follow-ups. At post-test, there was a substantially greater degree of improvement across most outcome measures favouring the intervention group relative to control. Greater improvements on eating-related psychopathology and symptoms were observed in the intervention condition, as well as media-related vulnerabilities, such as internalisation of the media ideal and perceived media pressures. Gains in the intervention group were maintained to 2-month and 6-month follow-up, with the only exceptions being continued significant improvement on body shape, extreme weight loss behaviours, and peer body comparison tendencies at 2 months, and continued improvement on perceived media pressures at 6 months. The trial findings support the use and durability of this preventative intervention among female secondary school students at risk for Eating Disorders, and a strength of the trial was that it used an efficacy design but incorporated effectiveness study elements.

Jacobi, Morris, Beckers, Bronisch-Holtze, Winter, Winzelberg and colleagues (2007)[106] conducted an RCT to determine whether the 8-week computer-based ***Student Bodies***[104] program could be successfully transported to a German population. The package was translated and adapted to make it culturally relevant and 100 female college students who wanted to improve their body image were randomly assigned to the intervention or wait-list control conditions. Of the full sample, 78% were assessed at baseline as low-risk and 22% as high-risk based on a validated cut-off on a measure of weight concern. Subgroup analysis was conducted for the high-risk sample. At post-test, the intervention group was superior on weight concern, shape concern, and knowledge about the content of the program. At 3-month follow-up, there were no significant differences between groups. The lack of statistically significant differences was probably attributable to the low sample size (intervention, $n = 10$; control, $n = 12$) as the effect sizes from baseline to follow-up suggested moderate to large differences in outcome between the two groups on eating concern, weight concern, shape concern, drive for thinness, and knowledge of program content, favouring the intervention group.

Jones, Luce, Osborne, Taylor, Cunning, Doyle, and colleagues (2008)[175] investigated the efficacy of ***Student Bodies 2*** [unpublished program], an adaptation of ***Student Bodies***[104] designed for overweight adolescents with binge eating symptoms. Eligible secondary school students ($n = 105$) were randomised to 16 weeks of intervention or wait-list control. Completer and intention-to-treat analyses showed a significantly greater improvement at post-test and 5-month follow-up for the intervention group compared to control on BMI kg/m^2, objective binge episodes, and subjective binge episodes, though the control group evidenced reductions also. Completers in the intervention group showed a significant reduction in shape concern and weight concern from baseline to follow-up. There were no significant between-group differences across post-test and follow-up on objective overeating episodes, dietary

sugar and fat intake, and depressive symptoms. Adherence to the program was a major issue in the study, with 27% using the program for 8 weeks or more, 42% using the program for 1 to 7 weeks, and 31% never logging on, yet testing revealed no apparent relationship between adherence and outcome.

Cognitive Dissonance

Cognitive dissonance-based programs target personal beliefs about the importance of being thin and the thin beauty ideal; a significant Eating Disorder risk factor. The rationale underlying this approach is that belief in the thin beauty ideal can be weakened through activities that encourage the individual to adopt an "anti-thin ideal" stance (e.g., exploring the costs associated with pursuing extreme thinness). The dissonance and psychological discomfort created by holding conflicting views leads to a shift in attitude to restore consistency, with the result being a weakened belief in the importance of the thin beauty ideal.

One systematic review (summarising one RCT) and six RCTs (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

Pratt and Woolfenden reported on an RCT (Stice, Trost, & Chase, 2003)[176] that compared ***Cognitive Dissonance (Stice version)***[110], ***Healthy Weight Intervention (Stice version)***[110], and wait-list control. The active interventions comprised three weekly 1-hour sessions. Participants were 148 female adolescents and young adults with body image concerns (aged 13 to 20 years), and assessments were conducted at baseline, post-intervention, and at 1, 3, and 6-month follow-ups. Measures of thin-ideal internalisation, body dissatisfaction, dieting, negative affect, and bulimic symptoms were used to evaluate the effectiveness of the prevention programs. In the CD condition, significant improvement on thin-ideal internalisation was observed from baseline to post-intervention, and this was maintained across all follow-up periods. The wait-list condition also improved significantly on thin-ideal internalisation, though a difference was observed between baseline and 3-month follow-up scores only. Body dissatisfaction improved in the CD condition from baseline to post-intervention, but this effect was not maintained across the follow-ups; the wait-list condition showed no change. Dieting behaviours reduced from baseline to post-intervention in the CD condition, and this effect was maintained across the follow-ups. Conversely, no change in dieting behaviours was observed in the wait-list control from baseline to post-intervention, but significant improvement was observed from baseline to 1-month follow-up which was then maintained to 3-month follow-up. Negative affect and bulimic symptoms significantly declined over the course of the study in the CD condition but not in the wait-list condition. Among the two active treatments, the CD participants had a better response on thin-ideal internalisation, while the HW participants had a significantly better response on negative affect and bulimic symptoms. The active intervention conditions improved equivalently on dieting behaviours, and neither group showed significant and durable improvement on body dissatisfaction, despite a significant temporary improvement from baseline to post-intervention in the CD condition.

Level II Evidence

Becker, Smith, and Ciao (2005)[109] compared ***Cognitive Dissonance (Stice version)***[110] to psychoeducation about the thin ideal [unpublished protocol], with a third study arm of wait-list control. The study aimed to extend findings of an earlier trial which had been conducted to examine the relative effectiveness of CD-based structured activities ("active" components) with the educational content of CD treatment ("passive" components). The previous study found that both interventions were effective in reducing dietary restraint, eating psychopathology, and body dissatisfaction, among at-risk female sorority members, and that the active, but not the passive treatment modality, was associated with improvement on additional relevant outcomes. In the 2005 study, the authors extended the previous research by incorporating a wait-list

control group and including both low- and high-risk (i.e. body dissatisfied) female college sorority students. No difference was found between the active conditions over time (pretreatment, posttreatment, 1 month follow-up) on restraint, eating pathology, or body dissatisfaction, though both conditions improved significantly compared to the control condition. There was no significant difference between the active and passive conditions on thin-ideal internalisation over time, but only the active condition had superior change on thin-ideal internalisation relative to the control condition. There were no differences across outcomes as a function of low- or high-risk status. In summary, both interventions were superior to "no-treatment" in terms of reducing eating pathology and particular Eating Disorder risk factors, with the active condition showing greater effectiveness than the passive intervention.

Using a large sample of 481 older adolescent girls who screened positive for body image concerns in a telephone interview, Stice, Shaw, Burton, and Wade (2006)[177] compared ***Cognitive Dissonance (Stice version)***[110], ***Healthy Weight Intervention (Stice version)*** [manual subsequently published[110]][4], an expressive writing control, and an assessment-only control. The analyses compared groups across the time points of baseline, post-test, and 6- and 12-month follow-ups, and outcomes measured were thin-ideal internalisation, body dissatisfaction, dieting behaviours, negative affect, and bulimic symptoms. Overall, each of the groups showed improvement from baseline to post-test on most outcome measures, which were maintained to the follow-up points. CD and the healthy weight intervention (HW) were associated with the largest change in outcomes. Examination of between-group differences on outcomes at different time points generally highlighted the superiority of CD relative to the other groups, including the HW condition. At the one-year follow-up, those that received CD demonstrated lower internalisation of the thin body ideal, dieting behaviours, negative affect, and bulimic symptoms, relative to at least one of the study conditions, showing that some of the intervention effects were maintained over the long-term. Participation in the CD program did not reduce the likelihood of onset of binge eating or compensatory behaviours at 6- or 12-month follow-up in comparison to control among those who were asymptomatic at baseline. Prevention effects were evident in a later study that reported on 2- and 3-yr follow-up outcomes;[178] the interventions were superior to the control programs on a range of outcomes, with minimal differences between the interventions.

Roehrig, Thompson, Brannick, and van den Berg (2006)[179] compared a CD-based intervention in two formats; a full version and a dismantled version that contained only the counterattitudinal advocacy components. The 3-session interventions were developed from the ***Cognitive Dissonance (Stice version)***[110] program and were delivered to 78 female college students with high body dissatisfaction and high thin-ideal internalisation that screened negative for an Eating Disorder at baseline. Outcomes were measured at the end of sessions 1 (baseline), 2, and 3, and at 1-month follow-up. There was a significant condition × time interaction effect on thin-ideal internalisation; the full-package condition had a reduction in thin-ideal internalisation from session 1 to session 2, which was maintained to session 3 and then reduced significantly again at follow-up. The counterattitudinal advocacy condition had a significant reduction in thin-ideal internalisation from session 1 to 2 only, which was maintained across session 3 and the follow-up. There was a significant main effect of time on thin-ideal internalisation but no main effect of group. There was a significant condition × time interaction on negative affect. The full package intervention experienced a significant improvement from Session 1 to Session 2, which was maintained at other time points, and the counterattitudinal advocacy condition experienced a significant improvement from Session 1 to Session 3, and then worsened significantly from Session 3 to follow-up.

4 The Cognitive Dissonance and Healthy Weight Intervention programs originally developed by Stice are 3-session programs and this format is typically evaluated in RCTs; however a 4-session format is often used in real-world, effectiveness trials and the 4-session format is given in the manualised publication.

There were significant time effects on all outcomes, including the remaining assessed risk factors of body dissatisfaction (3 separate measures), dieting behaviours, and bulimic symptoms. On most outcomes, significant gains initially occurred between the end of Sessions 1 and Session 3. Only one outcome showed a significant main effect of group – one of the body dissatisfaction measures – with those in the full-package condition showing higher body satisfaction over the course of the study; yet it is important to note that this group effect was not observed on the other measures of body dissatisfaction. The findings of the study showed that both the full- and dismantled-CD package produced improvement on Eating Disorder risk factors including dieting, negative affect, bulimic symptoms, body dissatisfaction, and thin-ideal internalisation. The full package was associated with a better course of improvement over time on two risk factors, as indicated by the significant condition × time interactions, but otherwise both interventions produced equivalent outcomes.

An RCT conducted by Green, Scott, Diyankova, and Gasser (2005)[113] compared a 2-week program of CD delivered at a "high" or "low" level [unpublished protocols] to a no-treatment control. Participants were 155 female college students who were randomised to one of the three conditions. Risk status was assessed at baseline and participants were classified as "asymptomatic" or "symptomatic" on the basis of scores on a measure of eating pathology. Participants who met DSM diagnostic criteria for an ED were excluded. Participants were evaluated at post-intervention and 4-week follow-up using a measure of global Eating Disorder psychopathology. There were no significant group × risk status interactions at either time point.

Mitchell, Mazzeo, Rausch, and Cooke (2007)[180] compared ***Cognitive Dissonance (Stice version)***[110] in an adapted format (extended from three sessions to six sessions) to a yoga and meditation intervention [unpublished protocol] or a control condition. The two interventions were delivered in a face-to-face group format. The research group hypothesised that an extended CD intervention would confer greater potency on targeted Eating Disorder symptoms and risk factors. Participants were 113 female college students who responded to an advertisement about a research program investigating an intervention for body dissatisfaction and eating disturbances. The completers analysis showed that CD reduced Eating Disorder symptoms and improved body satisfaction relative to control. No other significant between-group differences emerged despite a range of measures used, from general psychopathology (anxiety, depression) to other Eating Disorder outcomes and Eating Disorder-specific risk factors. The intention-to-treat analysis showed that the CD condition improved relative to control on the additional outcomes of alexithymia and trait anxiety. No significant changes of any kind were apparent for the yoga and meditation condition.

Smith and Petrie (2008)[181] compared ***Cognitive Dissonance (Stice version)***[110], ***Healthy Weight Intervention (Stice version)***[110], and wait-list control among 29 body dissatisfied female college athletes. Change in outcomes over the course of the study was inconsistent among each of the three groups. Effect sizes on some outcomes, such as sadness, anxiety, perceived importance of being physically fit and in shape, and body satisfaction, were moderate to large, indicating some positive changes associated with the CD-based intervention. There were no changes in any group on bulimic symptoms.

Healthy Weight Intervention

The specific healthy weight intervention program that has been tested in prevention research was developed at the University of Texas. The program was originally developed as a placebo control, however, it was found to have an active intervention effect. The aim of the program is to promote positive body image by teaching an individual healthy weight-control skills. The rationale is that achieving and maintaining a healthy body weight will lead to body satisfaction.

One systematic review (summarising one RCT) and two RCTs (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

Pratt and Woolfenden identified one RCT (Stice, Trost, & Chase, 2003)[176] that compared ***Healthy Weight Intervention (Stice version)***[110], ***Cognitive Dissonance (Stice version)***[110], and wait-list control among 148 female adolescents/young adults with self-identified body image concern (aged 13 to 20 years). The prevention program involved three sessions held during consecutive weeks, and assessments were conducted at baseline, post-intervention, and 1-, 3-, and 6-month follow-ups. Females in the HW condition experienced significant improvement in thin-ideal internalisation from baseline to post-intervention, which was maintained to 1-month but not the 3- and 6-month follow-ups. They experienced significant improvement from baseline to post-intervention on dieting behaviours, negative affect, and bulimic symptoms, which was maintained across the entire follow-up, yet body satisfaction did not significantly improve. The HW condition showed faster improvement on outcomes that the wait-list control also experienced improvement on (i.e. thin-ideal internalisation and dieting behaviours) and experienced more durable improvement and change on more outcomes compared to wait-list control. HW participants did not experience durable improvement on thin-ideal internalisation, but the CD participants did. Both the HW and CD participants experienced durable improvement on dieting behaviours. The HW participants had lasting improvement on negative affect and bulimic symptoms, but the CD participants did not. Neither active treatment resulted in lasting improvement on body dissatisfaction, although the CD participants did have a temporary improvement from baseline to post-intervention.

Level II Evidence

Stice, Shaw, Burton, and Wade (2006)[177] evaluated an enhanced version of the ***Healthy Weight Intervention (Stice version)***[110], ***Cognitive Dissonance (Stice version)***[110], an expressive writing control, and an assessment-only control, among 481 female older adolescents who indicated body image concerns during a phone screen for study participation. The girls were assessed at baseline, post-test, and 6- and 12-month follow-ups, on outcomes of thin-ideal internalisation, body satisfaction, dieting, negative affect, and bulimic symptoms. Overall, each of the groups showed improvement from baseline to post-test on most outcome measures, which were maintained to the follow-up points. CD and HW were associated with the greatest degree of improvement. Analysis of between-group differences suggested that the HW condition had significantly greater change to at least one control condition (i.e., in some instances both) on thin-ideal internalisation, body satisfaction, negative affect, and bulimic symptoms, from baseline to post-test; had superior change compared to at least one of the control conditions on all outcomes from baseline to 6-month follow-up; and had superior change compared to at least one control condition on thin-ideal internalisation, dieting, and bulimic symptoms, at 12-month follow-up. In comparison to the CD-based intervention, HW participants showed significantly less change on all outcomes from baseline to post-test, significantly less change on negative affect from baseline to post-test, and significantly less change on negative affect from baseline to 6-month follow-up. The researchers analysed the incidence of binge eating and compensatory behaviours among those who were asymptomatic at baseline. Risk for onset of binge eating was significantly lower for the HW condition only compared to the control conditions at 6-month follow-up. At 12-month follow-up, incidence of binge eating was significantly lower in the HW condition compared to control, with no other differences between groups at this time point. Onset of compensatory behaviours at 6- and

12-month follow-up was significantly reduced in those who participated in HW relative to the control conditions, with no difference between the control groups or CD and the control groups. Risk of obesity onset was significantly lower in the intervention groups compared to control, and a total of 25 participants had an onset of obesity over the course of the study. The findings indicated that the HW reduced many Eating Disorder risk factors relative to control, and that many of these gains generalised to between 6 and 12 months after conclusion of the intervention. Publication of 2- and 3-year follow-up outcomes showed few differences between CD and HW participants, and both interventions were superior to the control programs across a range of outcomes[178].

Smith and Petrie (2008)[181] compared ***Cognitive Dissonance (Stice version)***[110], ***Healthy Weight Intervention (Stice version)***[110], and wait-list control among 29 body dissatisfied female college athletes. Change from baseline to post-test on outcomes was inconsistent among the conditions. Outcomes collected included measures of affect, body dissatisfaction, and measures on internalisation of the thin ideal. Effect sizes on some outcomes were moderate to large, indicating some positive benefit of the CD intervention. There were no significant changes over time in the HW condition on bulimic symptoms, sadness/depression, anxiety, shame and guilt, importance of being thin and attractive, importance of being physically fit and in shape, or overall body satisfaction. The researchers suggested that perhaps more intervention sessions are required in this target population for efficacy to be demonstrated given the increased pressures athletes experience in relation to body shape, weight, and eating.

Media Literacy

ML programs aim to analyse, discuss, and critically appraise media messages. They explain how images are digitally altered to enhance the thinness of models and encourage critical evaluation of media messages related to thinness. They teach advocacy and activism skills to counter unhelpful media messages.

Two RCTs (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Becker and colleagues (2008)[112] compared a two-session program of CD or ML [both modified from the ***Cognitive Dissonance (Stice Version)*** program] among 188 low- and high-risk (i.e., body dissatisfied) female college sorority students. The programs were delivered by untrained, unpaid sorority peer leaders and participants completed assessments at baseline, post-intervention, 7-week follow-up, and 8-month follow-up. Analyses of intervention effects over time suggested that low- and high-risk participants improved significantly on dietary restraint, thin-ideal internalisation, body dissatisfaction, and bulimic pathology with each of the interventions, but that those at high-risk improved significantly more with ML relative to low-risk cases. The researchers measured onset of Eating Disorders and reported that one individual in each of the conditions met criteria for EDNOS at 8-month follow-up. Delivery of the intervention by well-trained exogenous facilitators (i.e., sorority peer leaders), as opposed to doctoral level psychologists who typically facilitate trial prevention programs, was a feasible model of delivery.

In an Australian study, Wilksch, Durbridge, and Wade (2008)[133] compared the efficacy of two 8-lesson school curriculums targeting ML or perfectionism [unpublished curriculums], respectively, to control, among 127 low- and high-risk shape- and weight-concerned female

secondary school students. Participants were assessed at baseline, post-intervention, and at 3-month follow-up on a range of factors including dieting, shape and weight concern, media internalisation, perceived sociocultural pressure, perfectionism dimensions, and self-esteem. Of the full sample, 33% of those that provided post-treatment data were assessed as at high-risk on the basis of weight and shape concern scores that exceeded a clinically significant cut-off. High-risk students that received the perfectionism curriculum had significantly lower personal standards (perfectionism domain) than those in the control condition. At 3-month follow-up, high-risk participants in the perfectionism condition had significantly lower concern over mistakes and personal standards relative to the control condition, and low-risk participants in the perfectionism condition had significantly lower concern over mistakes relative to the control condition. There were no significant differences between high-risk participants in ML or perfectionism on the remaining outcome measures at post-treatment or follow-up.

Mental Health Literacy

Mental health literacy interventions aim to enhance the knowledge, skills, and beliefs that enable the prevention, identification, and management of mental health issues.

One RCT (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Hay and colleagues (2007)[182] randomised 122 young women with a mean age of 28 years who screened positive for Eating Disorders symptoms of clinical severity (i.e., shape or weight concerns of at least moderate importance or ≥ 1 regular disordered eating behavior such as objective or subjective binge eating episodes or an extreme weight control behaviour) to an Eating Disorder-mental health literacy intervention or to a control group. The intervention consisted of information to enhance knowledge of Eating Disorders and effective treatment, including purchase information for a self-help book with an empirically-supported treatment program for BN, resources such as websites and organisations to obtain further information, and contact details of local treatment facilities, support groups, and consumers organisations. The control group received information about local mental health services only. Participants were assessed at baseline, 6 months, and 12 months. Help-seeking for a problem with eating increased significantly from baseline to 12 months in both groups, with no significant between-group difference, and no between-group difference in the care provider the groups sought help from. There was a significant improvement in global Eating Disorder psychopathology from baseline to 6 and 12 months, with no significant differences between groups in change in scores. There were no statistically significant changes in health-related quality of life in either group from baseline to the follow-up points, although the intervention group had significantly higher quality of life at 12 months than the control group, who worsened somewhat. There were minimal differences between groups on mental health literacy outcomes assessed in relation to a clinical vignette, except for a modest statistically signicant difference whereby those in the intervention group were less likely to perceive Eating Disorder treatment as very or extremely difficult.

Multicomponent

Multicomponent is a label used for the purpose of this review to describe programs that utilise a combination of approaches to target risk factors. For instance, a multicomponent program might incorporate ML, CBT, and self-esteem enhancement strategies, as opposed to using one predominant approach.

One systematic review (summarising one RCT) and one RCT (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

Pratt and Woolfenden identified one RCT (Killen et al., 1993)[73] that evaluated an 18-lesson school-based prevention curriculum [unpublished curriculum] to classes-as-usual among 931 low- and high-risk weight-concerned female school students (aged 11 to 13 years). The curriculum addressed healthy eating attitudes and unhealthy weight regulation methods, such as dieting, binge eating, and self-induced vomiting. Measurements on outcomes were collected at baseline, 18 weeks, and 7, 14, and 24 months. Relative to high-risk control students, high-risk intervention students experienced a greater gain in knowledge of curriculum content (pre- to post-intervention) and a significantly smaller change in BMI kg/m^2 (pre- to post-intervention) (both conditions experienced an increase over the course of the study). There were no differences between high-risk students in either condition on change in bulimia attitudes and behaviours, appearance concern, restraint, weight concern, and purging behaviours.

Level II Evidence

Franko, Mintz, Villapiano, Green, Mainelli, Folensbee, and colleagues (2005)[118] compared a 2-session CD-ROM prevention program, ***Food, Mood, and Attitude***[119] to an attention control among 240 low- and high-risk Eating Disorder symptomatic female college students. Randomisation was stratified according to high- or low-risk status, determined by an Eating Disorder screening measure. Significant time × group × risk status interactions were found on outcomes related to internalisation of the thin ideal, shape concern, and weight concern, indicating greater improvement in intervention participants relative to control participants. Improvement with the intervention appeared to be limited to high-risk participants only. Women that received the prevention program were more likely than women in the control condition to reduce overeating and inappropriate compensatory methods (self-induced vomiting, or laxative or diuretic use). The program was effective in modifying Eating Disorder risk factors among those at high-risk, but not at low-risk, for an Eating Disorder.

One-Shot

For the purposes of this review, a one-shot prevention program describes any intervention delivered within a single-session format, irrespective of the type approach used. These studies have been consistently associated with lower treatment effects than multiple-session programs, hence are grouped separately.

Three RCTs (post-2003) evaluated this prevention approach (i.e., an intervention delivered within a single session format, also known as a "one-shot" intervention) and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Matusek, Wendt, and Wiseman (2004)[183] compared a face-to-face group session of the ***Healthy Weight Intervention (Stice version)***[110] or ***Cognitive Dissonance (Stice Version)***[110] [both modified to a one-session format] to wait-list control. The aim of the study was to determine if material from these efficacious prevention programs could be condensed to fit to a single session without a significant loss in effectiveness. Female college students with body image disturbance (n = 84) were randomised to one of the two interventions or wait-list control, and were followed up at 8 to 9 months. There was a significant time × group interaction on drive for thinness, thin-ideal internalisation, and global

Eating Disorder psychopathology, but not body dissatisfaction, body size drawings, influence of body image on quality of life, or self-esteem. Post-hoc testing showed that both intervention conditions experienced significant improvement from pre-to-post on drive for thinness, thin-ideal internalisation, and global Eating Disorder psychopathology, and that the control condition did not. The control condition remained the same on outcomes, except for thin-ideal internalisation which worsened from baseline to follow-up. There were no significant differences between the intervention groups on any outcomes. The effect sizes for the intervention outcomes were moderate. The findings suggested that a short-term protective benefit can be conferred through a one-shot intervention targeted to females high in body image disturbance using cognitive-dissonance or HW as the program content.

Boivin, Polivy, and Herman (2008)[132] manipulated positive or negative outcome expectancies regarding thinness [unpublished protocol] to determine whether the expectancies would predict dieting-related behaviours. Female college students ($n = 63$) were randomly assigned to a negative thinness expectancy condition (i.e. elucidation of thinness costs), a positive thinness expectancy condition (i.e. elucidation of benefits of thinness and costs of overweight), or an assessment-only control. A subgroup was identified as at high-risk on the basis of baseline scores on a dietary restraint measure, and subgroups were classified as "dieters" or "non-dieters". "Dieters" were significantly less likely to be classified as "dieters" at post-test and 4-week follow-up if they participated in the negative expectancy condition. There were no significant differences for "dieters" between conditions over the course of the study on outcomes of body dissatisfaction, drive for thinness, perceived thinness rewards, perceptions of healthy body weight, and perceptions of thinness as attractive. "Dieters" that participated in the negative expectancy condition showed significantly lower scores on a measure of "intentions to diet strictly" compared to the other conditions, while those in the positive expectancy condition had the highest average score on this outcome.

The aim of Shafran, Farrell, Lee, and Fairburn's (2009)[184] study was to evaluate a brief cognitive behavioural intervention targeted at body shape and weight disturbance [unpublished protocol], which are core features of diagnostic criteria for Eating Disorders and precursors to the development of an Eating Disorder. Specifically, the intervention was designed to target four maintaining mechanisms of poor body image including selective attention to body parts, negative cognitions and affect associated with the perception of oneself in the mirror, repeated checking of body shape and weight, and body image avoidance. Women with extreme shape concern between 18 and 45 years ($n = 50$) were randomly assigned to the intervention, a control condition (applied relaxation), or to one of two delayed-treatment (five week delay) control groups. Assessments on outcomes were taken at an intermittent schedule at either pre-intervention, post-intervention, or 1-, 4-, or 12-week follow-up. Those that received CBT showed significant improvement in shape concern from pre-intervention to 1-week follow-up, which was maintained through to 4-week and 12-week follow-up, and was significantly greater than change in any other condition. Depression symptoms did not change over time in any condition. The findings from the study suggest that a single session of CBT may reduce body shape concerns among women at risk for developing an Eating Disorder for up to three months.

Perfectionism

Perfectionism interventions target the Eating Disorder risk factor of perfectionism and seek to reduce unhelpful perfectionistic beliefs and behaviours (e.g., performance checking or procrastination), and also help the person develop techniques for standing up to pressures from others to be perfect.

One RCT (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

In an Australian study, Wilksch, Durbridge, and Wade (2008)[133] compared an 8-week curriculum of perfectionism, ML, or classes-as-usual control among 127 low- and high-risk shape- and weight-concerned female adolescents of a mean age of 15 years. The study involved a selective sample, but 33% of those that provided post-treatment data were assessed as having weight and shape concerns at the clinically significant level. Outcomes were assessed at baseline, post-intervention, and 3-month follow-up, and included perfectionism dimensions, shape and weight concern, media internalisation, perceived sociocultural pressure, self-esteem, and dieting. Post-hoc analysis revealed that those at high-risk had a more optimal score on one domain of perfectionism (personal standards) at post-treatment if they participated in the perfectionism intervention compared to control, and more optimal scores on two domains of perfectionism (concern over mistakes and personal standards) at follow-up if they participated in the perfectionism intervention compared to at least one of the other conditions. No other differences for high-risk participants across study conditions were evident.

Psychoeducation

Psychoeducation programs aim to provide education and information on social, cultural, and biological Eating Disorder risk factors. Topics covered may include physical changes associated with puberty, healthy eating, body image, social pressure for thinness, peer pressure and teasing, and attitudes toward food and meals. Some psychoeducation programs include discussion of the nature of Eating Disorders. The programs may be designed for different audiences, such as teachers or students. When delivered to a student audience, the facilitator is generally given background information on Eating Disorders and their prevention.

One systematic review (summarising three RCTs) and one RCT (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

Pratt and Woolfenden reported on an RCT (Buddeberg-Fischer, Klaghofer, Gnam, & Buddegerg, 1998)[185] that compared a school-based psychoeducation prevention program [unpublished protocol] to a classes-as-usual control condition. Low- and high-risk (i.e., with eating pathology) male and female secondary school students in a larger epidemiological study were classified as at low- or high-risk on the basis of a measure of eating pathology. The researchers selected 20 classes (n = 329) with a high proportion of high-risk students (21.7% to 52.9%) and followed these classes over one year, at which point the students were-reassessed, and randomised to either the health promotion or control condition. The health promotion intervention promoted awareness of nutrition, body image, adolescent social and psychological issues, mental and physical well-being, eating behaviours, and Eating Disorders. The intervention program was delivered in three sessions held during consecutive months. Results were analysed for the total sample, and for the indicated sample of high-risk females (32 in the intervention condition and 31 in the control condition), but not high-risk males due to the few males who met the high-risk criterion. There was a significant difference in rate of improvement between high-risk females across conditions on general physical symptoms, favouring the intervention group. Girls in both conditions showed less severe eating pathology

and general psychological symptoms from pre-intervention to follow-up, with no significant between-group differences.

Pratt and Woolfenden identified an RCT (Olmsted, Daneman, Rydall, Lawson, & Rodin, 2002)[186] that evaluated a 6-session group psychoeducation program [unpublished protocol]. Participants were 112 adolescent and young adult females with Type I diabetes mellitus and at least one disordered eating marker (i.e., drive for thinness, bulimia attitudes and behaviours, or body dissatisfaction beyond a particular cut-off in the direction of clinical symptoms, or current or past binge eating, self-induced vomiting, laxative or diuretic use, or insulin omission for weight control) (aged 12 to 20 years). Participants participated in the intervention or treatment-as-usual (medical management and adherence to a structured meal plan) and were evaluated at baseline and at 1- and 6-month follow-up. The intervention was delivered to parents and daughters in concurrent sessions and included psychoeducation on dieting, set point theory, the nature of Eating Disorders, sociocultural influences, healthy eating, and methods to manage Eating Disorder symptoms and body image problems. The outcomes included objective binge episodes, insulin omission days, hemoglobin A1c (HbA1c) level, drive for thinness, bulimia attitudes and behaviours, body dissatisfaction, overeating, restraint, shape concern, weight concern, and eating concern. There were significant condition × time interactions on body dissatisfaction, drive for thinness, and restraint, and although both groups showed significant improvement on these outcomes over time, the psychoeducation condition had faster improvment. Both groups improved significantly over the course of the study on shape and weight concern, and objective binge episodes varied in frequency within both groups, showing a pattern of decline from baseline to 6-month follow-up, then worsening from 1- to 6-month follow-up. Data were collected on additional outcomes such as self-induced vomiting episodes, and laxative and diuretic misuse, but the authors reported that the low rate of occurrence precluded statistical comparison.

Pratt and Woolfenden reported on an RCT (Santonastaso, Zanetti, Ferrara, Olivotto, Magnavita, & Favaro, 1999)[134] that evaluated a psychoeducation-based Eating Disorder prevention program unpublished protocol] among low- and high-risk (i.e. with eating pathology) adolescent females enrolled in a vocational training program. Grls in the intervention condition participated in a 4-session group program held once weekly during school hours and facilitated by a psychiatrist and psychologist experienced in relation to Eating Disorders. The prevention program content involved didactic discussions of body image, coping with adolescence, self-esteem, Eating Disorders, dieting, external pressures to achieve thinness, and the physical changes associated with puberty. Girls in the control condition participated in classes-as-usual. The study sample ($n = 308$) was a selective sample (i.e. female adolescents), yet the researchers differentiated among low- and high-risk students at baseline on using a cut-off score on a measure of Eating Disorder psychopathology. Participants were assessed at baseline and at 11- months follow-up. Repeated measures analysis showed no significant within-group improvement over time for the high-risk students in either condition on BMI kg/m^2, Eating Disorder psychopathology, drive for thinness, interoceptive awareness, bulimia attitudes and behaviours, body dissatisfaction, ineffectiveness, maturity fears, perfectionism, and interpersonal distrust.

Level II Evidence

An RCT conducted by O'Brien and LeBow (2007)[187] evaluated a psychoeducational intervention [unpublished protocol] delivered didactically within a small group format versus wait-list control among 24 female college students with subclinical eating pathology. The program content addressed dieting, physical activity, meal skipping, food avoidance, and body image. Outcomes were BMI kg/m^2, depression, bulimic symptoms, general eating psychopathology, restraint, number of days per week a 'forbidden food' was consumed (i.e., food the individual is trying to avoid for shape/weight related reasons), forbidden food

attitudes, number of self-reported meals eaten per week, self-reported minutes of exercise per week, body shape concern, and number of self-reported binge episodes per week. Post-hoc testing following a significant omnibus test revealed the following significant differences; bulimic symptoms and body shape concern reduced significantly in the intervention condition. Consideration of the marginal means indicated that for both groups the psychometric measures tended to reduce in severity over time, and that there were slight differences favouring the psychoeducation condition on certain self-monitoring outcomes. In terms of follow-up outcomes, only two outcomes reached statistical significance. Scores on general eating psychopathology increased for the control condition, and bulimic symptoms decreased for the intervention condition, between post-test and 3-month follow-up.

Yoga and Meditation

Yoga and meditation was trialled as an intervention approach because of the rationale that these practices may have general benefits on health and mental health.

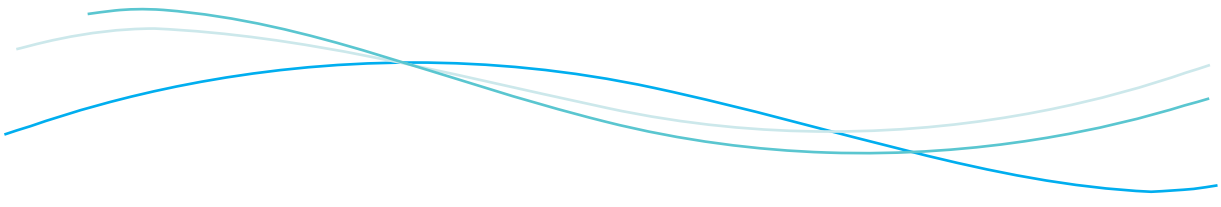
One RCT (post-2003) evaluated this prevention approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Mitchell, Mazzeo, Rausch, and Cooke (2007)[180] compared a yoga/meditation intervention [unpublished protocol] to ***Cognitive Dissonance (Stice version)***[110] in an adapted format (extended from three sessions to six sessions) or control. Participants were 113 female college students that responded to a research study advertisement to participate in an intervention for body dissatisfaction and disturbances in eating. The active interventions were delivered in a face-to-face group format, and outcomes evaluated included multiple indices of Eating Disorder psychopathology, depression, anxiety, and alexiythmia. For completers, some significant between-group differences emerged on Eating Disorder-related outcomes and general psychopathology, but indicated superiority of the CD condition to control only. The intention-to-treat analysis showed that the CD condition improved relative to control on the additional outcomes of alexithymia and trait anxiety. No significant changes of any kind were observed for the yoga/meditation condition.



Summary of Research Findings

Table 6 summarises the indicated prevention evidence base as discussed more fully within this chapter.

Table 6. Summary of Eating Disorder Indicated Prevention Studies

Prevention Approach	Degree to Which Evaluated	Magnitude of Effect	Program Example
Cognitive-behavioural therapy	Moderate	Substantial	My Body, My Life
Cognitive dissonance	Moderate	Substantial	Stice version
Healthy weight	Moderate	Low-Moderate	Stice version
Media literacy	Some	None-Low	-
Mental health literacy	Some	None-Low	-
Multicomponent	Moderate	Slight	Everybody is a Somebody
One-shot	Moderate	Moderate	Stice version Healthy Weight Intervention/ Cognitive Dissonance (condensed to 1 session)
Perfectionism	Some	Low	-
Psychoeducation	Moderate	Low	-
Yoga and meditation	Some	None	-

Note: Degree to which evaluated: None = no Level I or Level II studies; Some = 1 to 2 Level II studies (RCTs); Moderate = > 2 Level II studies and/or Level I and II evidence available. Magnitude of effect at follow-up for Eating Disorder risk variables: None = no beneficial effect; Low = slight beneficial effect; Moderate = moderate beneficial effect; Substantial = substantial and persistent effect.
CBT = Cognitive behavioural therapy.

Cognitive-behavioural therapy and **cognitive dissonance** programs have had a moderate degree of evaluation in high-risk samples and the data suggest durability of impact beyond program termination.

Specific **cognitive-behavioural therapy** programs that have been evaluated include the United States-developed computer-based prevention program, ***Students Bodies***[104], and two Australian-developed programs, ***My Body, My Life, and Set Your Body Free***[172]. CBT programs have been trialled among a range of populations, including female high school students, university age females, and women in the general community who have clinically elevated shape and weight concern and/or self-identified body image or eating problems. CBT has also been trialled among overweight adolescents with binge eating symptoms.

RCTs have shown a reduction of hypothesised risk factors for Eating Disorder including shape and weight concern, dietary restraint, bulimic attitudes, self-esteem, and drive for thinness. CBT programs delivered face-to-face may be associated with a better outcome than when delivered in a computer-based format, although this requires further exploration. CBT has shown a beneficial effect on risk and protective factors up to one year post-intervention.

Stice's **cognitive dissonance** intevention program[110] reduces risk factors for Eating Disorders among those with early signs or at very high risk of an Eating Disorder, such as adolescent females and young women with high body dissatisfaction and high thin-ideal internalisation, with evidence of durability of a preventative effect.

Other interventions that have been evaluated to a moderate degree and confer some benefit include the **healthy weight** intervention developed by Stice, a specific **multicomponent** program, and **psychoeducation**. The **healthy weight** prevention program may be helpful for women with a poor body image, with one study finding a beneficial effect on Eating Disorder risk factors to 6-months follow-up. Two trials evaluated **multicomoponent** programs, with findings varying between the trials; one program ***(Food, Mood, and Attitude)*** showed benefit by reducing disordered eating behaviours. Importantly, a **psychoeducation** program reduced risk in young adult women with Type I diabetes and at least one other Eating Disorder risk factor. This is an important finding because individuals with Type I diabetes have higher rates of disordered eating and Eating Disorders relative to the general population[188,189].

One RCT found a preventative effect of **media literacy** relative to control among female college sorority members high in body dissatisfaction, while one RCT among secondary school females at high-risk for an Eating Disorder did not find any preventative effect. The difference in the content of the prevention programs and age of participants are possible reasons for this discrepancy.

One-shot programs, including Stice's **cognitive dissonance** or **healthy weight** intervention and programs using cognitive-behavioural methods, improved Eating Disorder risk factors including poor body image in female college students and shape concern in at-risk women. Duration of follow up for these interventions was limited, so the question of durability of change remains unanswered.

A program targeting **perfectionism** successfully reduced dimensions of perfectionism to 3-month follow-up among female mid-adolescent secondary school students at high-risk of an Eating Disorder relative to control or a ML comparator.

Yoga and meditation was ineffective at changing any Eating Disorder risk factors, including Eating Disorder symptomatology and general psychopathology.

Key Issues

Promising Approaches Less Readily Evaluable with Controlled Trial Methodology

A major limitation of the evidence base summarised is that there are unevaluated initiatives that are promising, if not essential, to improving pathways for Eating Disorder identification and early intervention. Some types of initiatives are unlikely to be evaluated within an RCT design, yet failure to consider these approaches would be remiss.

Training and education for health professionals is seen as key to improving health outcomes though the evaluation of such programs in the Eating Disorders sector remains limited. An example of such a program is *The NSW GP Shared Care Project*. This program has been developed for general practitioners and involves two 4-hour training modules and access to Eating Disorder Clinic staff for review of own patients for one hour per month. The program is a diploma in shared care psychiatry (eating and dieting disorders) and is recognised by the Royal Australian College of General Practitioners Quality Assurance and Continuing Professional Development program. Evaluation of the program has shown improvement in access to Eating Disorder services, and enhanced coordination and appropriate referrals to local services from general practitioners. More thorough evaluation and promulgation of this strategy to other states and territories, and health professional audiences, may be valuable. Training and education within tertiary courses for up-and-coming health and mental health professionals on diagnosis, identification, early intervention, and referral and management options, is recommended.

Training for rural and remote clinicians poses particular challenges for implementation and assessment. An example of a practice model applied in Western Australia included rural- and remote-based training for health and education professionals administered through Princess

Margaret Hospital for Children Eating Disorders Program. Training and education workshops were delivered to more then fifty sites across Western Australia as part of a research grant to improve efficiencies in service delivery. Evaluation of pre-treatment and post-treatment data suggested that the workshops enhanced ability to identify and respond appropriately to individuals at risk, and with suspected or acute Eating Disorders[190]. Youth Mental Health First Aid has developed a training course to assist with identification of and early intervention for mental health problems in youth, which contains a specialised Eating Disorder module and is available nationally. Evaluation of the general Mental Health First Aid program in rural and remote areas in NSW has shown improvement in factors relating to mental health literacy, such as confidence in helping individuals, recognition of mental health disorders, and reduction in negative attitudes toward mental illness[191]. Initiatives such as these require further evaluation.

Training and education for education professionals is important, as they are in a key position to identify early warning signs of Eating Disorders. Training for education professionals can take the form of education in recognising and acting responsibly and efficiently to assist the young person to obtain help, or training in the implementation of school-based or classroom-based empirically-supported prevention programs to reduce Eating Disorder risk.

Training and education for fitness professionals is another avenue for improving Eating Disorders identification and early intervention. These professionals occupy a key position to identify warning signs of Eating Disorders such as excessive exercise, inadequate diet, and physical risk indicators. Some training workshops for this audience are run across Australia (e.g., by Eating Disorders Foundation of Victoria, Princess Margaret Hospital for Children Eating Disorders Training and Education Centre, YMCA), but there are no systematically developed and evaluated programs.

Mental health literacy interventions, including public awareness and media campaigns, aim to enhance the knowledge, beliefs, and skills that enable the identification, prevention, and management of mental health issues. Mental health literacy initiatives increase community awareness and recognition of mental disorders. An example of the successful dissemination of a mental health literacy initiative in Australia is *beyondblue: the National Depression Initiative* public awareness campaign. The campaign has involved public awareness activities such as distribution of posters, pamphlets and postcards, a website with information and support, television advertising, advertisements in print media, and educational videos, and evaluation has indicated improvement in public knowledge and attitudes about depression (Level III-2 evidence)[192].

There may be valuable approaches unrepresented within this review of evidence because they are not pragmatically amenable to evaluation with Level I/Level II methodology, or have not been initiated with a specific focus on Eating Disorders. Review and extrapolation of successful initiatives adopted in other medical or mental health domains will potentially offer a path forward in improving identification and early intervention for Eating Disorders.

Promising Approaches Yet to be Evaluated with Controlled Trial Methodology

Guided and pure-self help interventions (e.g., manualised, step-by-step, user-friendly intervention programs that individuals work through on their own or in conjunction with limited support and guidance from a therapist) are likely to be useful for adults exhibiting disordered eating symptoms. This postulation is based on the fact that research has demonstrated their effectiveness in reducing Eating Disorder symptoms in acutely ill eating-disordered individuals - there are many useful self-help programs for adults that have recently been published and evaluated (see Chapter 5 for further information). Such interventions have high satisfaction ratings with patients and are consistent with a stepped-care model of intervention. Individuals in key positions of early intervention (e.g., general practitioners, university counsellours) may benefit from education and a clearinghouse of appropriate resources and information packs.

Online psychological assessment and treatment clinics may be useful for individuals who experience difficulty seeking help. There may be practical or emotional barriers, such as stigma, secrecy, and shame, that prevent help-seeking. An example of an online assessment and treatment clinic in Australia is Anxiety Online which is provided by the National eTherapy Centre at Swinburne University and funded by the Commonwealth Department of Health and Ageing. One aspect of the online clinic is e-Pass, a free automated online assessment program that assesses for 22 DSM-IV mental health diagnoses (including AN, BN, and BED). This program is developing a 12-week CBT program for BN which is anticipated to be released in 2010 and will be offered in a free pure self-help or low-cost therapist-assisted format. This program may be especially useful to those who cannot access care, such as rural and remote-based individuals.

Localised, Contextualised Initiatives are Underrepresented in Level I and II Evidence

A limitation of the Level I/II evidence summarised is that some of the strategies may not be pragmatic, applicable, or transportable to the Australian context. For instance, one of the largest ongoing research programs on early intervention evaluation has occurred in the United States where the interventions are delivered through college sororities by trained sorority peer leaders. Although the content may be efficacious, the delivery format poses challenges in the transportability of this intervention to the Australian higher-education context.

Many of the indicated intervention programs reviewed have been developed for and trialled within areas of moderate-to-high population densities. One-third of Australia's population, as at June 2008, resided outside a capital city statistical division[193]. Non-metropolitan divisions, particularly rural and remote regions, are arguably the areas most in need of initiatives aimed at skill-building in identification and early intervention, due to impediments in treatment access and the potentially severe, chronic, and life-threatening course Eating Disorders may assume in the full-syndrome, acute phase.

Research Gaps and Directions

Do interventions among individuals at high-risk for Eating Disorders prevent Eating Disorders? While interventions have been shown to reduce hypothesised risk factors for Eating Disorders, the evidence base cannot answer this at present.

Evaluation of the dissemination of evidence-based prevention programs in a naturalistic, sustainable context is an important research avenue. The dissemination of findings and approaches from efficacy trials to Australian settings has not been accomplished or evaluated.

Further research is needed to evaluate the ***utility of early intervention programs targeted to a range of at-risk populations***. Most indicated prevention programs involve female adolescents or young women who have screened positive to extreme Eating Disorder symptoms or psychopathology, therefore, the trials have neglected other populations at heightened risk for Eating Disorders. These populations include people with disordered eating behaviour (binge eating, self-induced vomiting, extreme dietary restriction, excessive exercising for weight loss, etc), people with Type I diabetes, and athletes.

The effectiveness of interventions to improve Eating Disorder mental health literacy, aimed at the general community, at-risk individuals, and/or treatment providers, is required. There are many barriers to obtaining early intervention for Eating Disorders and long delays accompany help-seeking. Eating Disorder literacy initiatives could help to erode some of these barriers.

Pure and guided self-help programs have been evaluated extensively among individuals with acute Eating Disorders, particularly BN and BED, and are effective. Within a stepped care model of intervention, self-help may be considered the first step in management. Self-help programs are likely to be effective among individuals showing Eating Disorder early warning signs, yet this has not been specifically evaluated.

Early warning signs of Eating Disorders can vary as a function of population type, and more research is required to understand the naturalistic course of Eating Disorders, in order to better identify and assist those in the prodromal state.

Research into Eating Disorders and disordered eating amongst Indigenous Australians to-date is limited. Preliminary evidence suggests that indigenous Australians experience comparable rates of Eating Disorders to non-Indigenous Australians and may experience a higher rate of disordered eating[194]. They may be at an increased risk relative to non-Indigenous Australians due to higher rates of Type II diabetes and obesity.

CHAPTER 5
FINDINGS III: TREATMENT STANDARDS AND STRATEGIES

This chapter considers the Level I and Level II evidence available on the treatment and management of Eating Disorders in youth and adults. The information presented in the chapter pertains to the following key questions guiding the evidence review:

Key Question #4	**What is the evidence for the efficacy of treatments or combinations of treatments for AN in a) young people and b) adults?**
Key Question #5	**What is the evidence for the efficacy of treatments or combinations of treatments for BN in a) young people and b) adults?**
Key Question #6	**What is the evidence for the efficacy of treatments or combinations of treatments for BED in adults?**

It is important to note that the stringent evidence level requirement means that some treatment approaches that may be used by individuals with Eating Disorders will not be contained within the scope of evidence summarised. Just because a particular approach has not been subjected to rigorous testing with randomised, controlled methodology does not mean it is inferior or ineffective; it simply means that there is no method for knowing whether the treatment approach produces better, equivalent, or worse outcomes to no treatment or an active treatment comparator. In other words, the treatment approach lacks evidence.

Treatment approaches included within this review appear in alphabetical order, within categories defined by type of Eating Disorder and age of population. Summaries of combined (multimodal) treatment approaches follow monotherapy approaches.

Characteristics and abbreviated details of included studies are located in Appendix F (systematic reviews) and Appendix G (RCTs). The availability of program manuals is delineated and information to help access available programs is included in the reference list.

Anorexia Nervosa in Young People

Ego-Oriented Individual Therapy

Ego-oriented individual therapy (EOIT) focuses on building coping skills, developing one's identity (i.e., beyond the pursuit of thinness), and on addressing interpersonal issues regarding physical, social, and emotional maturation. The program that has been evaluated combines individual sessions with the adolescent (weekly for first half of therapy and bimonthly thereafter) with bimonthly sessions with parents. A treatment duration of twelve to eighteen months was suggested to therapists for the youth that participated in the trial.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] identified one RCT (rated as fair in quality) (Robin, Siegal, Koepke, Moye, & Tice, 1994[196]). Behavioural family systems therapy (similar to Maudsley model) was compared to EOIT among 22 adolescent AN outpatients with an onset of illness in the previous 12 months. Adolescents received an average 15 months therapy with a 12-month follow-up and all patients underwent a standard medical and nutritional program. Both groups improved significantly over time on BMI kg/m^2, with the behavioural family systems condition improving to a greater degree from baseline to post-treatment and follow-up. At post-treatment, 64% in BFST and 64% of EOIT had achieved target weight, 90% of BFST and 73% of patients were menstruating, and 55% of BFST and 50% of EOIT met the dual criteria of weight and menses resumption. At 12-month follow-up, 82% of the BFST and 50% of the EOIT were at or above target weight, 100% in both groups were menstruating, and 82% of BFST and 50% of EOIT met dual criteria. There were no significant differences between groups in terms of proportion to meet target weight and menstruation criterions at outcome measurement points. Other measured outcomes, such as measures of family functioning, generally favoured those treated with behavioural family systems therapy.

Level II Evidence

There is no additional level II evidence available.

Family-Based Treatment (Maudsley Therapy)

FBT is a treatment program for AN in young people that originated from the Maudsley Hospital in London. FBT is markedly different from traditional family therapy. The primary focus is on weight gain by empowering the family to take control over refeeding. It has three phases of (1) refeeding/ weight restoration (2) handing control over eating back to the adolescent and (3) addressing adolescent and other issues.

One systematic review (summarising two relevant RCTs) and one RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[197] identified two RCTs (one rated as fair and one rated as good in quality) that focused exclusively on adolescents (Eisler, Dare, Hodes, Russell, Dodge, & Le Grange, 2000[198]; Robin, Siegal, Koepke, Moye & Tice, 1994[196]). The United Kingdom-based originators of the treatment method[198] compared a one-year programme of conjoint family therapy to separated family therapy (early variations of the "Maudsley" model) in 40 outpatients with AN (mean duration of illness was 1 yr, range = 2 to 36 months). The total patient group experienced an average 13 kg weight gain, and significant improvement in BMI kg/m^2, bulimic symptoms, depression, obsessionality, Eating Disorder attitudes and behaviours, self-esteem, and mood and feelings. Bulik and colleagues reported that conjoint family therapy was superior to separated family therapy in improving traits related to Eating

Disorders, depression, and family functioning. In a United States study[196], behavioural family systems therapy (similar to Maudsley model) was compared to EOIT among 22 adolescent AN outpatients with an onset of illness in the previous 12 months. Adolescents received an average 15 months therapy with a 12-month follow-up and all patients underwent a standard medical and nutritional program. Both groups improved significantly over time on BMI kg/m^2, with the BFST condition improving to a greater degree from baseline to post-treatment and follow-up. At post-treatment, 64% in BFST and 64% of EOIT had achieved target weight, 90% of BFST and 73% of patients were menstruating, and 55% of BFST and 50% of EOIT met the dual criteria of weight and menses resumption. At 12-month follow-up, 82% of the BFST and 50% of the EOIT were at or above target weight, 100% in both groups were menstruating, and 82% of BFST and 50% of EOIT met dual criteria. There were no significant differences between groups in terms of proportion to meet target weight and menstruation criterions at outcome measurement points. Other measured outcomes, such as measures of family functioning, generally favoured those treated with behavioural family systems therapy. Two studies[199,200] identified in Bulik's review did not use full, standardised diagnostic criteria, and another study used a mixed-age sample[201], thereby not meeting inclusion requirements for this review. A FBT manual has been published titled ***Treatment Manual for Anorexia Nervosa: A Family-Based Approach***[202].Recent promising data were presented at the 2009 Eating Disorders Research Society meeting and are awaiting publication (see footnote[5] for further information).

5 James Lock and Daniel le Grange presented data on 121 youth with an average age of 14 years who were randomised to FBT or a family therapy control. Full remission was defined as achieving 95% ideal body weight and a score on a measure of Eating Disorder psychopathology within one standard deviation of community norms.At post-treatment, 40% of those who received FBT and 20% of those who received family therapy achieved full remission. Six- and 12-month follow-ups were conducted; the proportion who relapsed from full remission was 10% for FBT and 45% for the family therapy treatment, and hospitalisation rates subsequent to treatment were 18% for FBT and 31% for family therapy. Faster weight gain was observed with FBT. This information was recorded by an attendee at the Eating Disorder Research Society meeting. Accuracy of these statements will need to be validated against the published report when it becomes available.

Level II Evidence

An RCT conducted in Australia by Rhodes, Baillee, Brown, and Madden (2008)[203] examined whether FBT could be enhanced by the addition of parent-to-parent consultation. Twenty outpatient adolescents with AN were randomised to standard FBT (20 sessions), or FBT with one parent-to-parent consultation session, in which parents in the trial received standard FBT and an additional consultation session between weeks three to five with a parent/s who had completed the FBT. Evaluation at endpoint revealed no differences between the conditions on the youth percent ideal body weight or parental self-efficacy.

Eisler, Simic, Russell, and Dare (2007)[204] reported on five-year outcomes for a group of 40 young people with AN that had been randomised to FBT delivered in either a separated or conjoint format. All patients were re-contacted and 38 agreed to be re-assessed. The authors defined outcome as 'good' (weight within 15% of ideal body weight, resumption of menstruation, and no evidence of bulimic pathology), 'intermediate' (reached normal weight but without return of menstruation or who report bulimic symptoms at a frequency of less than one per week), and 'poor' (weight is below 85% of ideal body weight or binge eating or purging is present once a week or more). At five-year follow-up, 39% had a good outcome, 26% had an intermediate outcome, and 34% had a poor outcome. Generally, those who had a good or intermediate outcome at the end of treatment maintained their outcome status to follow-up, and slightly more than a third of those rated as poor at the end of treatment had shifted to the good outcome category at follow-up. There were no differences in percent ideal body weight gain between the two treatment groups over time or in percent ideal body weight at different time points, though significantly more individuals in the separated condition resumed menstruation (95%) compared to the conjoint condition (72%).

Inpatient Psychiatric Treatment

The inpatient intervention that was evaluated was provided in general child or adolescent psychiatric inpatient units. The treatment was not manualised, though consistency in key elements was sought across sites. These key elements included a multidisciplinary treatment approach, a focus on normalising eating, restoring healthy weight, and improving psychological adjustment. The expected weight increase was 800-1000g per week; nasogastric tube feeding was rarely employed.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Gowers and colleagues (2007)[205] compared two specialist treatments – specialised outpatient treatment and inpatient psychiatric treatment – to treatment-as-usual in the general community. Adolescents aged an average 14 years were randomised (n = 170) to the three conditions. The inpatient treatment was a 6-week program and the two outpatient treatments were 6-month programs, though only the specialised outpatient program was manualised. Outcomes included food intake, menstruation, mental state, psychosexual adjustment, socioeconomic status, BMI kg/m^2, weight for height, global Eating Disorder psychopathology, and secondary measures of psychopathology. Participants were followed up at 1 and 2 years. An intention-to-treat analysis showed that on average participants in the study improved to 1 year, and that improvement continued to occur to the 2 year follow-up, however there were no significant differences between the groups on the main outcomes at either follow-up. A good outcome was defined according to Morgan-Russell criteria and included weight above 85% of that expected, resumption of menses, and binge-eating and purging no more than once per month. At 1 year, 18% in treatment-as-usual, 15% in specialised outpatient, and 21% in inpatient treatment had a good outcome. At 2 years, 36% in treatment-as-usual, 51% in specialised outpatient, and 30% allocated to inpatient treatment had a good outcome.

Specialised Outpatient Treatment

The specialised outpatient treatment approach that was trialled was manusalised and contained several components including a motivational interview, individual CBT plus parent feedback (12 sessions), parental counselling with the young person (4 to 8 sessions), dietary therapy (4 sessions), multimodal assessment and feedback on weight, eating, and symptomatology (4 sessions) and clinician monitoring.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Gowers and colleagues (2007)[205] compared two specialist treatments – specialised outpatient treatment and inpatient psychiatric treatment – to treatment-as-usual in the general community. Adolescents aged an average 14 years were randomised (n = 170) to the three conditions. The inpatient treatment was a 6-week program and the two outpatient treatments were 6-month programs, though only the specialised outpatient program was manualised. Outcomes included food intake, menstruation, mental state, psychosexual adjustment, socioeconomic status, BMI kg/m^2, weight for height, global Eating Disorder psychopathology, and secondary measures of psychopathology. Participants were followed up at 1 and 2 years.

An intention-to-treat analysis showed that on average participants in the study improved to 1 year, and that improvement continued to occur to the 2 year follow-up, however there were no significant differences between the groups on the main outcomes at either follow-up. A good outcome was defined according to Morgan-Russell criteria and included weight above 85% of that expected, resumption of menses, and binge-eating and purging no more than once per month. At 1 year, 18% in treatment-as-usual, 15% in specialised outpatient, and 21% in inpatient treatment had a good outcome. At 2 years, 36% in treatment-as-usual, 51% in specialised outpatient, and 30% allocated to inpatient treatment had a good outcome.

Anorexia Nervosa in Adults

Antidepressant Medication

Serotonergic neurotransmission abnormalities have been theorised to contribute to Eating Disorders. Antidepressant medication seeks to improve serotonergic neurotransmission.

One systematic review (summarising four relevant RCTs) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] identified four RCTs of fair or good quality that investigated the efficacy of antidepressant medication (Attia, Haiman, Walsh, & Flater, 1998[206]; Kaye et al., 2001[207]; Halmi, Eckert, LaDu, & Cohen, 1986[208]; Biederman et al., 1985[209]). One study[206] randomised 31 female weight-restored inpatients to adjunct fluoxetine (60 mg/day) or placebo for seven weeks. Standard treatment included individual therapy with supportive and cognitive behavioural elements, group therapy sessions, family sessions, and a structured behavioural eating normalisation program. There were no significant differences in outcome between groups on weight gain, Eating Disorder psychopathology, depression, or anxiety. Another study[207] allocated 35 individuals with restricting-type AN who had completed inpatient weight regain to fluoxetine (maximum = 60 mg/day) or placebo, and observed them as outpatients for one year. There were no significant differences between patients in terms of weight gain, depression, or Eating Disorder-related obsessions and compulsions at the end of the study. In another study[209], 25 patients were randomised to the tricyclic antidepressant amitriptyline (maximum dose = 175 mg/day) or pill placebo for five weeks, and an additional 18 patients who refused participation in the drug trial served as a psychosocial treatment comparison. There were no significant differences between groups at endpoint on symptomatology or weight, and amitriptyline was associated with adverse events. In another RCT[208], amitriptyline (160 mg/day) was compared to placebo and the weight-inducing medication cyproheptadine (32 mg/day) among 72 inpatients for 7 weeks. Treatment efficiency, a measure comprising the reciprocal of days to target weight times a constant of 90 (maximum length of stay in days), did not differ between groups. Among those that achieved target weight (74% of participants), amitriptyline and cyproheptadine were both associated with lower days to target weight compared to placebo. Caloric intake was significantly lower among those treated with amitriptyline compared to cyproheptadine, and equivalent to those treated with placebo. There were no differences between the placebo group and amitriptyline on depression during treatment.

Level II Evidence

There is no additional level II evidence available.

Antipsychotic Medication

Clinical observations in diverse patient groups suggest that antipsychotic medication can promote weight gain, alleviate agitation, and reduce delusional, overvalued cognitions, leading to investigations into their utility in treating Eating Disorders.

One systematic review (summarising four relevant RCTs) and two RCTs (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Court and colleagues (search date 2006)[210] conducted a systematic review of antipsychotic treatment for AN. They identified four randomised, placebo-controlled trials (Vandereycken and Pierloot, 1982[211]; Vandereycken, 1984[212]; Ruggiero et al., 2001[213]; Mondraty, Birmingham, Touyz, Sundakov, Chapman, & Beumont, 2005[214]) with sample sizes ranging from 15 to 35 patients, and treatment duration ranging from 3 weeks to 3 months. The degree of heterogeneity among the studies precluded data pooling with meta-analysis. One trial[211] examined pimozide (a typical antipsychotic) compared to placebo in a 3-week cross-over design among 18 inpatients undergoing a behaviour therapy short-term weight restoration program. This was followed later by the same group with a 3-week trial of sulpiride (a typical antipsychotic) among 18 inpatients who were being treated with a standardised therapeutic program[212]. The next recent study[213] examined a 3-month trial of amisulpride (an atypical antipsychotic) among 35 inpatients who were being treated with a nutritional- and psychoeducation-based weight restoration intervention. The most recent study[214] tested olanzapine (an atypical antipsychotic) among 15 inpatients receiving standard psychiatric, nutritional, and medication (typically antidepressant) treatment. Court summarised the outcomes across studies in terms of core psychopathology, behavioural outcomes, health care utilisation, and examined adverse events. He reported that there was little evidence of an added benefit of antipsychotic medication, but that the limited number of the trials, the methodological limitations within trials, and the small sample sizes, precluded a confident statement of the efficacy or absence of efficacy of antipsychotic medication.

Level II Evidence

In a study by Bissada, Tasca, Barber, and Bradwejn (2008)[350] 34 patients were randomised to receive either day hospitalization and olanzapine (2.5 – 10.0 mg/day) or day hospital and placebo. At 13 weeks patients taking olanzapine achieved faster weight gain, earlier achievement of target weight and a reduction in obsessive symptoms. In a study by Brambilla, Garcia, Fassino, Daga, Favaro, Santonastaso and colleagues (2007)[215], 20 AN outpatients who commenced CBT + nutritional rehabilitation were randomised to adjunct antipsychotic medication (olanzapine; 2.5-5 mg/day) or pill placebo. At the 12-week study endpoint, BMI kg/m^2 significantly increased in both groups, with no significant between-group difference.

In an Australian study by Mondraty, Birmingham, Touyz, Sundakov, Chapman, and Beumont (2005)[216], 15 inpatients with AN were block randomised to adjunct atypical or typical (i.e. control arm) antipsychotic medication. The patients were receiving standard care with psychiatric, nutritional, and pharmacological treatments. Patients receiving the atypical antipsychotic medication, olanzapine, experienced superior improvement in ruminative thinking relative to control. There were no significant differences between groups in percent change in drive for thinness, body dissatisfaction, or bulimic attitudes and behaviours. The patients gained an average 5.5 kg, with no significant differences between groups.

Behavioural Therapy

Behavioural therapy is grounded in behavioural theory and focuses on using behavioural methods to reduce Eating Disorder symptoms. A strategy used in this approach is exposure, which involves exposing individuals to feared foods and situations, with the aim of reducing anxiety and restoring normal eating patterns.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] reported on one study (Channon, De Silva, Hemsley, & Perkins, 1989)[219] that compared a 6-month program of CBT, BT, and "usual care" among 24 outpatient females with AN. Bulik and colleagues reported that there were no differences between CBT and BT at endpoint on any outcome measures, and the active treatment groups differed from control on maturity fears only. All groups experienced a significant gain in weight, nutritional functioning, and menstrual functioning. At 6-month follow-up, the treatment groups did not differ from the control group on any measure, although weight, menstrual functioning, preferred weight, and drive for thinness improved significantly from endpoint.

Level II Evidence

There is no additional level II evidence available.

Cognitive Analytic Therapy

Cognitive analytic therapy combines elements of cognitive therapy and brief, psychodynamic therapy. Individuals are helped to gain insight into how AN fits into their experiences of their life and their early relationships and are supported to manage emotions and relationships. According to this model, these methods theoretically help individuals to relinquish the need for AN behaviours. Cognitive analytic therapy places an important emphasis on therapeutic relationship processes.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] identified one RCT (Dare, Eisler, Russell, Treasure, & Dodge, 2001)[221] rated as fair in quality which compared cognitive analytic therapy (CAT), focal psychoanalytic therapy, Maudsley-method family therapy, and low-dose "routine" treatment among 84 outpatient women with AN. No differences were found across the three treatments at endpoint of one year, but all were more effective than routine treatment. At endpoint, focal psychoanalytic therapy and family therapy, but not cognitive-analytic therapy, were associated with a better outcome compared to routine treatment. Outcome was defined multidimensionally in terms of weight, menarchal status, and bulimic symptomatology. Approximately one third of the patients in the specialist treatments no longer met criteria for AN at the end of one year, as they had achieved weight restoration to 85% or greater of that expected, yet two-thirds were still very underweight. Approximately 95% were still very underweight in routine treatment. The differences in outcomes between routine treatment and the specialist therapies was most pronounced for family therapy and focal psychoanalytic therapy, rather than CAT. Participants in the study showed significant improvement on nutritional, menstrual, psychosexual, and socioeconomic outcomes.

Level II Evidence

There is no additional level II evidence available.

Cognitive Behavioural Therapy

CBT programs aim to alter unhelpful thinking processes and behaviours that maintain Eating Disorders. CBT is grounded in cognitive behavioural theory. CBT involves cognitive restructuring to challenge unhelpful thoughts and aims to reduce beliefs about the importance of shape, weight, eating and their control for defining one's self worth. CBT programs directly address Eating Disorder behaviours such as excessive dietary restriction, laxative and diuretic misuse, purging, and over-exercising. They may address additional factors implicated in Eating Disorder problems such as self-esteem, perfectionism, interpersonal functioning, and emotion regulation.

One systematic review (summarising three relevant RCTs) and one RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] identified three studies (Pike, Walsh, Vitousek, Wilson, & Bauer, 2003[217]; McIntosh et al., 2005[218]; Channon, de Silva, Hemsley, & Perkins, 1989[219]) of fair or good quality that examined the effectiveness of CBT. The trials involved 113 patients in total. One study involved individuals who had undergone inpatient weight restoration[217], and the other two were conducted with underweight patients[218,219]. The study on weight-restored patients compared a 1-year program of CBT versus nutritional counselling among 33 outpatients with AN who were within one week of successful completion of inpatient hospitalisation. The authors found a benefit of CBT compared with nutritional counselling in terms of relapse risk reduction (22% relapsed with CBT versus 73% with nutritional counselling). Significantly more patients in CBT met criteria for a good outcome (eating and weight concerns within one standard deviation of a comparison group without Eating Disorders and absence of binge eating or purging behaviours) than patients that received nutritional counselling. In another study[218], CBT, interpersonal psychotherapy (IPT), and specialist (formerly nonspecific) supportive clinical management were compared among 56 women with AN or EDNOS-AN. The authors reported no raw data for separate Eating Disorder diagnoses, however they did conduct a moderator analysis examining full/partial diagnosis for one treatment outcome, a global anorexia rating, and reported no impact of diagnosis. On this outcome, specialist supportive clinical management was superior to CBT and IPT, and CBT and IPT did not significantly differ from one another, in the full sample. Approximately 59% (33 of 56) met the strict criteria for AN. In the intention-to-treat full sample (i.e., including partial AN), a good outcome was attained by 0% in IPT, 5% in CBT, and 25% in specialist supportive clinical management, and a poor outcome was attained by 67% in IPT, 53% in CBT, and 38% in specialist supportive clinical management at the end of the 20-week treatment phase. Global outcome was categorised in terms of weight, BMI, physical measures, and Eating Disorder psychopathology. Another study[219] compared a 6-month program of CBT, BT, and "usual care" control among 24 outpatient females with AN. Bulik and colleagues reported that there were no differences between CBT and BT at endpoint on any outcome measures, nor did the active treatment groups differ from control, except on a maturity fears measure. All groups experienced significant improvement in weight, nutritional functioning, and menstrual functioning. At 6-month follow-up, the active treatment groups did not differ from the control group on any measures, although weight, menstrual functioning, preferred weight, and drive for thinness improved significantly from endpoint.

Level II Evidence

One RCT by Brambilla, Garcia, Fassino, Daga, Favaro, Santonastaso and colleagues (2007)[220] evaluated CBT + placebo or olanzapine (2.5 mg for 1 month, 5 mg for 2 months) among 30 patients with AN for three months. Both groups experienced a significant improvement in BMI kg/m^2, global Eating Disorder psychopathology, eating-related obsessiveness, direct aggressiveness and depression, although

the group receiving olanzapine experienced significantly greater improvement on direct aggressiveness and depression. The CBT + placebo group did not experience significant improvement on eating-related compulsions and persistence, but the CBT + olanzapine group did. There were no significant improvements within groups or between-group differences on drive for thinness, interoceptive awareness, bulimic attitudes and behaviours, body dissatisfaction, perfectionism, interpersonal distrust, asceticism, impulse regulation, and social insecurity.

One RCT by McIntosh and colleagues (2005)[218] was identified. This study was included in the systematic review by Bulik and colleagues and therefore is not discussed further.

Family-Based Treatment (Maudsley Therapy)

FBT is a treatment program for AN that originated from the Maudsley Hospital in London. FBT is markedly different from traditional family therapy. The primary focus is on weight gain by empowering the family to take control over refeeding. It has three phases of (1) refeeding/weight restoration (2) handing control over eating back to the individual and (3) addressing developmental issues.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] included one RCT (Dare, Eisler, Russell, Treasure, & Dodge, 2001[221]) rated as fair in quality that examined the efficacy of FBT among adults with AN. The trial compared FBT to cognitive-analytic therapy, focal psychoanalytic therapy, and low-dose "routine" treatment among 84 outpatient women with AN. No differences were found across all four treatments on Morgan-Russell clinical ratings at 1-year endpoint. At endpoint, approximately one third of patients in the three specialised treatments had a body weight greater than 85% ideal body weight, compared to 5% of those in routine treatment. At endpoint, family therapy and focal psychoanalytic therapy, but not CAT, were associated with higher weight, and higher recovery and improvement rates, compared to routine treatment.

Level II Evidence

There is no additional level II evidence available.

Focal Psychoanalytic Psychotherapy

In focal psychodynamic psychotherapy, the therapist takes a non-directive stance and does not offer direct advice on eating behaviour or symptom management. The therapy focuses on addressing conscious and unconscious meanings of the illness in terms of early life experiences, places importance on the therapeutic relationship, and seeks to enable the individual to gain insight into the illness to theoretically allow resolution of the illness.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] identified one RCT (Dare, Eisler, Russell, Treasure, & Dodge, 2001[221]) rated as fair in quality which compared focal psychoanalytic therapy, cognitive-analytic therapy, FBT (Maudsley therapy), and low-dose "routine" treatment among 84 outpatient women with AN. No differences were found across the four treatments on Morgan-Russell clinical ratings, but the three specialised treatments were more effective than routine treatment on weight gain at the 1-year endpoint. At endpoint, focal psychoanalytic therapy and family therapy, but not cognitive-analytic therapy, was associated with a better outcome compared to routine treatment. Outcome was defined multidimensionally in terms of weight, menarchal status, and bulimic symptomatology.

Level II Evidence

There is no additional level II evidence available.

Hormone Replacement Therapy

Hormone replacement therapy is based on the theory that specific hormone imbalances contribute to Eating Disorders. This treatment approach therefore aims to improve hormonal functioning.

One systematic review (summarising three relevant RCTs) and one RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] identified three RCTs (Miller, Grieco, & Klibanski , 2005[222]; Hill et al., 2000[223]; Klibanski, Biller, Schoenfeld, Herzog, & Saxe, 1995[224]) of good or fair quality that examined the efficacy of hormone replacement therapy. In one study[222] 38 outpatients with AN were randomised to three weeks of transdermal (i.e. patch-administered) testosterone or placebo. Outcomes investigated were weight, depression, general well-being, spatial cognition, and bone formation biomarkers. Patients who were moderately-to-severely depressed within the groups improved more if treated with testosterone versus placebo. There was no significant improvement on weight or general well-being in either group from pre-to-post. Spatial cognition improved significantly more in the testosterone group. Testosterone, and not placebo, was associated with higher levels of one f three bone formation biomarkers assessed in the study. The remaining bone formation biomarkers did not significantly change during the study period. Another study[223] examined 28- day administration of growth hormone versus placebo among inpatients with AN (14 female, 1 male). At endpoint, the groups did not differ in weight gain or length of hospitalisation, however, growth hormone administration was associated with a shorter time to reach medical/cardiovascular stability. In another RCT[224], 48 women with AN were randomised to receive estrogen and progestin replacement or no replacement. Outcome at six months indicated that bone density did not differ between groups, however, improved bone density was associated with recovery from AN.

Level II Evidence

One RCT by Miller and colleagues (2005)[222] was identified. This study was included in the systematic review by Bulik and colleagues and therefore is not discussed further.

Interpersonal Psychotherapy

IPT is based on interpersonal theory, and aims to target interpersonal issues that are theorised to contribute to the development and maintenance of Eating Disorders. Interpersonal psychotherapy addresses four theoretical interpersonal problem areas of grief, interpersonal disputes, role transitions, and interpersonal deficits.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] identified one RCT (McIntosh et al., 2005)[218] that compared CBT, IPT, and specialist supportive clinical management among 56 women with AN or EDNOS-AN. The authors reported no raw data for separate Eating Disorder diagnoses, however they did conduct a moderator analysis examining full/partial diagnosis for one treatment outcome, a global anorexia rating, and reported no impact of diagnosis. On this outcome, specialist supportive clinical management was superior to IPT and CBT, and IPT and CBT did not significantly differ from one another, in the full sample. Approximately 59% (33 of 56) met the strict criteria for AN. In the intention-to-treat full sample (i.e., including partial AN), a good outcome was attained by 0% in IPT, 5% in CBT, and 25% in specialist supportive clinical management, and a poor outcome was attained by 67% in IPT, 53% in CBT, and 38% in specialist supportive clinical management at the end of the 20-week treatment phase. Global outcome was categorised in terms of weight, BMI, physical measures, and Eating Disorder psychopathology.

Level II Evidence

One RCT by McIntosh and colleagues (2005)[218] was identified. This study was included in the systematic review by Bulik and colleagues and therefore is not discussed further.

Nutritional Supplements

Nutritional supplements have been used clinically with people with Eating Disorders because of vitamin deficiencies in the diet. In particular, zinc has been of interest because zinc deficiency has been associated with weight loss, appetite problems, amenhorrea, and mood difficulties.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] identified one RCT (Birmingham, Goldner, & Bakan, 1994)[225] rated as fair in quality that investigated the efficacy of zinc supplementation among 35 patients with AN receiving inpatient treatment. Participants were randomised to zinc or placebo control and routine inpatient treatment comprised nutritional resuscitation, meal supervision, behavioural strategies, group and individual psychotherapy, and antidepressant treatment where indicated. Patients were assessed at baseline and the treatment and the study of each patient was ended when the patient had achieved a 10% weight gain above baseline weight. Outcome measures included rate of BMI kg/m^2 gain per day, percent body fat converted, days of nasogastric feeding, and zinc and copper levels. Zinc-treated patients evidenced a significantly higher rate of BMI kg/m^2 gain per day. Rate of BMI kg/m^2 gain was twice that of the placebo condition. Total weight gain was 3.6 kg in zinc-treated and 2.6 kg in placebo-treated participants. There were no significant differences between groups on outcome measures of weight gain, number of days tube feeding, number of days in the study, number of patients administered medication, and rate of percent fat gain per day.

Level II Evidence

There is no additional level II evidence available.

Refeeding by Cyclic Enteral Nutrition

AN is characterised by a fear of fat and weight gain, and consequently, individuals with AN have great difficulty in engaging in regular, normal intake of food. Refeeding is used to reverse starvation and assist weight gain.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Rigaud, Brondel, Poupard, Talonneau, and Brun (2007)[226] randomised 81 individuals with AN undergoing standard psychiatric treatment (dietary treatment, behaviour therapy, psychotherapy, and self-help group sessions) to eight weeks of refeeding by cyclic enteral nutrition (i.e., continuous nutrient infusion) or treatment-as-usual control. At endpoint, those who were refed achieved superior weight gain, gain in fat free mass, and excess energy expenditure compared to treatment-as-usual. Weight gain was higher and faster, equating to a theoretical difference in energy input of 510 kCal per day, and intake of lipids, carbohydrates, and protein was higher in the refed group. Both groups experienced significant improvement in frequency of vomiting and binge episodes, however, throughout the treatment period those in the treatment-as-usual group experienced more episodes. After discharge, the relapse-free period was significantly higher in refed versus treatment-as-usual patients. Side effects associated with refeeding were minimal.

Serotonin Antagonist and Antihistamine Medication

Cyproheptadine has been found to promote weight gain in a variety of populations, and therefore has been investigated for its potential impact on weight gain in AN.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] identified one RCT (Halmi, Eckert, LaDu, & Cohen, 1986[227]) rated as fair in quality that had examined an antihistamine with serotonin receptor antagonist properties, namely, cyproheptadine. The authors compared cyproheptadine (32 mg/day) to the tricyclic antidepressant amitriptyline (160 mg/day) and also placebo among 72 inpatients for seven weeks. In the full sample, there were no significant differences between groups in treatment efficiency. Treatment efficiency, a measure comprising the reciprocal of days to target weight times a constant of 90 (maximum length of stay in days), did not differ between groups. Among those who achieved the target weight (74% of participants), cyproheptadine was associated with lower days to target weight compared to placebo (cyproheptadine: 36 days; placebo: 45 days; amitriptyline: 32 days), higher caloric intake (cyproheptadine: 3 023 kCal; placebo: 2 390 kCal; amitriptyline: 2 450 kCal), and lower depression compared to placebo. Amitriptyline was associated with significantly fewer days to target weight compared to placebo and lower caloric intake compared to cyproheptadine. There were no differences in overall weight gain per day among those who achieved a target weight (cyproheptadine: .3 kg/day; placebo: .2 kg/day; amitriptyline: .3 kg/day).

Level II Evidence

There is no additional level II evidence available.

Specialist (Formerly Nonspecific) Supportive Clinical Management

Specialist supportive clinical management includes clinical management such as education, care, and support, and supportive psychotherapy in which the therapist provides a supportive therapeutic environment offering praise, reassurance, and advice in order to encourage adherence to treatment. The nutritional status of the individual is an important concern within this approach, and the individual is given advice, information, and encouragement to adopt normal eating behaviours and to restore weight.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] identified one RCT (McIntosh et al., 2005)[218] that compared specialist supportive clinical management, CBT, and interpersonal psychotherapy (IPT) among 56 women with AN or EDNOS-AN. The authors reported no raw data for separate Eating Disorder diagnoses, however they did conduct a moderator analysis examining full/partial diagnosis for one treatment outcome, a global anorexia rating, and reported no impact of diagnosis. On this outcome, specialist supportive clinical management was superior to IPT and CBT, and IPT and CBT did not significantly differ from one another, in the full sample. Approximately 59% (33 of 56) met the strict criteria for AN. In the intention-to-treat full sample (i.e., including partial AN), a good outcome was attained by 0% in IPT, 5% in CBT, and 25% in specialist supportive clinical management, and a poor outcome was attained by 67% in IPT, 53% in CBT, and 38% in specialist supportive clinical management at the end of the 20-week treatment phase. Global outcome was categorised in terms of weight, BMI, physical measures, and Eating Disorder psychopathology.

Level II Evidence

One RCT by McIntosh and colleagues (2005)[218] was identified. This study was included in the systematic review by Bulik and colleagues and therefore is not discussed further.

Supportive Family Therapy

Supportive family therapy for AN focuses on increasing insight into AN, aims to provide a supportive context for the individual to make decisions in their life (e.g., to risk gaining weight), places a strong focus on the therapeutic relationship, and assists the family unit to develop more satisfying family relationships. The therapist seeks to enhance individual and family insight into the maturational conflicts and early life experiences that are conceptualised as precipitating the illness, thereby theoretically supporting the individual to relinquish the illness as a coping strategy. In this form of family therapy , family communication patterns and support are addressed. This model of family therapy is based on a psychodynamic theory of AN.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Bulik and colleagues (search date 2005)[195] included one RCT by Gowers, Norton, Halek, and Crisp (1994)[228] rated as fair in quality that examined the efficacy of supportive family therapy among adults with AN. Ninety patients were randomly allocated to four months of inpatient treatment, a "no treatment" one-off assessment control, a 12-session outpatient combined individual (psychodynamic orientation) and family therapy package, or a 10-session outpatient group therapy program with a concurrent parents group. The two outpatient treatment programs included four sessions of nutritional advice. At 1- and 2-year follow-up, those treated with outpatient or inpatient therapy had significantly higher weight compared to the "no treatment" condition. The outpatient and the control group were significantly more likely to have reached menarchal status at two years, but not one year, compared to trial entry. The outpatient and the control group showed similar improvement on other outcomes such as nutritional status and sexual adjustment at two years.

Level II Evidence

There is no additional level II evidence available.

Combined Nutritional Rehabilitation and Cognitive Behavioural Therapy

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Brambilla and colleagues (2007)[215] randomised 20 outpatients with AN to a 12-week program of nutritional rehabilitation and CBT + either antipsychotic medication (olanzapine; 2.5-5 mg/day) or pill placebo. Both groups experienced a significant improvement in BMI kg/m^2 and there were no significant between-group differences. There were no significant changes to leptin or ghrelin levels by time, no between-condition differences, and no significant condition × treatment interactions.

Combined Nutritional Rehabilitation, Cognitive Behavioural Therapy, and Antipsychotic Medication

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Brambilla and colleagues (2007)[215] randomised 20 outpatients with AN to a 12-week program of nutritional rehabilitation and CBT with

either antipsychotic medication (olanzapine; 2.5 mg for 1 month; 6 mg for 2 months) or pill placebo for 3 months. Over the duration of treatment, BMI kg/m^2, global Eating Disorder psychopathology, and eating-related obsessiveness improved significantly for both groups, with no between-group differences. Only the olanzapine group improved significantly on eating-related compulsive symptoms and persistence. There was a significantly greater improvement in 'direct aggressiveness' and depression among olanzapine treated patients, though both groups experienced significant improvement. There were no significant improvements within groups or between-group differences on drive for thinness, interoceptive awareness, bulimic attitudes and behaviours, body dissatisfaction, perfectionism, interpersonal distrust, asceticism, impulse regulation, and social insecurity. There were no significant changes to leptin or ghrelin levels by time, no between-condition differences, and no significant condition × treatment interactions.

Bulimia Nervosa in Young People

Family-Based Treatment (Maudsley Therapy)

FBT for BN is an adapted version of the FBT program devised for adolescents with AN. The first phase involves empowering family members to modify disordered eating, including binge eating, purging, dietary restriction, and any other extreme weight control methods. The second phase involves handing over control of eating issues back to the adolescent and the final phase focuses on addressing adolescent and other issues.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Le Grange, Crosby, Rathouz, and Leventhal (2007)[229] compared FBT to supportive psychotherapy for 6 months (20 visits) on an outpatient basis among 80 young people aged 12 to 19 years. The FBT adapted for BN has been manualised in the book, ***Treating Bulimia in Adolescents: A Family-Based Approach***[230]. Individuals met criteria for full- (n = 37, 46%) or sub-threshold BN (n = 43, 54%). The trial is included in this review because it examined diagnosis as a moderator of outcome and therefore contains findings applicable to full-threshold BN. Diagnosis was investigated as a moderator of one variable, remission rate (defined as no objective binge episodes, subjective binge episodes, or compensatory behaviour for the previous four weeks), therefore information pertinent to this outcome only is described. The remission rate was significantly higher for those treated with FBT compared to those treated with supportive psychotherapy at endpoint (39% versus 18%) and 6-month follow-up (29% versus 10%). There was no significant difference in remission rates between those with full- or sub-threshold BN, suggesting that both diagnostic groups improved to a greater extent if treated with FBT rather than supportive psychotherapy.

Bulimia Nervosa in Adults

Active Light

This approach is based on the theory that serotonin neurotransmission is impaired in individuals with BN. Bright light treatment has been shown to be helpful for improving serotonergic neurotransmission, and has been used for other mental health problems involving serotonergic impairment, such as seasonal affective disorder.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Shapiro and colleagues (search date 2005)[231] identified one RCT (Braun, Sunday, Fornari, & Halmi, 1999[232]) rated as fair in quality that evaluated the efficacy of active light therapy. Thirty-four female outpatients with BN were administered either 10 000 lux bright white light (active treatment) or 50 lux dim red light (placebo control) for three weeks during winter months. They were instructed to administer the light therapy at home once daily for one half-hour. There were no differences in expectations about treatment in either condition, and no patients in the study believed they had received the placebo light. Analysis of time and treatment effects showed that those who received the active treatment had a significantly greater reduction in binge frequency than those that received the placebo light. Binge eating reduced from 6.7 to 4.1 episodes per week in the active treatment group, and from 4.9 to 3.6 episodes per week in the placebo group, from baseline to posttreatment. There were no significant differences within groups over time or between groups on purging frequency, weekly meal or snack frequencies, or urge to binge or carbohydrate craving (assessed with a Likert-type non-validated method). Depression and eating-related obsessions and compulsions reduced over time in both groups, with no significant between-group differences.

Level II Evidence

There is no additional level II evidence available.

Androgen Receptor Antagonist Medication

Studies have suggested that BN in women is accompanied by elevated serum levels of testosterone, and that androgens may contribute to bulimic behaviour by influencing appetite, food craving, and impulse regulation. This treatment approach aims to block androgen receptors.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

An RCT by Sundblad, Landén, Erikkson, Bergman, and Erikkson (2005)[233] investigated the efficacy of the androgen antagonist flutamide versus antidepressant medication. This trial was considered for inclusion in the systematic review by Shapiro and colleagues, yet was excluded because it received a quality rating of poor, therefore, the trial is not discussed further.

Anticonvulsant Medication

Anticonvulsant medication has been investigated as a treatment method due to its potential biochemical effect on individuals with Eating Disorders. The potential mechanisms of action are not clearly understood, yet the approach has shown some promise in studies in BN, prompting investigation of efficacy.

Two systematic reviews (summarising two relevant RCTs) and one RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Arbaizer and colleagues (search date 2008)[234] examined the efficacy of topiramate in the treatment of BN. Two RCTs (Nickel et al., 2005[235];

Hoopes et al., 2003[236]; Hedges et al., 2003[237]) among 129 patients with BN were identified. Patients in the studies commenced on a dosing schedule of 25mg/day that was titrated upward (median of 100mg/day[236]; mean of 250 mg/day[235]) over 10 weeks. In the pooled analysis of these studies, binge episodes per week reduced by an average of 5.2 (±.3) in the topiramate group and 3.7 (±.4) in the placebo group, and binge days per week reduced by 3.7 (±.4) days in the topiramate group and 2.5 (±.3) days in the placebo group. Adverse events were more common in the first study and equivalent in the second study. The reviewers concluded that the data provided evidence for the efficacy of topiramate for BN, but that findings were limited by the high drop-out rates and the short-term nature of the treatment approach and evaluation.

Shapiro and colleagues (search date 2005)[231] summarised one study[236,237], rated as fair in quality, that examined anticonvulsant medication. This study was included in the review by Arbaizer and colleagues and therefore is not discussed further.

Level II Evidence

One RCT by Nickel and colleagues (2005)[235] was identified. This study was included in the systematic review by Arbaizer and colleagues and therefore is not discussed further.

Antidepressant Medication

Serotonergic neurotransmission abnormalities have been theorised to contribute to Eating Disorders. Antidepressant medication seeks to improve serotonergic neurotransmission.

One systematic review (summarising 16 relevant RCTs) and four RCTs (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Shapiro and colleagues (search date 2005)[231] identified ten studies (see reference list for further information)[238,239,240,241,242,243,244,245,246,247] that had evaluated the efficacy of antidepressant medication within study designs that did not include a combined treatment arm. Nine of these RCTs were rated as fair in quality and one was rated as good. All of these studies except one were conducted with outpatients. Six trials compared fluoxetine to placebo, among individuals with a mean age in the mid-twenties. Shapiro reported that overall, fluoxetine administered at approximately 60 mg/day for between 8 to 16 weeks led to significant improvement in binge eating, purging, weight concern, restraint, food preoccupation, bulimic attitudes and behaviours drive for thinness, and body dissatisfaction. They noted that fluoxetine had no adjunctive benefit in one study among individuals who were undergoing intensive inpatient psychotherapy (usual care). One study found that fluoxetine administration was superior at preventing BN relapse compared to placebo, although the study was affected by a high (> 80%) attrition rate. One trial examined fluvoxamine compared to placebo, and found that fluvoxamine was superior on measures of binge eating, purging, and depression. Another study examined trazodone, noting that it led to larger reductions in binge eating and purging. Support for the efficacy of desiprramine in improving binge eating, purging, and Eating Disorder-related psychopathology was noted in two other studies.

Shapiro and colleagues identified six trials (see reference list for further information)[248,249,250,251,252,253,254,255] which evaluated the efficacy of antidepressant medication and included at least one combined treatment arm in the study design. Four of these were rated as fair in quality and two were rated as good. A trial that compared fluoxetine monotherapy to CBT monotherapy and combined CBT and fluoxetine found that fluoxetine alone was associated with weaker outcomes compared to CBT monotherapy or combined treatment. Other trials found that fluoxetine alone or with self-help, was associated with greater improvement on vomiting frequency and other clinical measures, relative to placebo alone or placebo and self-help. One study included a CBT monotherapy and combined treatment arm, both of which were superior to despiramine

alone. Shapiro reported that there were no differences between groups in a trial that compared fluoxetine monotherapy, fluoxetine followed by desipramine, or IPT.

Level II Evidence

In an RCT, Milano, Petrella, and Capasso (2004)[256] examined the efficacy of sertraline (100 mg/day) in 20 female outpatients with BN. Individuals in the 12-week trial were randomised to sertraline or pill placebo. At endpoint, those in the sertraline condition had a significantly greater reduction in weight compared to those who received the pill placebo. No patient discontinued from the trial due to serious adverse events. No other standardised measures were available to report on from this study.

Schmidt, Cooper, Essers, Freeman, Holland, Palmer, and colleagues (2004)[257] randomised 267 adult outpatients with BN to sequential fluvoxamine medication (8 weeks) with pill placebo (44 weeks), fluvoxamine (52 weeks), or pill placebo (52 weeks). The 52-week study was designed to evaluate the short-term and 12-month efficacy of fluvoxamine in the treatment of BN. Remission status was defined according to DSM-IIIR criteria, with categories of 1 'full remission', 2 'partial remission (mild)', 3 'partial remission (moderate), 4 'actively bulimic according to diagnostic criteria and 5 'extremely severe disorder'. The remission rates at 1-year follow-up were 34% for antidepressant medication, 36% for sequential antidepressant medication with pill placebo and 33% for pill placebo conditions. The study found short-term fluvoxamine was no more efficacious than pill placebo and long-term fluvoxamine was no more efficacious than short-term fluvoxamine or pill placebo. Nineteen serious adverse events were reported in Phase 1 of the study 17 of which occurred in the fluvoxamine treated patients.

Milano, Siano, Putrella, and Capasso (2005)[258] randomised 12 female outpatients with BN to fluvoxamine (200 mg /day) or pill placebo for 52 weeks. Outpatients in the antidepressant condition experienced a mean 8% reduction in body weight, in comparison to a mean of 1.5% for those treated with pill placebo. The active treatment was not associated with any adverse patient events. No further standardised outcomes were available to report on.

An RCT by Sundblad, Landén, Erikkson, Bergman, and Erikkson (2005)[233] investigated the efficacy of the androgen antagonist flutamide versus antidepressant medication. This trial had been considered for inclusion in the systematic review by Shapiro and colleagues, yet was excluded because it received a quality rating of poor, therefore, the trial is not discussed further.

Cognitive Behavioural Therapy

CBT programs aim to alter unhelpful thinking processes and behaviours that maintain Eating Disorders. CBT is grounded in cognitive behavioural theory. CBT involves cognitive restructuring to challenge unhelpful thoughts and aims to reduce beliefs about the importance of shape, weight, eating and their control for defining one's self worth. CBT programs directly address unhelpful behaviours that maintain Eating Disorders such as excessive dietary restriction, laxative and diuretic misuse, purging, and over-exercising. They may address additional factors implicated in Eating Disorder problems such as self-esteem, perfectionism, interpersonal functioning, and emotion regulation.

Two systematic reviews (summarising 22 RCTs) and three RCTs (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Hay and colleagues (search updated to June 2007)[259] pooled data (when applicable) from relevant RCTs, and reported a significant relative risk ratio favouring CBT over wait-list or no-treatment on abstinence (100% binge free) rate (5 RCTs pooled, $n = 204$), bulimic symptoms (9 RCTs pooled, $n = 323$), and depression symptoms (6 RCTs pooled, $n = 223$), and no significant differences on psychosocial/interpersonal functioning (1 RCT, $n = 38$), proportion completing study period

(9 RCTs pooled, *n* = 331), or weight (1 RCT, *n* = 80). Comparisons of CBT versus any other psychotherapy revealed significant differences favouring CBT on abstinence rate (7 RCTs pooled, *n* = 484) and no differences on bulimic symptoms (8 RCTs pooled, *n* = 514), depression symptoms (7 RCTs pooled, *n* = 242), general psychiatric symptoms (5 RCTs pooled, *n* = 165), psychosocial/interpersonal functioning (4 RCTs pooled, *n* = 330), proportion who dropped out due to adverse events (2 RCTs pooled, *n* = 73), proportion completing study period (8 RCTs pooled, *n* = 523), and weight/BMI (5 RCTs pooled, *n* = 190). Comparisons of CBT versus a component of CBT only revealed a significant difference favouring CBT on abstinence rate (4 RCTs pooled, *n* = 168), and bulimic symptoms (2 RCTs pooled, *n* = 80), and no significant differences on binge eating (1 RCT, *n* = 30), depression (1 RCT, *n* = 30), weight/BMI (1 RCT, *n* = 39), general psychiatric symptoms (1 RCT, *n* = 50), proportion completing study period (4 RCTs pooled, *n* = 148), and social adjustment (1 RCT, *n* = 50). Comparisons of CBT versus CBT augmented with exposure and response prevention revealed no significant differences on abstinence rate (3 RCTs pooled, *n* =168), bulimic symptoms (4 RCTs pooled, *n* = 149), proportion completing study period (4 RCTs pooled, *n* = 193), and depression symptoms (4 RCTs pooled, *n* = 145).

Shapiro and colleagues (search date 2005)[231] summarised 13 trials (see reference list for further information)[260,261,262,263,264,265,266,267,268,269,270,271,272,273,274] that had examined CBT and outlined key findings from these studies. One study found that CBT reduced binge eating frequency, vomiting frequency, other compensatory behaviours, and eating-related psychopathology whether administered in a group or individual format. Another study found that CBT performed better than exposure therapy alone and led to a lower relapse rate. Other studies found that CBT led to greater improvements than waiting-list control, supportive therapy, nutritional counselling, and nondirective psychodynamic treatment. CBT performed similarly to IPT in one study at one-year follow-up, however, was associated with a faster rate of improvement from pretreatment to endpoint. IPT appeared to "catch up" with CBT on study outcomes at follow-up. Some studies have found that CBT monotherapy performs equivalently to CBT combined with fluoxetine alone, in terms of outcomes such as binge eating and vomiting frequency. In one study, CBT was superior to desipramine monotherapy in reducing binge eating and purging. Few differences between CBT monotherapy and CBT combined with despiramine were reported. In another study, CBT was superior to supportive psychotherapy in improving binge eating and vomiting, but CBT combined with desipramine or desipramine then fluoxetine was superior to CBT monotherapy or medication alone.

Level II Evidence

An RCT by Bailer, de Zwaan, Lesich, Strnad, Lennkh-Wolfsberg, El-Giamal, and colleagues (2004)[275] evaluated the effectiveness of guided self-help in the short- and long-term treatment of BN. Eighty-one adult outpatients with BN were randomised to 18 weeks of CBT guided self-help (CBTgsh) [German adaptation of ***Getting Better Bit(e) by Bit(e): A Survival Kit for Sufferers of Bulimia Nervosa and Binge Eating Disorders***[276]] or CBT [German adaptation of existing treatment manuals]. Both conditions significantly improved outcomes of binge eating frequency across treatments on vomiting frequency, use of laxatives, depression, drive for thinness, bulimic attitudes and behaviours, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interceptive awareness, maturity fears, asceticism, impulse regulation, and social insecurity. No significant within group improvements were observed on meal frequency or BMI kg/m^2. Significant main effects for group were observed on meal frequency (CBTgsh reduced meal frequency, CBT increased meal frequency). Abstinence from binge eating (preceding month) at intent-to-treat endpoint was 7% for the CBTgsh condition and 12% for the CBT condition. Completer analysis of abstinence from binge eating was 30% and 12% respectively. Significant group by time interactions revealed a faster rate of improvement on bulimic attitudes and

behaviours, impulsiveness, perfectionism and social insecurity, favouring CBTgsh. There were no significant post treatment to 1-year follow-up change within groups on any of the measures outcomes, which suggests that gains were maintained. There were significant group effects, favouring CBTgsh on vomiting frequency, use of laxatives, bulimic attitudes and behaviours, impulsiveness, perfectionism, interpersonal distrust, interoceptive awareness, asceticism and social insecurity. Another significant group effect was determined favouring CBT condition on BMI kg/m^2. Significant group x time interactions revealed a faster rate in improvements for the CBT condition on drive for thinness and body dissatisfaction, although raw scores showed that these were delayed treatment effects relative to CBTgsh.

An RCT was conducted by Ghaderi (2006)[102] to determine if a higher level of therapy individualisation increases treatment efficacy. The trial randomised 50 adult outpatients with BN to CBT (standardised/focused) or CBT (individualised/broad) conditions for the 19-week trial. The manual used was, ***Cognitive Behaviour Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168]. Both treatments produced significant improvements in pre-, post- and follow-up outcome measures on objective binge episodes (previous 28 days), abstinence from objective binge episodes, self-induced vomiting, excessive exercise, abstinence from compensatory behaviours, self-esteem, body shape concerns, dietary restraint, eating, shape and weight concerns, bulimia attitudes and behaviours, body dissatisfaction, ineffectiveness, and global Eating Disorder psychopathology. There were no significant improvements on perfectionism within either condition. At endpoint only 4 % of those randomised met diagnostic criteria for BN. These results were maintained at 6-month follow-up. Time × group interactions revealed a significant interaction on abstinence from objective binge episodes, body shape concerns, eating concerns and global Eating Disorder psychopathology, which generally favoured CBT (individualised/broad).

Fairburn, Cooper, Doll, O'Connor, Bohn, Hawker, and colleagues (2009)[277] randomised 154 adult outpatients with BN (n = 57) or EDNOS (n = 97) to three conditions, CBT-enhanced (focused), CBT-enhanced (broad) and delayed treatment control. The 20-week study aimed to compare the two CBT treatments for outpatients, one which focuses on Eating Disorder features only and the other which also focuses on mood intolerance, clinical perfectionism, low self-esteem or interpersonal difficulties. At endpoint 53% of all patients with BN and 61% at follow-up had a global Eating Disorder psychopathology score less than one standard deviation about the community mean. The CBT-E approach has been manualised in the book, ***Cognitive Behavior Therapy and Eating Disorders***[278].

Cognitive Behavioural Therapy Guided Self-Help

This approach refers to CBT delivered in a self-help format during which short, usually weekly sessions are held with a therapist who monitors and supports implementation of the program.

Two systematic reviews (summarising 3 relevant RCTs) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Shapiro and colleagues (search date 2005)[231] identified three RCTs (Bailer et al., 2004[279]; Durand & King, 2003[280]; Thiels, Schmidt, Treasure, Garthe, & Troop, 1998[281]) rated as fair in quality that compared guided self-help to non-specific or specific comparators. In one study[279], 81 patients with BN were randomly assigned to CBTgsh with a maximum of 18 weekly therapist visits or 18 weekly 1.5 hour sessions of CBT in a group format. The self-help program was a German-adapted version of the published manual, ***Getting Better Bit(e) by Bit(e): A Survival Kit for Sufferers of Bulimia Nervosa and Binge Eating Disorders***[276]. Patients in both conditions demonstrated significantly improved outcomes across treatment on binge eating frequency, vomiting frequency, use of laxatives, depression, drive for thinness, bulimic attitudes and behaviours, body

dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, maturity fears, asceticism, impulse regulation, and social insecurity. No significant within-group improvements were observed on meal frequency or BMI kg/m^2. Significant main effects for group were observed on meal frequency (favouring group CBT) and social insecurity (favouring guided self-help). Remission was higher in the CBTgsh condition (74%) versus the CBT condition (44%) at one-year follow-up. In another study[281], 62 outpatients with BN were allocated to 16 weeks of CBTgsh (with 8 fortnightly sessions of CBT) or 16 weeks of individual CBT. The German-adapted version of the published manual, ***Getting Better Bit(e) by Bit(e): A Survival Kit for Sufferers of Bulimia Nervosa and Binge Eating Disorders***, was used. At endpoint and follow-up, both groups experienced significant improvement from baseline on overeating, purging, shape concern, weight concern, depression, self- concept, and other eating and psychological outcomes. There were no significant group or group by time interactions, indicating that both groups improved to the same degree and at the same rate. In another study[280], 34 patients were randomised to GP-managed CBTgsh or specialist clinical management. The self-help manual used was the published book, ***Bulimia Nervosa and Binge-Eating: A Guide to Recovery***[282]. There was significant improvement over time (baseline to 6 months post-baseline to 9 months post-baseline) for both groups on bulimic symptom severity, Eating Disorder psychopathology, and depression, with no between-group differences. There were no significant differences between groups on objective binge episodes at any time point or in terms of degree of improvement over time.

Hay and colleagues (search updated to June 2007)[259] classified two RCTs[283,284] as evaluating CBTgsh versus wait-list control. One study used a mixed sample and did not report results separately for full- and partial-threshold BN, and outcomes were summarised in Hay's systematic review for this study only or for this study pooled with the second study identified. Therefore, this systematic review is not discussed.

Level II Evidence

One RCT by Bailer and colleagues (2004)[279] was identified. This study was included in the systematic review by Shapiro and colleagues and therefore is not discussed further.

Cognitive Behavioural Therapy Pure Self-Help

This approach refers to CBT delivered in a pure self-help format. The individual follows a step-by-step program (usually written up as a book) and implements the treatment program independently.

Two systematic reviews (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Shapiro and colleagues (search date 2005) identified one RCT (Carter et al., 2003)[284] that they rated as fair in quality. Eighty-five female outpatients with BN were randomised to receive CBT pure self-help (CBTpsh), a non-Eating Disorder-related self-help manual (non-specific control), or wait-list control. The CBT self-help manual used was ***Overcoming Binge Eating***[285]. Participants in the self-help conditions were requested to follow the advice in the self-help books for two months. There was a significant decrease in binge eating and purging over time in the self-help groups, but not the control group. Proportion of responders (individuals reporting a ≥ 50% reduction in binge eating) was 54% for CBTpsh, 50% for nonspecific self-help, and 31% for waiting-list control. Intense exercising reduced significantly in CBTpsh but not in the other groups. There were no significant changes in any group on dietary restraint, eating concern, shape concern, weight concern, other aspects of eating-disorder related psychopathology, or variables related to general psychopathology or psychological functioning.

Hay and colleagues (search updated to June 2007)[259] identified this same RCT (Carter et al., 2003) [284] and reported on the CBTpsh and wait-list comparisons. There was a statistically significant difference favouring self-help on

proportion achieving abstinence (1 RCT, *n* = 57), and no statistically significant differences on depression symptoms (1 RCT, *n* = 57), interpersonal functioning (1 RCT, *n* = 57), overall drop-out rate (1 RCT, *n* = 57), proportion achieving remission (1 RCT, *n* = 57), and binge frequency (1 RCT, *n* = 57).

Level II Evidence

There is no additional level II evidence available.

Crisis Intervention

Crisis intervention has been tested as a BN relapse prevention strategy. Individuals are offered the option to return for the additional therapy sessions if they notice themselves becoming symptomatic again or fear relapse.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Shapiro and colleagues (search date 2005)[231] identified one RCT (Mitchell et al., 2004)[286] rated as fair in quality that compared crisis intervention to usual follow-up among 57 individuals with BN. All patients had recently completed CBT and at CBT endpoint had achieved abstinence from binging and purging in the previous 28 days. Participants in the crisis intervention condition were advised to contact their treating therapist within the first 17 weeks of treatment completion if they required additional support. The usual follow-up condition was not offered any further support over the 17 weeks. Participants were assessed at the end of the 17-week follow-up period, and at 43 and 70 weeks after CBT. No participant in the crisis intervention condition requested an additional visit. Nearly 40% of participants in the study had resumed binge eating or purging at the end of the 17-week follow-up period, and there were no differences in rate of resumption between the two conditions. Only 4 of the 30 participants that resumed binge eating or purging met DSM-III-R criteria for BN at 17 weeks.

Level II Evidence

There is no additional level II evidence available.

Dialectical Behavioural Therapy

Dialectical behaviour therapy is based on an emotion regulation model of Eating Disorders, which proposes that disordered eating arises because it assists the individual to manage intolerable emotional states if the individual has few other coping strategies. The therapy is aimed at assisting the individual to tolerate and manage emotions.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Shapiro and colleagues (search date 2005)[231] identified one RCT (Safer, Telch, & Agras, 2001)[287] of good quality that compared dialectical behavioural therapy (DBT) to wait-list control. However, the study reported on a mixed BN and EDNOS-BN sample with no separate outcomes by diagnosis, hence did not meet inclusion for this review.

Level II Evidence

There is no additional level II evidence available.

Guided Imagery

Guided imagery uses visualisation and relaxation activities to promote self-comforting and self-awareness.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Shapiro and colleagues (search date 2005)[231] identified one RCT (Esplen, Garfinkel, Olmsted, gallop, & Kennedy, 1998)[288] of fair quality that compared guided imagery and control journalling among 75 BN outpatients. From pre-treatment to post-treatment, completer

analyses ($n = 50$) showed significant differences favouring the active treatment group on drive for thinness, bulimic attitudes and behaviours, body dissatisfaction, ineffectiveness, interoceptive awareness, maturity fears, soothing receptivity, and aloneness; and no significant improvement or between-group differences on perfectionism and interpersonal distrust. There was a significantly greater reduction in binge eating and purging frequency in guided imagery completers (-74% and -72% respectively) versus control (+9% and -6%, respectively) participants.

Level II Evidence

There is no additional level II evidence available.

Healthy Weight Program

This program promotes and encourages the adoption of healthy weight control behaviours, such as a healthy, nutritious diet and exercise. The program aims to induce a slight negative energy balance, so that a slim, but healthy physique can be acquired through health-promoting methods, which is thought to lead to better body image. Although the program uses cognitive-behavioural methods, it has different foci to evaluated CBT programs, in that it promotes caloric restriction, rather than challenging attempts to restrain dietary intake, and it does not seek to challenge a participant's belief in the value and importance of obtaining a slim physical ideal.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Burton and Stice (2006)[289] randomised 85 females with full- (48%) or sub-threshold BN (52%) to a 6-session healthy weight intervention delivered in a group format or wait-list control. They tested diagnostic threshold as a moderator variable and reported no differences between groups on primary outcomes, hence, results of this study are reported. The intervention group demonstrated a reduction in BMI kg/m^2 over the duration of the study (pre-treatment, mid-treatment, post-treatment, 3-month follow-up), whereas the control group experienced a slight increase. Examination of the data across the time points showed that the intervention group experienced a significantly greater reduction in BMI kg/m^2 relative to the control group between pre-treatment and post-treatment, specifically. There were larger reductions in bulimic symptoms (binge-eating and compensatory behaviours) for the intervention participants across the four waves of data collection relative to controls, although both groups experienced significant reductions over time. Remission was defined as the absence of binge-eating and purging within the previous month. At post-treatment, 16% of intervention participants versus 2% of control participants were remitted, and at 3-month follow-up, 35% of intervention participants versus 10% of control participants were remitted.

Multimodal Day Program

The multimodal day program that was investigated had a psychodynamic orientation with symptom-oriented and systemic elements. The treatment components included individual psychotherapy, group psychotherapy, body therapy, art therapy, medical management including medication administration where appropriate, relaxation therapy, and sessions with a social worker or family sessions when needed.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Zeeck, Weber, Sanddholz, Wetzler-Burmeister, Wirsching, and Hartmann (2009)[290] randomised 55 patients with severe BN, who either had not improved with at least 25 sessions of outpatient psychotherapy, had severe comorbidity, or had a chronic course of illness over at least 5 years, to a multimodal day clinic or a multimodal inpatient treatment. The programs were reported to be psychodynamic in orientation, with symptom-

oriented and systemic elements. The groups experienced significant improvement in bulimic attitudes and behaviours, binge eating frequency, vomiting, and general psychopathology, with no significant between-group differences. Outcomes were maintained from discharge to 3-month follow-up. The multimodal day program was associated with a lower rate of relapse (worsening of bulimic attitudes and behaviours) between discharge and follow-up compared to the multimodal inpatient program.

Multimodal Inpatient Program

The multimodal inpatient program that was investigated had a psychodynamic orientation with symptom-oriented and systemic elements. The treatment components included individual psychotherapy, group psychotherapy, body therapy, art therapy, medical management including medication administration where appropriate, relaxation therapy, and sessions with a social worker or family sessions when needed.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

In Zeeck, Weber, Sandholz, Wetzler-Burmeister, Wirsching, and Hartmann (2009)[290] RCT, 55 patients with severe BN, who either had not improved with at least 25 sessions of outpatient psychotherapy, had severe comorbidity, or had a chronic course of illness over at least 5 years, were randomised to multimodal day or inpatient treatment. The groups experienced significant improvement in bulimic attitudes and behaviours, binge eating frequency, vomiting, and general psychopathology, with no significant between-group differences. Outcomes were maintained from discharge to 3-month follow-up. The multimodal inpatient program was associated with an increased rate of relapse (worsening of bulimic attitudes and behaviours) between discharge and follow-up compared to the multimodal day program.

Nutritional Management

Nutritional management focuses on normalising eating patterns. Although this approach is a component of other treatment approaches, such as CBT, it was investigated on its own as dietary restraint is considered a primary pathway to disordered eating, and the single most important factor that maintains the restraint-binge eating-purging cycle often seen in BN. Education is provided on metabolic requirements, the biological and psychological effects of starvation, the importance of regular eating, the macronutrient composition of food and appropriate quantity for consumption, advice on meal preparation and planning, and individuals are encouraged to eat feared foods.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Shapiro and colleagues (search date 2005)[231] identified one RCT (Laessle et al., 1991)[291] of fair quality that compared nutritional management to stress management among 55 BN outpatients. Treatment entailed 15 group sessions over three months. At endpoint, both conditions demonstrated a significant improvement on binge eating, vomiting, body dissatisfaction, depression, and other psychopathology. These improvements were maintained at 12-month follow-up, with nutritional management associated with a more rapid reduction in binge eating frequency and a higher rate of binge eating abstinence. Stress management was associated with higher improvement on various aspects of psychopathology, such as ineffectiveness, interpersonal distrust, and worry.

Level II Evidence

There is no additional level II evidence available.

Repetitive Transcranial Magnetic Stimulation

Repetitive transcranial magnetic stimulation (rTMS) has been investigated for its potential capacity to regulate the feeding suppression area in the frontal lobe. It is based on preliminary scientific evidence that blood flow in the frontal area is higher before eating and lower after eating in individuals with BN compared to control, which is hypothesised to lead to difficulty controlling appetite and food intake. Research has shown that rTMS may help to regulate serotonergic neurotransmission, which is thought to be dysfunctional in individuals with Eating Disorders.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Walpoth, Hoertnagl, Mangweth-Matzek, Kemmler, Hinterhölzl, Conca, and colleagues (2008)[292] randomised 14 outpatients with BN to three weeks of rTMS (20 Hz, once per day, 10 trains of 10 s with a train interval of 60 s) or sham stimulation. First, patients received sham treatment for one week prior in order to exclude patients responsive to placebo. Both conditions experienced significant improvement on depression and obsessive-compulsive symptoms, and no change in binge eating frequency. There were no significant differences between groups at endpoint on depression symptoms, obsessive-compulsive symptoms, binge episodes per day, or vomiting frequency.

Serotonin Antagonist

Serotonin antagonist treatment has been trialled because of its potential capacity to block the activation of receptors on chemosensitive afferent vagal fibres in the gastric mucosa. The rationale underlying the approach is that the vagus nerve may modulate aspects of satiety and pain; BN involves problematic regulation of food intake and some research has suggested that individuals with BN have increased pain thresholds.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Shapiro and colleagues (search date 2005)[231] identified one RCT (Faris et al., 2000)[293] rated as good in quality that evaluated the efficacy of the serotonin antagonist, ondansetron (24 mg/day), compared to placebo. Participants were 27 female outpatients with BN, and treatment lasted four weeks. Ondansetron treatment led to a significantly greater improvement on binge eating and vomiting frequency, number of normal meals consumed, and time spent engaging in bulimic behaviours. At endpoint, there were no significant differences between groups on body weight.

Level II Evidence

There is no additional level II evidence available.

Stress Management

Stress management aims to increase a person's ability to tolerate and manage stressors. It has been proposed that stress management might be helpful to individuals with BN, because stressful events are a trigger for binge eating.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Shapiro and colleagues (search date 2005)[231] identified one RCT (Laessle et al., 1991)[291] of fair quality that compared a 15-session

3-month group program of stress management or nutritional management among 55 BN outpatients. At endpoint, both conditions showed a significant improvement on binge eating, vomiting, body dissatisfaction, depression, and other psychopathology. Improvements were maintained to 12-month follow-up, with nutritional management associated with a more rapid reduction on primary outcomes such as binge eating frequency and a higher rate of binge eating abstinence. Stress management was associated with higher improvement on various aspects of psychopathology, such as ineffectiveness, interpersonal distrust, and worry.

Level II Evidence

There is no additional level II evidence available.

Combined Cognitive Behavioural Therapy and Antidepressant Medication

One systematic review (summarising three relevant RCTs) and one RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Shapiro and colleagues (search date 2005)[231] identified three trials (Goldbloom et al., 1997[294], Agras et al., 1992[295], Walsh et al., 1997[296]) that examined antidepressant medication combined with CBT. The trials used fluoxetine[294], desipramine[295], and desipramine followed by fluoxetine[296], as the medication intervention. The findings across these trials were summarised separately by Shapiro and colleagues. The studies included comparators such as medication alone, supportive therapy, and CBT alone. Overall, CBT combined with medication tended to produce the most favourable outcomes within the range of outcomes examined.

Level II Evidence

Erzegovesi, Roboldi, Bella, Molfetta, Mapelli, Negri, and colleagues (2004)[297] evaluated the efficacy and safety of four selective serotonin reuptake inhibitors (fluoxetine, fluvoxamine, citapolram and paroxetine) in comparison to pill placebo in 91 adult inpatients with BN, who were currently undergoing intensive CBT. The 6-week trial concluded patients who were treated with antidepressant medication had a significantly higher average improvement in eating-related obsessions and compulsions compared to those in the pill placebo condition. There were no differences in severity of eating-related obsessions and compulsions between the four antidepressant treatment conditions.

Combined Cognitive Behavioural Therapy and Interpersonal Psychotherapy

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Nevonen and Broberg (2006)[298] randomly assigned 86 outpatients with BN to sequenced CBT (10 sessions) followed by IPT (13 sessions) in an individual or group format. The programs were Swedish adaptations of the CBT manual, ***Cognitive Behaviour Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168], and the IPT manual, ***Interpersonal Psychotherapy for Group***[299]. Both conditions experienced a significant improvement on binge days per week, compensation days per week, dietary restraint, weight phobia, interpersonal problems, general psychopathology, and depression over the duration of the study and 1-year follow-up. The intention-to-treat analysis revealed no significant differences in remission and recovery rates. Among completers, group differences favouring the individual format were found on binge eating and compensatory behaviours. Moderate to large effects on some primary outcomes were maintained to two-year follow-up.

Combined Cognitive Behavioural Therapy Pure Self-Help and Antidepressant Medication

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Shapiro and colleagues (search date 2005)[231] identified one RCT (Mitchell et al., 2001)[300] rated as good in quality that compared combined CBTpsh and fluoxetine, combined CBTpsh and placebo, and fluoxetine monotherapy. The trial involved 91 outpatients who were treated for 16 weeks. The authors analysed the main effect of medication (fluoxetine versus placebo) and CBTpsh (CBTpsh versus no CBTpsh), and their interaction. There was a main effect of medication (favouring medication use) on percent reduction in vomiting at week 4 and endpoint, but not on percent reduction in binge eating at week 4 or endpoint. There was a main effect of CBTpsh (favouring CBTpsh use) on percent reduction in vomiting at week 4, but no main effect at endpoint, and no main effect on percent reduction in binge eating at week 4 or endpoint. There were no significant interaction effects. Each treatment approach appeared to be acting on symptoms additively, with those who received fluoxetine and the self-help manual demonstrating the greatest percent reduction in both vomiting and binge eating at week 4 and at endpoint (mean of -68% and -67%, respectively). There were no significant differences in abstinence rates among the active treatment conditions (fluoxetine, 16%; self-help and placebo, 24%, self-help and fluoxetine, 26%). At endpoint, there were no significant main effects for medication or CBTpsh, and no significant medication × CBTpsh interactions on Eating Disorder psychopathology, depression, laxative use, diuretic use, and days fasting. The authors used an unpublished self-help manual.

Level II Evidence

There is no additional level II evidence available.

Binge Eating Disorder in Adults

Anticonvulsant Medication

Anticonvulsant medication has been examined for BED because of observed clinical benefit in case studies, side effects of loss of appetite and weight loss in epilepsy clinical trials, and improvement of co-occurring binge eating symptoms among individuals with mood disorders. The proposed mechanisms of action are unclear.

Three systematic reviews (summarising four relevant RCTs) and three RCTs (post-2003) evaluated this treatment approach and met inclusion criteria

Level I Evidence

Arbaizar and colleagues (search date 2008)[234] reviewed the efficacy of the anticonvulsant medication, topiramate, for BED with obesity. They identified three RCTs (McElroy et al., 2003[301], McElroy et al., 2007[302] , Claudino et al., 2007[303]) involving 528 patients. All studies used an intention-treat-analysis. In the first[301], 61 patients with BED who were obese were randomly assigned to topiramate or placebo for 13 weeks. Dosage was flexible and ranged from 50 to 600mg/day. Approximately half of the patients from each condition withdrew prematurely, primarily because of non-adherence to the study protocol or due to adverse events. In the second trial[302], the largest clinical trial to date, 394 patients with BED and obesity were randomly assigned to a 16-week acute phase trial of topiramate (median endpoint dose = 300 mg/day) or placebo with a 12-week maintenance phase. A third of the patients withdrew from the study early, and drop-out rates were equivalent across conditions. Adverse events were mostly of mild to moderate in severity, and were more common in the topiramate condition. In the third RCT[303], 73 patients with BED were randomly assigned to a 21-week trial of adjunct topiramate with group CBT-BED or placebo with group CBT-BED. The average daily dose at endpoint was 106 mg for the topiramate group. A third

of patients withdrew prematurely from the trial (19% topiramate, 27% placebo), most commonly because of non-adherence to the protocol. There were few adverse events reported, although the topiramate condition experienced significantly more adverse events. Pooled analysis of the three studies by the reviewers indicated a mean reduction in weekly binge eating episodes of 5.2 (±.3) for the topiramate condition and 3.7 (±.4) for the placebo condition, a mean reduction in binge days per week of 3.7 (±.4) for the topiramate condition and 2.5 (±.3) for the placebo condition, and a mean reduction in weight of 6.4 (±.6) kilograms for the topiramate condition and 1.0 (±.2) for the placebo condition. Results favoured the topiramate group, but the reviewers did not determine the statistical significance of the differences. Approximately 30% of patients withdrew prematurely from both the topiramate and placebo conditions. The reviewers suggested that, overall, the data from these trials indicate that topiramate is a useful treatment for BED as it decreases binge episode frequency and weight. Follow-up data are required to evaluate the long-term benefit of this treatment approach.

Reas and Grilo (search date 2008)[304] conducted a systematic review of the efficacy of treatment for BED. They identified three placebo-controlled RCTs of anticonvulsant medication that met criteria for inclusion in their review, two of which were also included in the review by Abaizar and colleagues. All trials included only obese patients with BED. Two of the trials examined topiramate (McElroy et al., 2003[301], McElroy et al., 2007[302]) and one examined zonisamide (McElroy et al., 2006)[305] (pooled sample size = 515). The trials ranged in duration from 14 to 16 weeks. In the topiramate trials, dosage commenced at 25mg/day and was titrated upward flexibly to an end a median of 212mg/day for one trial[301] and a mean dosage of 300mg/day for the other[302]. Zonisamide was initiated at 100mg/day and titrated upward to a mean dosage of 436mg/day at trial endpoint. A pooled analysis of remission rates showed that those treated with anticonvulsant medication were significantly more likely to have achieved remission at endpoint compared to placebo (56.4% compared to 30.4%), and a reduction in weight (6.0 kgs versus .8 kgs). Patients were equally likely to withdraw prematurely from the treatment (34.4%) and placebo group (31.9%). The tests for heterogeneity were non-significant, indicating that it was acceptable to pool data for analysis. No data were pooled on rates of adverse events. The authors concluded that there is evidence that anticonvulsant medication may be useful in the treatment of BED through reduction of weight and occurrence of binge eating episodes.

Brownley and colleagues (search date 2005)[306] identified one RCT among 61 individuals with BED[301]. Results of this review are not described here given that this data were included in the pooled comparisons above.

Level II Evidence

In a study by McElroy, Hudson, Capece, Beyers, Fisher, and Rosenthal (2007)[307] the safety and efficacy of topiramate was determined by randomising 394 outpatients with BED to topiramate or pill placebo conditions. At 16-week endpoint there were no significant differences between treatments on binge episode frequency, binge days, motor impulsiveness, non-planning impulsiveness, binge eating related obsessions, binge-eating related compulsions, cognitive restraint, disinhibited eating, hunger, disability in school/work, social life and family life, clinical global severity, weight change and BMI kg/m^2. BMI kg/m^2 declined throughout the treatment within the anticonvulsant medication condition but remained steady within the pill placebo condition. Those treated with anticonvulsant medication had a shorter time to recovery and response to binge eating. The study resulted in a higher incidence of mild-to-moderate adverse events in the anticonvulsant medication condition, with three patients from each condition experiencing serious adverse events.

In an RCT by Guerdjikova, McElroy, Welge, Nelson, Keck, and Hudson (2009)[308] 51 outpatients with BED and obesity were randomised to lamotrogine (236 ± 150 mg/

day) or pill placebo for 16 weeks. There were no significant differences in change scores over time or on endpoint scores on all study outcomes, which included, binge days per week, binge episodes per week, body weight, BMI kg/m^2, clinical global severity, eating-related obsessions, eating-related compulsions, depression, emotional overeating, impulsivity, disability, restraint, disinhibition, and hunger.

An RCT conducted by Claudino and colleagues (2005)[303,341] was identified. This study was included in the systematic review by Arbaizar and colleagues and therefore is not discussed further.

Antidepressant Medication

Serotonergic neurotransmission abnormalities have been theorised to contribute to Eating Disorders. Antidepressant medication seeks to improve serotonergic neurotransmission.

Three systematic reviews (summarising nine relevant RCTs) and six RCTs (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Stefano and associates (search date 2005)[309] conducted a systematic review and meta-analysis of antidepressant interventions for patients with BED and summarised outcomes of seven studies. Six examined a selective serotonin reuptake inhibitor[310,311,312,313,314,315] and the other examined a tricyclic antidepressant[316]. The trials ranged in duration from 6 to 16 weeks, with an average duration of 8 weeks. A pooled analysis comparing remission rate, defined as being 100% binge-free at the endpoint of the study, favoured antidepressant treatment (40.5% binge-free) over placebo (22.2% binge-free). Pooled analyses comparing mean binge eating episodes and weight showed no statistically significant difference at endpoint between those receiving antidepressant treatment versus placebo. There were no statistically significant differences in treatment withdrawal between those in the antidepressant group (27.5%) or placebo (21.6%) group. Antidepressants were more effective than placebo at improving depression symptoms, although the reviewers suggested that the data could not be confidently interpreted as evidence for the effectiveness of antidepressants due to methodological limitations. Tests of heterogeneity showed that data were amenable to pooled comparisons. Overall, the authors reported that the evidence for the effectiveness of antidepressant medication for BED was not strong enough to recommend this treatment approach confidently, and that studies with larger samples, longer follow-ups, and uniform binge criteria were required.

Brownley and colleagues (search date 2005)[306] identified six RCTs among individuals with BED[301]. Results of this review are not described here given that this data were included in the pooled comparisons above.

Reas and Grilo (search date 2008)[304] performed a systematic review and meta-analysis of randomised, placebo-controlled pharmacotherapy trials. Fourteen trials comparing pharmacotherapy to placebo met inclusion criteria. Of these, seven examined a selective serotonin reuptake inhibitor (fluoxetine[312,315], $n = 2$; fluvoxamine[310,313], $n = 2$; sertraline[311], $n = 1$; citalopram[314], $n = 1$; escitalopram[317], $n = 1$; pooled sample size = 335). A pooled comparison of studies using SSRI interventions among a total of 229 patients showed that those receiving SSRIs were significantly more likely to achieve remission compared to placebo. Difference in weight change between groups was modest at 1.7 kg, favouring the SSRI group. There was no significant difference between the groups in terms of early withdrawals (25% for SSRI, 23% for placebo). The tests for heterogeneity were non-significant, indicating that it was acceptable to pool data for analysis. The review authors concluded that SSRIs may enhance the probability of remission in the short-term, but had limited impact on weight. Reas and Grilo identified one RCT[318] that evaluated the efficacy of a serotonin-norepinephrine reuptake inhibitor. The original trial authors randomised 40 outpatients with BED to atomoxetine

(40- 120 mg/day) or pill placebo for 10 weeks. Significantly greater changes at endpoint favouring the atomoxetine condition were found on binge days per week, binge episodes per week, binge-eating related obsessions, clinical global severity of illness, weight, and BMI kg/m^2. No significant differences were found between the two conditions at endpoint for depression, binge-eating related compulsions, cognitive restraint, hunger, and disinhibited eating. A total of 70% of the atomoxetine condition achieved abstinence from binge eating compared to 32% of pill placebo outpatients. On average, the atomoxetine condition had greater average weight loss compared to the pill placebo condition. A higher incidence of adverse events in the atomoxetine condition was noted, although no patient in the study experienced a serious adverse event.

Level II Evidence

A 12-week study by Guerdjikova, McElroy, Kotwal, Welge, Nelson, Lake, and colleagues (2008)[319] randomised 44 obese outpatients with BED to antidepressant medication or pill placebo to evaluate the efficacy and safety of high-dose escitalopram in the treatment of BED in association with obesity. At endpoint, antidepressant medication was superior to pill placebo on binge episodes per week, binge days per week, BMI kg/m^2, weight, and clinical global obesity. There were no significant differences between conditions on binge eating related obsessions and compulsions or depression symptoms. Those randomised to antidepressant medication experienced significantly faster improvements in weight loss, BMI kg/m^2 and clinical global severity. The study found weight decreased on average of 1.0 kg per week for the anticonvulsant medication group and was stable or increased marginally within the pill placebo condition. There were no significant differences between groups in the incidence of adverse events.

A study to determine the effectiveness of sertraline and fluoxetine was conducted by Leombruni, Pierò, Lavagnino, Brustolin, Campisi, and Fassino (2008)[320]. The 24-week study randomised 42 obese female outpatients with BED to antidepressant medication (sertraline) or antidepressant medication (fluoxetine). At endpoint, significant improvements were evident within groups in weight, BMI kg/m^2, binge eating episodes per previous week, clinical global severity, binge eating severity and depression. There were no significant outcome differences between the two antidepressant medications at four different times of observation. There were significant improvements within conditions on bulimic attitudes and behaviours, body dissatisfaction and interoceptive awareness. There were no significant improvements within conditions on drive for thinness, ineffectiveness, perfectionism, asceticism, impulse regulation, and social insecurity. In the sertraline condition, 45% of outpatients had weight loss of 5% or more, compared to 47% of fluoxetine outpatients. The rate of abstinence from binge eating did not differ between the two conditions.

Four further RCTs[315,317,318,320] were identified, however, these studies were included in the systematic reviews described earlier and therefore are not discussed further.

Behavioural Weight Loss

Behavioural weight loss interventions aim to assist individuals to make lifestyle changes in eating and exercise habits. Strict dieting and an ideal weight goal are discouraged – instead the emphasis is on healthy and balanced eating, a pattern of moderate and consistent dietary restraint, and an achievable, realistic, healthy weight range.

Two RCTs (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Devlin, Goldfein, Petkova, Jiang, Raizman, Wolk, and colleagues (2005)[321] completed a study examining the benefit of group behavioural weight loss treatment (BWL) alone or with

three adjunct interventions. One hundred and sixteen overweight or obese outpatients were randomised to group BWL with pill placebo, group BWL with individual CBT and fluoxetine (20-60 mg/day), group BWL with individual CBT and pill placebo, or group BWL with fluoxetine (20-60 mg/day). The CBT manual used was ***Cognitive Behaviour Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168] and the BWL program used was a modified version of the ***Lifestyle, Exercise, Attitudes, Relationships, and Nutrition (LEARN) program***[322]. Across the treatment groups, there was significant improvement from pre-to-post on binge eating frequency, weight, and a range of measures of eating and general psychopathology and psychological functioning. The study found there was a significant effect of adjunct fluoxetine on depression symptoms and shape concern, but not on binge frequency, abstinence from binge eating, restraint, self-esteem, interpersonal problems and general psychological symptoms. There was a significant effect of individual CBT (but not of medication) on binge eating and binge abstinence, and no adjunctive effect of CBT on weight, depression, body shape concern, binge eating severity, hunger, disinhibition, restraint, self esteem, interpersonal problems and general psychological symptoms. Neither the adjunctive CBT nor fluoxetine significantly reduced weight beyond group BWL. Adjunctive individual CBT, but not fluoxetine, conferred benefit with BWL treatment in terms of reducing binge eating.

Munsch, Biedert, Meyer, Michael, Schlup, Tuch, and associates (2007)[323] randomised 90 outpatients with BED to group BWL or group CBT for 16 weeks. The CBT program used was ***Cognitive Behaviour Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168] and the BWL program was an existing Swiss-German manual. BWL was superior to CBT on BMI kg/m^2 at endpoint, although the difference was not clinically significant. There were no differences between conditions on objective binge days and BED diagnostic status at endpoint. There were no significant differences on abstinence from binge eating, objective binge days, and BED diagnosis at 12-month follow-up. In the completer group, BWL was superior to CBT on BMI kg/m^2, objective binge days and BED diagnosis at endpoint. There was no significant difference between completer groups on BMI kg/m^2 at follow-up.

Behavioural Weight Loss Guided Self-Help

This approach refers to behavioural weight loss delivered in a self-help format during which short, usually weekly sessions are held with a therapist who monitors and supports implementation of the program.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Grilo and Masheb (2005)[324] randomised 90 outpatients with BED to two conditions, BWL guided self-help (BWLgsh), CBTgsh, and attention control. The CBTgsh manual used was ***Overcoming Binge Eating***[285] and the BWLgsh manual was the ***Lifestyle, Exercise, Attitudes, Relationships, and Nutrition (LEARN) program***[322]. The 12-week trial found that CBTgsh was superior to BWLgsh and attention control in relation to binge abstinence at endpoint. CBTgsh was superior to BWLgsh on objective binge eating, hunger, and cognitive restraint. BWLgsh was superior to attention control on hunger and cognitive restraint. Intention-to-treat remission rates were 46% for CBTgsh, 18% for BWLgsh, and 13% for control.

Cognitive Behavioural Therapy

CBT programs aim to alter unhelpful thinking processes and behaviours that maintain Eating Disorders. CBT is grounded in cognitive behavioural theory. CBT involves cognitive restructuring to challenge unhelpful thoughts and aims to reduce beliefs about the importance of shape, weight, eating and their control for defining one's self worth. CBT programs directly address unhelpful behaviours that maintain Eating Disorders such as excessive dietary restriction, laxative and diuretic misuse, purging, and over-exercising. They may address additional factors implicated in Eating Disorder problems such as self-esteem, perfectionism, interpersonal functioning, and emotion regulation.

Two systematic reviews (summarising three relevant RCTs) and seven RCTs (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Brownley and colleagues (search date 2005)[306] reviewed three RCTs (Wilfley et al., 2002[325], Gorin, Le Grange, & Stone, 2003[326], Hilbert & Tuschen-Caffier, 2004[327]) of CBT for BED. The first trial[325] compared 20 weeks of group-delivered CBT to group-delivered IPT [unpublished manuals] among 162 patients with BED who were overweight. Intention-to-treat rates for the two groups did not differ on the primary outcomes of 100% binge free (over preceding 28 days), improved to subclinical binge eating (< 4 objective binge eating episodes), and attitudinal features of Eating Disorders equal to or below the norm (85% for CBT; 75% for IPT). Among completers only, pretreatment to post-treatment binge eating declined by 96% for the CBT group and 94% for the IPT group, and from pretreatment to 12-month follow-up binge eating decreased by 90% for the CBT group and 93% for the IPT group. Significant treatment effects for both groups were observed from pretreatment to post-treatment on secondary outcomes of global psychological distress, self-esteem, depression, and interpersonal functioning. These remained stable from post-treatment to follow-up, with the exception of interpersonal functioning, which continued to improve from post-treatment to follow-up. BMI kg/m^2 remained stable across all time periods and no significant group differences were observed. Early withdrawal was 11% for CBT and 9% for placebo. At the 12-month follow-up, gains were maintained for both groups and there were no significant between-group differences. The proportion of those abstinent from binge eating at 12-month follow-up for the entire sample was 61%, and those who had reduced binge eating to less than one episode per week was 76%. IPT was slower to improve dietary restraint than CBT, but by the last two assessments (8-month follow-up and 12-month follow-up) equivalence between the groups was evident.

The second trial[326] compared 12 week wait-list control, standard group CBT [unpublished manual], and group CBT + spousal involvement [unpublished manual] among 94 women with BED who were obese. Binge eating frequency, depression symptoms, BMI kg/m^2, eating psychopathology, and self-esteem were more improved in those who were treated with CBT compared to wait-list control. Binge eating episodes reduced by 67% (standard CBT), 65% (CBT + spousal involvement), and 31% (wait-list control) at post-treatment. Involving the spouse in treatment did not produce greater binge abstinence rates than standard CBT. Abstinence rates were 46% (CBT + spousal involvement) and 29% (standard CBT) at post-treatment, and 52% (CBT + spousal involvement) and 47% (standard CBT) at 6-month follow-up. Spousal involvement did not lead to a greater reduction in number of binge days, or better attendance at treatment, compared to standard CBT. Those that were treated with CBT had better outcomes compared to control, but spousal involvement did not appear to offer an additive benefit to standard CBT.

In the third trial[327], Hilbert and Tuschen-Caffier (2004)[327] investigated the effect of body exposure in the treatment of BED. Twenty full-threshold and 8 sub-threshold BED female outpatients were randomised to group CBT with body exposure (CBT-E) or cognitive therapy on body image (CBT-C) [unpublished manuals].

At the 26-week endpoint, 80% of full-threshold patients treated with CBT plus body exposure and 70% of full-threshold patients treated with CBT plus cognitive therapy on body image no longer met the DSM-IV criteria for BED. At 4-month follow-up, approximately 70% of full-threshold patients treated with CBT plus body exposure and 90% of full-threshold patients treated with CBT plus cognitive therapy on body image no longer met DSM-IV criteria. This was the only outcome data available for the full- threshold participants.

The second included systematic review, by Hay and colleagues (search updated to June 2007)[259], pooled data (where applicable) from included studies. CBT compared to wait-list or no-treatment was superior on remission (5 RCTs pooled, *n* = 204) and bulimic symptoms (2 RCTs pooled, *n* = 90). There were no significant differences on overall drop-out rate (1 RCT, *n* = 27), depression symptoms (1 RCT, *n* = 63), psychosocial/interpersonal functioning (1 RCT, *n* = 63), and weight/BMI (2 RCTs pooled, *n* = 88). There were no statistically significant differences between CBT and any other psychotherapy on remission rate (1 RCT, *n* = 162), bulimic symptoms (1 RCT, *n* = 158), overall drop-out rate (1 RCT, *n* = 162), depression (1 RCT, *n* = 158), general psychiatric symptoms (1 RCT, *n* = 158), psychosocial/interpersonal functioning (1 RCT, *n* = 158), and weight/BMI (1 RCT, *n* = 158).

Level II Evidence

In a study by Claudino, de Oliveira, Appolinario, Cordás, Duchesne, Sichieri, and colleagues (2007)[328], 73 obese adult outpatients with BED were randomised to a 21-week program of CBT with either anticonvulsant medication (topiramate) or pill placebo. The manualised CBT program used was ***Cognitive Behavioral Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168]. At endpoint, CBT + anticonvulsant mediation was superior to CBT + pill placebo on weight loss and BMI kg/m^2. Significantly more individuals that received the adjunct topiramate treatment achieved remission, defined as abstinence from binge eating in the week preceding endpoint (84% v. 61%). There were no significant differences between the two groups on binge days per week, binge episodes per week, binge eating severity or depression symptoms across the duration of the study.

Dingemans, Spinhoven, and van Furth (2007)[329] randomised 52 outpatients with BED to CBT or wait-list control to identify mediators and predictors of treatment outcomes. The CBT manual used was not specified. At the 10-week study endpoint, CBT-treated patients were superior on global Eating Disorder psychopathology, dietary restraint, eating concern, weight concern, general psychopathology, depression, a specific coping style, and binge abstinence during the previous 28 days compared to wait-list control. There were no significant differences between groups over time on subjective eating episodes, objective eating episodes, and other specific coping styles. One year follow-up of CBT and the former wait-list control group who were subsequently offered CBT showed significant improvement on objective binge eating episodes, subjective binge eating episodes, objective overeating, BMI kg/m^2 , dietary restraint, eating concern, shape concern, psychological symptoms, and changes in coping strategies.

In a study by Grilo, Masheb, and Wilson (2005)[315], 108 adult outpatients with BED were randomised to pill placebo, CBT + pill placebo, fluoxetine monotherapy (60 mg/day), or combined CBT + fluoxetine (60 mg/day) for 16 weeks. The CBT manual used was ***Cognitive Behavioral Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168]. Remission rates (no binge eating episodes in previous month) for completers were 29% for fluoxetine, 30% for placebo, 55% for CBT + fluoxetine, and 73% for CBT + placebo. The intention-to-treat remission rate was highest for the CBT groups (61% for CBT + placebo; 50% for CBT + fluoxetine). CBT + placebo was superior to placebo on objective binge episodes during the previous 28 days, eating concern, shape concern, disinhibited eating, depression, and abstinence from binge eating. There were no significant differences between groups on

restraint, weight concern, hunger, cognitive restraint, body dissatisfaction or BMI kg/m^2. CBT + placebo was superior to fluoxetine on objective binge episodes during the previous 28 days, global Eating Disorder psychopathology, dietary restraint, eating concern, weight concern, shape concern, disinhibited eating, body dissatisfaction, depression, and abstinence from binge eating, with no significant between-group differences on hunger, cognitive restraint, and BMI kg/m^2. There were no significant differences between CBT + placebo and CBT + fluoxetine at endpoint on any outcome outcomes.

In a study by Tasca, Ritchie, Conrad, Balfour, Gayton, Lybanon, and associates (2006)[330] 135 adult outpatients with BED were randomised to group CBT, group psychodynamic interpersonal psychotherapy (PIP), or wait-list control [unpublished treatment manuals]. After the 16-week treatment, patients treated with group CBT and group PIP showed significantly greater improvement on binge days, interpersonal problems and restraint, relative to wait-list control. Group CBT only showed significant improvement on hunger relative to control, and group PIP only showed significantly greater improvement on depression relative to control. No significant differences between the treatment groups compared to wait-list control were observed on the outcomes of BMI kg/m^2 and self-esteem. From pre- to post-treatment there were no significant differences between the group CBT and the group PIP on the outcomes of BMI kg/m^2, days binged, depression, self-esteem, interpersonal problems, restraint, and hunger. There were significant improvements in follow-up measures in days binged and hunger within the active treatments and no between-treatment differences. There was no significant change in BMI kg/m^2 from pre treatment to 12-month follow-up within active treatments. There was a significant reduction in depression from pre-treatment to 6-month follow-up within treatments. The group PIP had greater improvement in self-esteem from pre-treatment to 6-month follow-up.

Munsch, Biedert, Meyer, Michael, Schlup, Tuch, and associates (2007)[323] randomised 80 overweight patients with BED to group CBT or group BWL for 16 weeks. The CBT program used was ***Cognitive Behaviour Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168] and the BWL program was an existing Swiss-German manual. An intent-to-treat endpoint analysis identified CBT as superior to BWL on abstinence from binge eating. There were no significant differences between the two conditions in relation to objective binge days and BED diagnosis. At 12-month follow-up there were no significant differences between CBT and BWL on abstinence from binge eating, BMI kg/m^2, objective binge days, and BED diagnosis in intent-to-treat. The completer analysis showed that CBT was superior to BWL on abstinence from binge eating, BMI kg/m^2, objective binge days, and BED diagnosis.

In a study by Schlup, Munsch, Meyer, Margraf, and Wilhelm (2009)[331] 36 female outpatients with BED were randomised to a short-term group CBT followed by five booster sessions or wait-list control. The CBT program was adapted to a short-term group format from the manual, ***Cognitive Behavioral Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168]. At 8-week endpoint, a significantly larger pre- post difference was observed in the group CBT with booster sessions on binge eating abstinence, objective binge episodes, and eating concern. No significant differences were observed on BMI kg/m^2, subjective binge episodes, weight concern, shape concern, restraint, depression, anxiety, self-efficacy, and life satisfaction. Twelve-month follow-up outcomes of group CBT with booster sessions revealed significant improvements on binge eating abstinence, objective binge eating episodes, BMI kg/m^2, subjective binge episodes, weight concern, shape concern, eating concern, restraint, depression and life satisfaction. No significant improvements were observed on anxiety or self-efficacy. Rate of abstinence from binge eating (in the previous 28 days) was higher at endpoint among those treated with CBT and booster sessions at 39% compared to 0% for wait-list control. Schlup concluded

that short-term CBT with booster sessions was an efficacious treatment for BED in the short- and long-term.

A further trial by Hilbert and Tuschen-Caffier (2004)[327] was identified however this was discussed in the context of a systematic review therefore is not discussed further in this section.

Cognitive Behavioural Therapy Guided Self-Help

This approach refers to CBT delivered in a self-help format during which short, usually weekly sessions are held with a therapist who monitors and supports implementation of the program.

Two systematic reviews (summarising two relevant RCTs) and two RCTs (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Brownley and colleagues (search date 2005)[306] reported on two RCTs (Carter & Fairburn, 1998[332], Peterson et al., 1998[333], Peterson et al., 2001[334]) rated as fair or higher in quality. One study[332] compared CBTgsh, CBTpsh, and wait-list control in 72 women with BED. The self-help manual used was ***Overcoming Binge Eating***[285]. Self-help was associated with a higher rate of abstinence in both treatment groups relative to control. Active treatment patients were superior at endpoint on binge eating, clinical severity, global Eating Disorder psychopathology, and restraint. At the 3-month follow-up, CBTgsh was associated with less restraint and binge eating, and at 6-month follow-up, less binge eating, compared to CBTpsh. There was no effect of treatment upon weight loss at endpoint or follow-up. Another RCT[333] compared group formats of CBTgsh, partially guided self-help, and structured self-help, to wait-list control among 61 individuals with BED. The self-help program used was an unpublished protocol. Relative to wait list controls, patients within the active treatment arms did better on outcomes of objective binge episodes, total binges, binge abstinence and eating psychopathology. No group experienced significant changes in depression or BMI kg/m^2. A study of one-year follow-up outcomes[334] comparing the three active arms reported significant within-group improvements on objective binges, hours spent binge eating, body dissatisfaction, and depression, with no significant between-group differences. Binge abstinence was higher in those treated with structured self-help. There was minimal change in BMI kg/m^2.

Hay and colleagues (search updated to June 2007)[259] reported on one RCT[332] ($n = 58$) that compared CBTgsh to wait-list control. Comparisons favoured CBTgsh on remission rate, bulimic symptoms, general psychiatric symptom severity, and there were no statistically significant differences between groups on overall drop-out rate and weight/BMI.

Hay and colleagues (search updated to June 2007)[259] reported on one study[332] ($n = 71$), described above, that compared CBTgsh to CBTpsh. Comparisons showed no statistically significant differences on remission rate, bulimic symptoms, depression symptoms, general psychiatric symptoms, and weight/BMI. There was a statistically significant difference on overall drop-out rate (favouring CBTpsh – though drop-out was defined differently necessarily between the two groups).

Level II Evidence

In a study by Grilo, Masheb, and Salant (2005)[335] 50 outpatients with BED and obesity were randomised to CBTgsh with obesity medication (orlistat) and CBTgsh with pill placebo. The CBTgsh program used was ***Overcoming Binge Eating***[285]. At 12-week endpoint and 3-month follow-up, there were no significant differences between the two conditions on dietary restraint, eating concern, weight concern, shape concern, depression, or self-esteem. CBTgsh + obesity medication was superior to CBTgsh + pill placebo on weight loss at endpoint, but there were no significant differences at 3-month follow-up. The intent-to-treat binge eating abstinence rate was 36% for CBTgsh and 45% for completer abstinence rate.

Grilo and Masheb (2005)[324] randomised 90 outpatients with BED to BWLgsh, CBTgsh, and attention control. The self-help manual used was ***Overcoming Binge Eating***[285]. At 12-week endpoint, CBTgsh was superior to both control and BWLgsh on binge abstinence. CBTgsh was superior to attention control on eating concern, hunger, cognitive restraint, and self-esteem. CBTgsh was superior to BWLgsh on objective binge eating, hunger, and cognitive restraint.

Cognitive Behavioural Therapy Pure Self-Help

This approach refers to CBT delivered in a pure self-help format. The individual follows a step-by-step program (usually written up as a book) and implements the treatment program independently.

Two systematic reviews (summarising one relevant RCT) and one RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Brownley and colleagues (search date 2005)[306] reported on one RCT (Carter & Fairburn, 1998[332]) rated as good in quality. The study compared CBTgsh, CBTpsh, and wait-list control in 72 women with BED. Self-help, involving the manual ***Overcoming Binge Eating***[285], was associated with a higher rate of abstinence in both treatment groups relative to control. Active treatment patients were superior at endpoint on binge eating, clinical severity, global Eating Disorder psychopathology, and restraint. At the 3-month follow-up, CBTgsh was associated with less restraint and binge eating, and at 6-month follow-up, less binge eating, compared to pure CBTpsh and there was no effect of treatment upon weight loss at endpoint or follow-up.

Hay and colleagues (search updated to June 2007)[259] reported on one RCT[332], described above, that compared CBTpsh to wait-list control. Comparisons favoured CBTpsh at post-treatment on remission rate only ($n = 48$); there were no statistically significant differences between groups on overall drop-out rate ($n = 48$) and binge frequency ($n = 48$).

Hay and colleagues (search updated to June 2007)[259] reported on one study[332], described above, that compared CBTpsh to CBTgsh. Comparisons showed no statistically significant difference at post-treatment on remission rate ($n = 48$), bulimic symptoms ($n = 48$), depression symptoms ($n = 69$), general psychiatric symptoms ($n = 69$), rate of drop-out due to adverse events ($n = 58$) and weight/BMI ($n = 69$). There was a statistically significant difference on overall drop-out rate ($n = 69$) (favouring CBTpsh – though drop-out was defined differently by necessity between the two groups).

Level II Evidence

In a study by Cassin, von Ranson, Heng, Brar, and Wojtowicz (2008)[336] 108 female outpatients with BED were randomised to a 16-week trial of pure self-help with or without one session of adapted motivational interviewing, to determine the impact of adapted motivational interviewing on binge eating symptoms. The self-help program was based on an unpublished manual. Pure self-help with adapted motivational interviewing was superior at endpoint on binge eating frequency, depression symptoms, self-esteem, satisfaction with general life and satisfaction with oneself, in comparison to pure self-help alone. There were no significant differences between the two groups at endpoint on satisfaction with social life, sex life, physical appearance, family or relationships.

Dialectical Behavioural Therapy

Dialectical behaviour therapy is based on an emotion regulation model of Eating Disorders, which proposes that disordered eating arises because it assists the individual to manage intolerable emotional states if the individual has few adaptive coping strategies. The therapy is aimed at assisting the individual to tolerate and manage emotional states.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

One trial of DBT (Telch, Agras, & Linehan, 2001)[337] was included in the review by Brownley and colleagues (search date 2005)[306]. In the trial, 44 women with BED were randomly assigned to a 20-week program of DBT or wait-list control. At the end of the 20 weeks, completer outcomes only were analysed. Those in the DBT group had better outcomes on binge days per month, binge episodes per month, shape concern, weight concern, and eating concern. There were no between-group differences in dietary restraint, weight, depression, self-esteem or other measures of psychopathology at post-treatment. At 3-month follow-up, 67% of the DBT completers were abstinent from binge eating and after 6 months 56% were abstinent. Abstinence rates for the wait-list control group were not available for comparison as these individuals were offered treatment subsequent to the acute trial phase. A treatment manual has been published titled ***Dialectical Behavior Therapy for Binge Eating and Bulimia***[338].

Level II Evidence

There is no additional level II evidence available.

Interpersonal Psychotherapy

Interpersonal psychotherapy is based on interpersonal theory and aims to target interpersonal issues that are theorised to contribute to the development and maintenance of an Eating Disorder. Interpersonal psychotherapy addresses four theoretical interpersonal problem areas of grief, interpersonal disputes, role transitions, and interpersonal deficits.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Brownley and colleagues (search date 2005)[306] reported on one 20-week trial (Wilfley et al., 2002[325]) of IPT compared to CBT among 162 patients with BED who were overweight [unpublished manuals]. The findings observed in relation to IPT were pre- to post-treatment improvement on frequency of binge eating, dietary restraint, shape concern, weight concern, eating concern, global psychological distress, self esteem, depression, interpersonal functioning, and social functioning, but not BMI, and outcomes were maintained across the follow-up period (4-month, 8-month, and 12-month follow-ups). IPT did not significantly differ from CBT on outcomes, except that it had a slower effect on dietary restraint compared to CBT.

Level II Evidence

There is no additional level II evidence available.

Obesity Medication

Obesity medication has been trialled to promote weight loss among individuals with BED. The rationale for this approach is that obesity is often comorbid with BED, due to the excessive energy intake relative to expenditure, and a high BMI can precipitate disordered eating, such as extreme dietary restriction.

Two systematic reviews (summarising four relevant RCTs) and three RCTs (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Reas and colleagues (search date 2008)[304] identified three trials (Appolinario et al., 2003[339]; Milano, Petrella, Casella, Capasso, Carrino, & Milano, 2005[340]; Wilfley et al., 2008[341]) for inclusion that examined obesity medication for BED (pooled sample size = 384 patients) in their systematic review of BED treatment. All trials were double-blind and placebo-controlled, and examined sibutramine, initiating dosage at either 10 or 15 mg/day. Two trials lasted 12 weeks[339,340], the other 24 weeks[341]. An analysis of pooled data available from two studies (pooled sample size = 364) indicated that the obesity medication group were significantly more likely to achieve remission (43.4%) at endpoint compared to the placebo group (29.7%). Data pooled from all three studies suggested that the treatment group were also significantly

more likely to experience weight loss (8.7 kg) compared to the placebo group (.0 kg). There were no statistically significant differences in drop-outs rates between the treatment (29.7%) and the placebo (36.4%) groups across trials. No significant heterogeneity across trials was detected in the pooled analyses. Together, these studies suggest that obesity medication may assist those with BED to reduce weight and to achieve remission (i.e. 100% binge free).

Brownley and colleagues (search date 2005)[306] identified one RCT among 60 patients with BED who were obese[339]. Results of this study are not described given that this data were included in the pooled comparisons above.

Level II Evidence

The efficacy of orlistat in obese outpatients with BED was studied by Golay, Laurent-Jaccard, Habicht, Gachoud, Chabloz, Kammer, and colleagues (2005)[343]. The study randomised 89 patients to orlistat or pill placebo for 24 weeks. At endpoint, obesity medication was superior to the pill placebo on weight loss, body fat mass, waist circumference, hip circumference, global Eating Disorder psychopathology, perfectionism, and interoceptive awareness. No significant differences between groups at endpoint were found on total energy expenditure, BED diagnosis, anxiety, depression, quality of life, generalised anxiety diagnosis, major depression diagnosis, drive for thinness, bulimia attitudes and behaviours, body dissatisfaction, ineffectiveness, interpersonal distrust, maturity fears, asceticism, impulse regulation, and social security. At completion of the trial, the average number of binge episodes per week was 1.0 for obesity medication and 1.7 for the pill placebo condition. Weight loss was three times greater and energy intake from fat was significantly lower for the orlistat condition in comparison to pill placebo.

Two further RCTs conducted by Wilfley and colleagues (2005)[341] and Milano and colleagues (2005)[340] were identified. These studies were included in the systematic review by Reas and Grilo and therefore is not discussed further.

Obesity Treatment

This approach aims to encourage weight loss in individuals with BED by creating a calorie deficit. The program that has been investigated involved nutritional education, behavioural strategies for weight control, and a very low calorie diet program. The very low calorie diet program comprised a 12-week protein-sparing fast during which the only source of nutrition is a powdered supplement. After 12 weeks, the individual commences a 6-week refeeding program during which regular foods are re-introduced, followed by a 6-week weight stabilisation phase. Implementation of the program is managed by a doctor and a dietitian.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

de Zwaan, Mitchell, Mussell, Raymond, Specker, and Seim (2005)[344] randomised 71 obese female patients with BED to a very low calorie diet program with CBT or a very low calorie diet program alone. The trial concluded there were no clinically significant differences between the two conditions on weight loss, frequency of binge eating, and binge abstinence. Outpatients from both conditions lost on average 16% of their original body weight. There were no significant differences at endpoint on weight and BMI kg/m^2 between the two conditions at 1-year follow-up. The percentage of outpatients who did not meet diagnostic criteria for BED at 1-year follow-up did not differ between conditions (54% for very low calorie diet + CBT and 58% for very low calorie diet – CBT), nor did the percent who were binge abstinent (33% for very low calorie diet + CBT and 32% for very low calorie diet – CBT). There was a high degree of early weight regain following treatment – at 6-month follow-up the proportion who had regained 50% or more original weight was 39% for very low calorie diet + CBT and 56% for very low calorie diet – CBT, though the between-group difference was not statistically significant.

Psychodynamic Interpersonal Psychotherapy

Psychodynamic interpersonal psychotherapy is oriented in a psychodynamic model of Eating Disorders. It aims to help individuals gain insight into interpersonal relationships in the here-and-now, early relationships, and historical life experiences. Individuals are encouraged to understand the relationship between interpersonal relations, attachment patterns, distressing emotions, and binge eating as a means of coping. The approach does not directly address diet, cognitions related to dietary restriction, or weight-related issues.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Tasca, Ritchie, Conrad, Balfour, Gayton, Lybanon, and colleagues (2006)[330] randomised 135 outpatients with BED into three conditions; group CBT, group PIP, or wait-list control [unpublished treatment manuals]. At 16-week endpoint the two active treatment groups had a significantly greater improvement on binge days, interpersonal problems, and restraint, in comparison to wait-list control. Group CBT showed significantly greater improvement on hunger, and group PIP showed significantly greater improvement on depression, relative to the wait-list control condition. There were no significant differences between the active treatment conditions compared to wait-list control on BMI kg/m^2 and self-esteem. At endpoint, no significant differences were identified between treatment groups on BMI kg/m^2, binge eating days, depression, self-esteem, interpersonal problems, restraint, and hunger. Significant improvements were found on binge eating days, hunger, and depression within both treatment groups. Group PIP participants had greater improvement in self-esteem from pre- treatment to 6-month follow-up.

Virtual-Reality-Based Therapy

Virtual-reality-based therapy uses virtual technology to deliver treatment content. The program that has been investigated adopts primarily a cognitive-behavioural orientation and is conducted in concurrence with a low-calorie diet and physical training.

One systematic review (summarising one relevant RCT) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Brownley and associates (search date 2005)[306] reported on a trial examining the efficacy of a virtual-reality-based therapy (Riva, Bacchetta, Baruffi, & Molinari, 2002)[345] [unpublished treatment manual] for the treatment of body image disturbance in BED. Twenty female BED patients that were participating in a residential weight control treatment, including a low-calorie diet (1200 cal/day) and exercise regime, were randomly assigned to the virtual-reality-based programme (7 sessions) or a group programme of nutritional management (3 x p/week) which used CBT techniques. The treatment for both groups lasted approximately 6.5 weeks. The virtual-reality condition experienced significant pre-post improvement on one domain of body image avoidance and other aspects of psychopathology, such as anxiety, but significant improvement was not demonstrated on the majority of outcome measures used. There were limited between-group differences at posttreatment, including no differences in reduction in binge eating frequency. All participants achieved cessation of binge eating (within the past 2 weeks) at the end of treatment.

Level II Evidence

There is no additional level II evidence available.

Combined Behavioural Weight Loss and Antidepressant Medication

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Devlin, Goldfein, Petkova, Jiang, Raizman, Wolk, and colleagues (2005)[321] examined the added benefit of three adjunct interventions, individual CBT, fluoxetine, and their combination, to group BWL. The CBT manual used was ***Cognitive Behaviour Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168] and the BWL was a modified version of the ***Lifestyle, Exercise, Attitudes, Relationships, and Nutrition (LEARN) program***[322]. The study randomised 116 overweight and obese outpatients to four conditions, group BWL with individual CBT and fluoxetine, group BWL with individual CBT and pill placebo, group BWL with fluoxetine, or group BWL with pill placebo. There was a significant effect of adjunct individual CBT with or without medication on binge frequency, abstinence from binge eating, depression symptoms and disinhibited eating and no significant effect on weight, body shape concerns, binge eating severity, hunger, restraint, self-esteem, interpersonal problems and general psychological symptoms. The study found a significant effect of fluoxetine on depression symptoms and body shape concern but not on binge frequency, abstinence from binge eating, binge eating severity, hunger, disinhibited eating, restraint, self-esteem, interpersonal problems, and general psychological symptoms. Neither CBT nor fluoxetine significantly reduced weight beyond group BWL.

Combined Behavioural Weight Loss and Cognitive Behavioural Therapy

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Devlin and associates (2005)[321] examined the added benefit of two adjunctive interventions, individual CBT and fluoxetine offered in the context of group BWL. The CBT manual used was ***Cognitive Behaviour Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168] and the BWL treatment was a modified version of the ***Lifestyle, Exercise, Attitudes, Relationships, and Nutrition (LEARN) program***[322]. A total of 116 overweight or obese outpatients with BED undergoing group BWL were randomised to individual CBT and fluoxetine (20-60 mg/day), individual CBT and pill placebo, fluoxetine (20-60 mg/day), or pill placebo. The study found there was a significant effect of adjunct individual CBT with or without medication on endpoint binge frequency, abstinence from binge eating, depression symptoms and disinhibited eating and no significant effect on weight, body or shape concerns, binge eating severity, hunger, restraint, self-esteem, interpersonal problems and general psychological symptoms. Neither the adjunctive CBT nor fluoxetine significantly reduced weight beyond group BWL. There was no significant CBT and fluoxetine interaction on the primary outcomes. Individual CBT appeared to confer benefit with BWL on binge eating reduction.

Combined Behavioural Weight Loss, Cognitive Behavioural Therapy, and Antidepressant Medication

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Devlin and associates (2005)[321] randomised 116 overweight and obese outpatients with BED to four conditions; group BWL with individual CBT and fluoxetine (20-60 mg/day), group BWL with individual CBT and pill placebo, group BWL with fluoxetine (20-60 mg/day), or group BWL with pill placebo. The CBT manual used was ***Cognitive Behaviour Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168] and the BWL program was a modified version of the ***Lifestyle, Exercise, Attitudes, Relationships, and Nutrition (LEARN) program***[322]. The results of the 20-week trial identified overall substantial improvement in binge eating and both general and eating related psychopathology, but little weight loss. Those outpatients who were randomised to the CBT conditions improved in binge frequency and binge abstinence in comparison to the conditions who did not receive CBT. There was no interactive effect of CBT and medication on binge abstinence, weight, or any secondary outcome measure, except for on one measure of body shape concern. Antidepressant treatment was associated with a greater reduction of depressive symptoms. The trial concluded that adjunctive individual CBT results in significant additional binge reduction in obese patients with BED receiving standard group BWL.

Combined Cognitive Behavioural Therapy and Anticonvulsant Medication

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

Claudino, de Oliveira, Appolinario, Cordás, Duchesne, Sichieri, and colleagues (2007)[328] conducted a 21-week RCT to examine the efficacy and tolerability of topiramate in comparison to placebo in reducing weight and binge eating in obese outpatients with BED. The manualised CBT program used was ***Cognitive Behavioral Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168]. A total of 73 outpatients were randomised to CBT + topiramate or CBT + pill placebo. The trial determined CBT + topiramate to be superior to CBT + pill placebo on weight loss (-6.8 kg versus -.9 kg) and BMI kg/ m^2. At endpoint, significantly more intention-to-treat participants in the CBT + topiramate condition achieved remission compared to CBT + pill placebo (84% versus 61%), which was defined as abstinence from binge eating in the week preceding endpoint. No significant differences were found between the conditions on binge days per week, binge episodes per week, binge eating severity, or depression symptoms at endpoint. No serious adverse events were recorded during the study.

Combined Cognitive Behavioural Therapy and Antidepressant Medication

One systematic review (summarising two relevant RCTs) and one RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Brownley and associates (search date 2005)[306] included two trials of combined CBT and antidepressant medication in their review. One trial involved fluoxetine (Grilo, Masheb, & Wilson, 2005)[346] (60 mg/day) and the other desipramine (Agras et al., 1994)[347] (300 mg/day), and they were rated as good and fair in quality, respectively. In the 16-week trial involving fluoxetine (60 mg/day) there were four study arms of placebo, fluoxetine monotherapy, CBT + placebo, and CBT + fluoxetine (sample size = 108 patients). The CBT manual used was ***Cognitive Behavioral Therapy for Binge Eating and Bulimia Nervosa: A Comprehensive Treatment Manual***[168].The CBT groups showed a superior response to placebo and fluoxetine alone in reduction of binge episodes, eating and shape concerns, global eating score, disinhibited eating, and rate of remission. The CBT + fluoxetine condition was superior to placebo alone and fluoxetine alone in reducing weight concerns and hunger, superior to fluoxetine alone in reducing depressive symptoms and dietary restriction, and superior to placebo alone in improving body satisfaction. There were no significant differences between CBT + placebo and CBT + fluoxetine on binge eating frequency, dietary restriction, hunger, cognitive restraint, disinhibition, body dissatisfaction, depression, body mass index, or concern over eating, weight or shape. Intention-to-treat remission rates were 22% (fluoxetine), 26% (placebo), 50% (CBT + fluoxetine), and 61% (CBT + placebo). There were no significant differences in rates of treatment withdrawal, with 20% not completing the trial. The trial did not provide evidence of a benefit of using fluoxetine in addition to CBT.

In the desipramine trial, 109 patients were allocated to 9 months of weight loss therapy, 3 months of CBT [unpublished treatment manual] followed by weight loss therapy for 6 months, or 3 months of CBT followed by six months of treatment with weight loss therapy and desipramine (300 mg/day). At the end of the first 3 months, those that received CBT were engaging in binge eating less frequently than those that were receiving weight loss therapy alone. The CBT group reduced binge eating by an average 67% compared to 44% for the weight loss therapy only group. From the three month time point, the study design allowed the groups that had received CBT to either commence weight loss therapy and one of these two groups concurrently commenced desipramine. Comparisons at the end of the 9-month trial showed no significant differences in the proportion who were binge-free (100% abstinence over the preceding week) at 41%, (CBT followed by weight loss therapy + desipramine), 37% (CBT followed by weight loss therapy), and 19% (weight loss therapy). Weight loss for the three groups at 9 months was 6.0 kg (CBT followed by weight loss therapy with desipramine), 1.6 kg (CBT followed by weight loss therapy), and 3.7 kg (weight loss therapy), and was not statistically significantly different between groups. On secondary measures, no group differences were found at any time point on depressive symptoms or dietary restraint. The CBT + weight loss therapy with desipramine group and the CBT + weight loss therapy group each had a significantly lower level of hunger at 24 weeks compared to the weight loss therapy group. The CBT + weight loss therapy with desipramine group had a significantly lower level of disinhibited eating than the weight loss therapy group, but not the CBT + weight loss therapy group at 24 weeks. When the groups were compared at follow-up, three months after the completion of the trial, the group that had received desipramine had lost a significantly greater amount of weight compared to the other two groups. All groups experienced a relapse in frequency of binge eating at 14% abstinent (weight loss therapy), 28% abstinent (CBT followed by weight loss therapy), and 32%

abstinent (CBT followed by weight loss therapy with desipramine). Dropout rate from acute treatment did not significantly differ between the groups.

Level II Evidence

One RCT conducted by Grilo and colleagues (2005)[346] was identified. This study was included in the systematic review by Brownley and colleagues and therefore is not discussed further.

Combined Cognitive Behavioural Therapy Guided Self-Help and Obesity Medication

One systematic review (summarising one relevant RCT) and one RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

Brownley and colleagues (search date 2005)[306] included one trial of obesity medication combined with CBTgsh (Grilo, Masheb, & Salant, 2005)[348] in their systematic review of efficacious treatments for BED. The CBTgsh program used was ***Overcoming Binge Eating***[285]. The 12-week trial involved 50 individuals with BED who were obese that were randomised to CBTgsh + pill placebo or CBTgsh + orlistat (120 mg three times/day). Intention-to-treat remission rates (100% binge free over previous 4 weeks) at post-treatment were 64% for the CBTgsh + orlistat condition and 36% for the CBTgsh + placebo condition, a difference which was a statistically significant difference. Intention-to-treat rates of weight lost at post-treatment were 3.5 (±3.5) kg for the CBTgsh + orlistat condition and 1.6 (±2.4) kg for the CBTgsh + placebo condition and this difference was statistically significant. At post-treatment, both treatment conditions experienced a similar rate of improvement in frequency of binge eating, attitudinal features of Eating Disorders dietary restraint, eating concern, weight concern, shape concern, depression, and self-esteem, with no significant between-group differences. At 3-month follow-up, the same pattern of results emerged. Binge remission rates at follow-up were 52% for CBTgsh + orlistat and 45% for CBTgsh + placebo, and weight loss was 3.4 (±5.0) kg for the CBTgsh + orlistat condition and 1.3 kg (±3.1) for the CBTgsh + placebo condition. Orlistat was reportedly well tolerated by participants.

Level II Evidence

One RCT conducted by Grilo, Masheb, and Salant was identified. This study was included in the systematic review by Brownley and colleagues and therefore is not discussed further.

Combined Cognitive Behavioural Therapy Pure Self-Help and Motivational Interviewing

Individuals with Eating Disorders are often reluctant to engage in treatment and alter their behaviours. They generally have strong positive expectations about the benefits of thinness and overvalue body shape and weight in defining self-worth. They may fear that treatment will lead to weight gain by disrupting attempts at dietary restriction. Motivational interviewing seeks to enhance motivation and readiness to change.

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

The impact of adapted motivational interviewing on binge eating symptoms was studied by Cassin, von Ranson, Heng, Brar, and Wojtowicz (2008)[336]. The 16-week trial randomised 108 female outpatients to either adapted motivational interviewing with self-help or self-help alone [unpublished manuals]. The results of the study identified adapted motivational interviewing with self-help as superior to self-help alone, on binge eating frequency, depression symptoms, self-esteem, satisfaction

with general life, and satisfaction with oneself, at endpoint. The study found no significant differences between the two groups at endpoint on satisfaction with social life, sex life, physical appearance, family or relationships.

Combined Obesity Treatment and Cognitive Behavioural Therapy

One RCT (post-2003) evaluated this treatment approach and met inclusion criteria.

Level I Evidence

There is no level I evidence available.

Level II Evidence

de Zwaan, Mitchell, Mussell, Raymond, Specker, and Seim (2005)[344] aimed to determine if CBT targeting binge eating behaviour [manual unpublished] added as an adjunctive treatment to a very low calorie diet program would improve short- and long-term outcomes in obese female outpatients with BED (n = 71). The study showed there were no clinically significant differences in weight loss, frequency of binge eating, and binge abstinence between the two conditions. On average, outpatients lost 16% of their original body weight. Abstinence from binge eating was 58% at endpoint, 50% at 1-month follow-up and 33% at 1-year follow-up for the very low calorie diet program with CBT condition. At 1-year follow-up there were no significant differences between the two conditions in weight and BMI kg/m^2. The study found no differences in the proportion of outpatients who did not meet diagnostic criteria for BED at 1-year follow-up.

Summary of Research Findings

Table 7 summarises the treatment evidence base as discussed more fully within this chapter.

Table 7. Summary of Eating Disorder Treatment Studies

Treatment Approach	Degree to Which Evaluated	Magnitude of Effect
AN in Young People		
Ego-oriented therapy	Some	Moderate
Family-based treatment (Maudsley therapy)	Moderate	Substantial
Inpatient psychiatric treatment	Some	Low
Specialised outpatient treatment	Some	Moderate
AN in Adults		
Antidepressant medication	Moderate	None
Antipsychotic medication	Moderate	Moderate
Behavioural therapy	Some	None
Cognitive analytic therapy	Some	Low
CBT	Moderate	Low
Family-based treatment (Maudsley therapy)	Some	Low
Focal psychoanalytic therapy	Some	Low
Hormone replacement therapy	Moderate	None-Low
Interpersonal psychotherapy	Some	Low
Nutritional supplements	Some	Low
Refeeding	Some	Moderate
Serotonin antagonist and antihistamine medication	Some	None
Supportive family therapy	Some	Low
Specialist supportive clinical management	Some	Low
Nutritional rehabilitation + CBT	Some	Low[a]
Nutritional rehabilitation + CBT + antipsychotic medication	Some	Low, None-Low for + APM
BN in Young People		
FBT (Maudsley therapy)	Some	Moderate
BN in Adults		
Active light	Some	None
Androgen receptor antagonist medication	Some	-[b]
Anticonvulsant medication	Moderate	Low
Antidepressant medication	Moderate	Moderate
CBT	Moderate	Substantial
CBT guided self-help	Moderate	Substantial
CBT pure self-help	Some	Low
Crisis intervention	Some	None
Dialectical behaviour therapy	None	-
Guided imagery	Some	Moderate
Healthy weight program	Some	Moderate
Multimodal day program	Some	Moderate
Multimodal inpatient program	Some	Moderate
Nutritional management	Some	Moderate
Repetitive transcranial magnetic stimulation	Some	None
Serotonin antagonist	Some	Moderate
Stress management	Some	Moderate
CBT + antidepressant medication	Moderate	Moderate, Moderate for + AM
CBT + interpersonal psychotherapy	Some	Substantial[c]
CBT pure self-help + antidepressant medication	Some	Moderate, Moderate for + AM

Table 7. continued…

Table 7. Summary of Eating Disorder Treatment Studies continued…

Treatment Approach	Degree to Which Evaluated	Magnitude of Effect
BED in Adults		
Anticonvulsant medication	Moderate	Low-Moderate(?)
Antidepressant medication	Moderate	Moderate
BWL	Some	Moderate
BWL guided self-help	Some	Low
CBT	Moderate	Substantial
CBT guided self-help	Moderate	Moderate
CBT pure self-help	Moderate	Moderate
Dialectical behavioural therapy	Some	Moderate
Interpersonal psychotherapy	Some	Substantial
Obesity medication	Moderate	Moderate
Obesity treatment	Some	Moderate
Psychodynamic interpersonal psychotherapy	Some	Moderate
Virtual-reality-based therapy	Some	Low
BWL + antidepressant medication	Some	Moderate, Low for + AM
BWL + CBT	Some	Moderate, Moderate for + CBT
BWL + CBT + antidepressant medication	Some	Moderate, Moderate for + CBT, Low for + AM
CBT + anticonvulsant medication	Some	Moderate
CBT + antidepressant medication	Moderate	Low(?)
CBT guided self-help + obesity medication	Some	Moderate, Low for +OM
CBT pure self-help + motivational interviewing	Some	Moderate, Moderate for + MI
Obesity treatment + CBT	Some	Moderate, None for +CBT

Notes: Degree to which evaluated: None = no Level I or Level II studies; Some = 1 to 2 Level II studies/RCTs; Moderate = > 2 Level II studies/RCTs and/or Level I and II evidence available. Magnitude of effect: None = no beneficial effect; Low = slight beneficial effect; Moderate = moderate beneficial effect; Substantial = substantial and persistent effect.

ADM = antidepressant medication; APM = Antipsychotic medication; BWL = Behavioural weight loss; CBT = Cognitive behavioural therapy; MI = Motivational interviewing; OM = Obesity medication.

[a] No comparison to nutritional rehabilitation alone hence the benefit of added CBT is unclear.

[b] Trial not discussed in the main text as it received a quality rating of "poor" and therefore was not discussed in the Level I study identified.

[c] Both conditions tested CBT + IPT; the only difference between conditions was that one used a group format and the other used an individual format. Therefore, the benefit of IPT added to CBT is unclear.

Anorexia Nervosa in Young People

There is evidence that physical markers, eating pathology, and general psychological symptoms improve among youth with AN who receive FBT, however, there are limitations associated with this evidence base. Studies summarised had small sample sizes and ethical considerations preclude head-to-head comparisons of "active" interventions with a wait-list or no-treatment control, making it impossible to determine whether patients improved due to non-specific effects (e.g., professional care and attention, removal of external stressors with hospitalisation), other artefacts (e.g., symptom regression to the mean), or as a direct consequence of treatment. It was common for patients in the FBT trials to concurrently receive other more intensive treatment programs. Nevertheless, FBT is the most well-studied form of treatment for this population, does not confer any known harm, and has been associated with persistent positive outcomes on physical and psychological indicators.

Anorexia Nervosa in Adults

Treatments trialled for adults with AN include *pharmacological treatments* (i.e., antidepressant, antipsychotic, serotonin antagonist), *psychological therapies* (i.e., cognitive-analytic therapy, BT, CBT, Maudsley FBT, supportive family therapy, focal psychoanalytic therapy, IPT, specialist supportive clinical management), *dietary treatments* (i.e., nutritional supplements, refeeding by cyclic enteral nutrition), *biological treatment* (i.e., hormone replacement therapy) and *combined treatment modalities*. In most cases these treatments have been trialled within inpatient settings and therefore against a "back-drop" of usual-care, which typically involves a multidisciplinary care model with patients in treatment trials allocated to receipt or non-receipt of the investigated intervention on an adjunct basis. Pharmacological treatment with antidepressant and antipsychotic medication does not seem to confer any advantage on physical status, or psychological or eating pathology. Adjunct serotonin agonist treatment was associated with faster weight regain (particularly among restricting patients), and psychological improvement, (however this may have occurred as a function of the weight regain), though these findings were based on one study of fair quality only. Psychological therapies were generally associated with positive outcomes, however the studies lacked comparison to a no-treatment control and therefore it cannot be determined whether benefits are attributable to specific or non-specific treatment effects. One trial compared "low-dose" routine care to focal analytic therapy, cognitive-analytic therapy, and FBT, and found that all specialist treatments were superior to routine care with more positive outcomes occurring for cognitive-analytic therapy and FBT. Evidence of a specific effect of CBT was inconsistent among the trials, though improvement did tend to occur over time, which may be due to either the specific or the non-specific components of CBT. Supplementation of inpatient treatment with zinc may facilitate weight regain, though evidence for this comes from one trial only of fair quality with a small sample. Refeeding by cyclic enteral nutrition led to faster weight gain, fewer vomiting and binge eating episodes, and a longer relapse-free period following weight regain compared to treatment-as-usual.

Bulimia Nervosa in Young People

Evidence on treatments for youth with BN is lacking. One RCT met criteria for the review and compared FBT adapted from the FBT for AN treatment model to supportive psychotherapy. FBT was associated with a greater proportion of remitted patients at endpoint and at 6-month follow-up. However, the findings are based on a small sample, with 80 patients in total in the study, but only 46% of these with a diagnosis of full-threshold BN.

Bulimia Nervosa in Adults

CBT for BN in adults is associated with a robust beneficial effect on behavioural symptoms and related psychopathology, and is effective when delivered by a therapist (individual or group treatment) or in a guided self-help format (e.g., self-administered with regular consultations with a GP or therapist to monitor progress). One study evaluated a pure self-help delivery format and found limited evidence of utility beyond a non-specific control program. The CBT trials showed that CBT led to greater improvements than waiting-list control, supportive therapy, nutritional counselling, and nondirective psychodynamic treatment. There was some evidence that CBT alone or in combination with antidepressant medication was associated with a more positive outcome compared to antidepressant medication alone. Antidepressant treatment was associated with consistent beneficial effects on behavioural symptoms, Eating Disorder psychopathology, and other outcomes such as depression. Antidepressant medication has been compared to placebo and psychological therapies, comparing well to IPT yet overall has a less potent effect than CBT.

Binge Eating Disorder in Adults

CBT is an efficacious treatment for BED in adults. CBT produced a consistent beneficial effect on binge eating, Eating Disorder psychopathology, and general indices of psychopathology, and led to moderate-to-high binge eating abstinence rates, with improvement maintained to at least one-year follow-up. CBT appears to be effective alone or when delivered in conjunction with antidepressant medication. There is evidence that CBT self-help, mostly examined with a therapist-guided delivery format, leads to significant improvements on binge eating and Eating Disorder psychopathology. One study suggested that effectiveness on behavioural symptoms and psychological indices may be enhanced with the addition of a motivational interviewing component, and another study suggested that the addition of obesity medication may significantly improve weight loss, which is not typically observed with CBT alone in a therapist-led or guided self-help format.

Pharmacological trials for BED treatment had a tendency to focus primarily on weight and binge eating episodes as outcomes, despite the complex psychopathology that characterises BED. Of the pharmacological interventions for BED that were reviewed, antidepressant medication has been studied the most, and compared to placebo, is generally superior in reducing binge eating episodes and enhancing the likelihood of remission. Limited differences between placebo and antidepressant medication on weight reduction in trials was noted, and statistically significant differences that were reported were not dramatic or clinically significant.

Pooled analysis of RCT evidence in Level I studies indicated that obesity medication leads to a greater degree of weight loss and abstinence from binge eating than placebo, and there was evidence from Level I pooled analyses that anticonvulsant medication can reduce binge frequency and weight to a greater degree than placebo.

Other less evaluated approaches, such as IPT, obesity treatment (very low calorie diet, nutritional education, behavioural strategies for weight management), behavioural weight loss, and psychodynamic interpersonal therapy were associated with positive treatment outcomes and require further evaluation. IPT produced particularly noteworthy results; in the single RCT on IPT identified, IPT affected change on a range of Eating Disorder outcomes, produced durable improvement to 12 months, and had comparable outcomes to the CBT trial arm.

Key Issues

Empirically-Supported Treatments are Available for Specific Eating Disorders

People with Eating Disorders can experience significant improvement in symptoms with appropriate treatment. It is important to articulate this given that one of the myths surrounding Eating Disorders is that they have a poor prognosis and do not respond to treatment. This myth can potentially discourage health professionals from engaging with this population and reduce optimism among individuals and families seeking treatment. ***A significant amount of progress has been made in the treatment research in recent decades, and empirically-supported treatments for specific Eating Disorders have been identified***. For adults with BN and BED, and youth with AN, there are interventions that offer substantial benefit to the majority of individuals treated, particularly if they are treated early in the course of illness. There are many outstanding challenges to Eating Disorder treatment that remain to be addressed, and progress in these areas will undoubtedly have further positive implications for individuals with Eating Disorders, particularly for those populations and individuals for whom recovery and clinically significant improvement remain challenging.

Diagnostic Criterion Lenience in Controlled Trials

Studies included to address Key Questions 4 to 6 comprised participants who met full, standardised diagnostic criteria for an Eating Disorder. ***There was a small, but noticeable trend for some RCTs to waive one or more standardised diagnostic criterions for either AN or BN***[6]. This indicates a trend in the Eating Disorders field to examine treatments that relate more closely to those patients referred for treatment in real-world settings and this trend should be encouraged in future Australian research. The trials with AN-like participants that did not meet the diagnostic inclusion criterion for this review nonetheless indicate further directions for research into treatment for AN, such as the use of D-cylcloserine and motivational interviewing in inpatient settings. Characteristics and findings of these excluded RCTs[200,349,350,351,352,353] published post-2003, identified during the "sweep" of Level II evidence (methodology outlined in Chapter 2), are summarised in Table 8. An additional study[354] that was excluded on the basis of suspected deviation from full criteria is also listed in Table 8.

Although it is important to understand treatment efficacy among individuals representative of community clinical populations, investigation into what works with populations with severe illnesses and clinically complex presentations (e.g., low motivation, high psychiatric and medical comorbidity) must be maintained. Response is likely to be affected by treatment characteristics, including service models, treatment type, and intensity and duration.

6 These studies were not considered appropriate to address Key Question 3, "What is the evidence for the efficacy of indicated prevention interventions for Eating Disorders?" (addressed in Chapter 4) because the participant sample would likely have included at least some individuals that met full diagnostic criteria.

Table 8. Anorexia Nervosa Treatment RCTs Waiving One or More Standardised Diagnostic Criterions

First author (yr): Deviation from full diagnostic criteria	Comparison groups	*N* (drop-out) Mean age	Follow-up period	Main outcome measure	Result
Ball (2004[349]): Less than 90% (rather than 85%) of normal weight for age and height	Cognitive behavioural therapy versus family therapy	25 (7, 28%) 18 yrs (SD = approx 3)	12 months and 18 months after baseline	Weight and menses	No differences between the completers in each group at the end of treatment on the weight/menses criterion – 78% of completers in each group had a good outcome.
Birmingham (2004[354]): Does not report what criteria were used to diagnose AN	Warming vests (i.e., thermoregulation) versus control vests. All patients were admitted to a 21-day inpatient admission for refeeding.	21 (3, 14%) 28 yrs (SD = 6.6)	21 days after baseline	BMI	No difference between the groups in increase in BMI.
Bissada (2008[350]): Amenorrhea not required	Antipsychotic medication (olanzapine) + day hospital treatment (group 1) versus pill placebo + day hospital treatment (group 2)	34 (6, 18%) 27 yrs (SD = 11.6 for group 1, 6.5 for group 2)	12 weeks after baseline (included a 2-week baseline period and 10 weeks of treatment)	BMI	Patients receiving olanzapine showed a significantly greater increase in BMI and 87% of those receiving olanzapine and 56% receiving placebo achieved weight restoration.
Lock (2005[200], 2006[146]): Mean BMI 17.1 kg/m^2 (SD = 1.4) due to brief hospitalisations for medical instability before trial started; missing only one menstrual period	Short- or long-term family-based treatment (Maudsley therapy): 10 sessions over 6 months and 20 sessions over 12 months respectively	86 (9, 10%) 15 yrs (SD = 1.6)	12 months after baseline; 4-yr follow-up	BMI and Eating Disorder Examination (EDE)	No difference between the two groups. Good maintenance of gains at 4-year follow-up (89% over 90% ideal body weight and 91% of postmenarcheal females with menstrual return).
Steinglass et al (2007[351]): 14.3 kg/m^2 ≤ BMI ≤18.6 kg/m^2 and two individuals did not have amenorrhea [c]	Behaviour therapy (exposure treatment involving meals) + D-cycloserine (DCS) or placebo as inpatients	14 (3, 21%) 27 yrs (SD = 7.4)	Final test meal one week after four training meal sessions over a fortnight	Caloric intake at final test meal	Total caloric intake increased from baseline to final test meal for DCS group but not placebo.
Wade (2009[352]): BMI < 19 kg/m^2 and were not required to have amenorrhea	Two-week inpatient assessment + 4 sessions of motivational interviewing (MI)	47 (12, 26%) 22 yrs (SD = 5.4)	6 weeks after baseline	Total Eating Disorder Examination (EDE) score	No difference between groups – significantly less drop-out at follow-up and more people crossing from low to high readiness to change in MI group.
Walsh (2006[353]): Did not need to meet amenorrhea criterion and had reached a BMI ≥ 19 kg/m^2 for at least two weeks duration after treatment	Antidepressant medication (fluoxetine) or pill placebo + outpatient treatment over a 12 month period after weight restoration as an inpatient or outpatient. All patients received manualised cognitive behavioural therapy	93 (53, 57%) 23 yrs (SD = 4.5)	12 months after baseline	Time to relapse (drop-out or return of symptoms)	Failed to demonstrate any benefit from antidepressant medication in treatment of AN after weight restoration.

Note: BMI = Body mass index.

How Should Patients with Eating Disorders Not Otherwise Specified Be Treated?

Individuals with EDNOS comprise the majority of adult and child patients referred to specialist Eating Disorder treatment settings. Despite this, there is very little evidence-based literature to inform treatment – hence this key issue was not explicitly addressed in the form of a systematic review in this chapter. In the absence of evidence, clinical consensus is a legitimate basis for action. The National Institute of Health and Clinical Excellence provide good pragmatic advice to follow;

"In the absence of evidence to guide the management of Eating Disorders Not Otherwise Specified, it is recommended that the clinician consider following the guidance on the treatment of the eating problem that most closely resembles the patient's eating disorder." (p. 71).

The role of the transdiagnostic model of treatment[355], and the associated evaluation of the model[356], is particularly pertinent here.

Beyond the "Limits" of Randomised Controlled Trials

Medical Management

A cornerstone of successful management of Eating Disorders is sound medical management, administered primarily through primary care physicians. Medical management may involve monitoring the physical status of the individual, treating medical complications associated with the illness, educating the individual about the illness, ongoing case management including referral to specialised services, and treatment delivery, typically medication management or perhaps a first step in a "stepped care" approach (e.g., guided self-help). Ethical and other factors preclude examination of this important aspect of care, which may or may not involve the application of a specific treatment approach, yet nonetheless, it is a vital strategy within the broader context of Eating Disorder management.

Multidisciplinary Practice Models

Multidisciplinary practice models are rarely examined within RCT designs, as the philosophy underpinning RCTs is to exert as much control as possible over factors that may influence outcome to examine whether a specific treatment improves symptoms while ruling out placebo effects or other factors. RCTs typically evaluate "clean" treatment models, rather than practice models containing a variety of treatment approaches. Multicomponent practice models, such as multidisciplinary models, make it difficult for researchers to ascertain which component of practice produced benefit. This is a significant limitation of relying on Level I or Level II evidence to inform decisions about community-based treatment, because the treatments employed in these trials do not necessarily reflect the grassroots context and what experts would recommend as the most suitable practice model. ***A multidisciplinary practice model is a widely accepted model of care for individuals with Eating Disorders, given the biopsychosocial conceptualisation of Eating Disorder etiology and maintenance, and the psychosocial and medical correlates and consequences of Eating Disorders.*** Specialist Eating Disorder services in Australia, particularly those established for child and adolescent populations, offer consults by care providers in a range of fields to meet requisite care and safety needs. These professionals should include physicians, psychiatrists, psychologists, nurses, physiotherapists, social workers, occupational therapists, and dietitians. Given that multidisciplinary models are frequently utilised in service settings, research that investigates their benefit and how they can be optimally delivered to maximise outcome, accelerate recovery, and prevent relapse, while being cost-effective, is required. Multidisciplinary and multisite research to assess the efficacy of the common treatment experience in Australian Eating Disorder settings is needed. Although a multidisciplinary model of care is an important

aspect of treatment for many individuals with Eating Disorders, needs will vary according to illness type, severity, duration, comorbidity, and other factors. A stepped-care model for health intervention, broadly-speaking, matches the intensity of the intervention to the severity and risk profile of the illness. Within the Eating Disorder field, stepped care models are in use, for example non-guided and guided self-help, through to community-based outpatient treatment with a psychologist or psychiatrist and adjunct clinical management by a general practitioner, through to day hospital or inpatient hospital programs with extensive multidisciplinary input. Given the medical and psychological complexity of Eating Disorders, individuals may at any given point in their illness course require access to one or more of a variety of health professionals for guidance on medical, psychiatric, nutritional, and psychosocial issues. Practice models that accommodate multidiscipline needs are an important consideration.

Tiered Service Provision

In health systems, service provision is tiered from generalist to specialist service providers. ***Tertiary "expert" centres of treatment have a significant role to play in the Eating Disorder health system.*** Level I/Level II studies do not evaluate the nature or tier of service providers. Generalist health and mental health professionals do not necessarily have the self-perceived competence and confidence, or the specialised training and education, to treat individuals with Eating Disorders, particularly severe illness presentations[357]. Tertiary services are staffed by professionals with arguably greater experience and training on Eating Disorders. Tertiary services have the capacity to support primary and secondary health services, including generalist professionals, to identify and manage individuals at risk of or with an acute Eating Disorder, and to disseminate empirically-supported treatment approaches. For example, staff at The Children's Hospital at Westmead provide training, consultation and liaison, and supervision face-to-face or by teleconference, to professionals seeking to implement Maudsley FBT for children and adolescents with AN. In the Eating Disorder field, tertiary "expert" centres of treatment have strong significance for upskilling and disseminating best practice standards, arguably more so than for other medical or mental health problems (e.g., depression), where factors may convalesce to make appropriate treatment standards and strategies relatively more available (e.g., prevalence; public awareness; health professional training and education; mental health literacy; non-stigmatisation; longer duration of a treatment evidence base; lower perceived medicolegal risk for practitioners; fewer social and psychological barriers to care, etc).

Integrated Service Delivery

The comparative effectiveness of service delivery settings, such as outpatient, day patient, inpatient, and residential, on Eating Disorder outcome is a significant research gap that requires attention in future research. Individuals with AN who access treatment are often hospitalised at one point or another, sometimes for many weeks, which can hinder social and occupational functioning. AN requires a significant length of treatment, and symptom severity and morbidity including medical risk, varies throughout the course of the illness. ***Although some Eating Disorder hospital admissions are necessary to avert a medical crisis, the impact and rationale for protracted inpatient or residential management is unclear. Until there is further evidence to shed light on this important issue, integrated service delivery that incorporates a continuum-of-care model is recommended for Eating Disorders management.*** An appropriate strategy for Eating Disorders management, therefore, is not simply to create more inpatient beds or residential units – these models have not been demonstrated to be more efficacious - but to create a more sustainable, integrated service delivery model - which may include more inpatient beds.

Treatment Dissemination

Dissemination of empirically-supported treatments needs to be facilitated and researched. Practitioners require assistance to implement empirically-supported treatments, through the availability of training resources (i.e., treatment manuals, expert workshops, supervision) and sustainable training and supervision models (i.e., teaching hospitals upskilling practitioners in the field). The treatment research needs to improve measurement of treatment integrity and to evaluate how losses in integrity affect treatment outcome. Practitioners in naturalistic settings may not adhere to components of treatment for various reasons, including a lack of training, a lack of a clear understanding of the utility and importance of specific components, allowing personal preferences to guide which parts of the treatment approach are selected for use, or through avoidance of treatment components seen as more challenging (i.e., some clinicians anecdotally report anxiety and reluctance at the thought of carrying out family meals within the Maudsley FBT approach, as one example). Clinicians require support and guidance to implement treatment fully, as the degree to which treatment outcome is impacted by deviations in treatment integrity is unknown but potentially significant; in other fields losses in treatment integrity attenuate intervention outcomes[358, 359], though this relationship is complex.

Mental Health Literacy

Mental health literacy was noted as an important intervention strategy within prevention (Chapter 3) and identification and early intervention (Chapter 4), and also has strong relevance to the area of treatment standards and strategies. ***Mental health literacy initiatives, particularly in the form of community public awareness campaigns, support dissemination of effective treatment standards and strategies by removing barriers to help-seeking, reducing stigmatisation and shame, and raising awareness of available and effective treatment options.*** While not specifically a treatment approach, mental health literacy may facilitate early presentation for diagnosis and treatment and thereby enhance prognosis and outcome.

Existing Level I and II Evidence Neglects Relapse Prevention and Long-Term Care

As articulated in the National Mental Health Plan[360], to reduce the incidence, prevalence, and impact of illnesses, consideration must be given to the full spectrum of health promotion and intervention, ranging from prevention and treatment, through to continuing care and engagement with longer-term care and support. For some individuals, Eating Disorders can have a chronic illness trajectory. For others, the clinical presentation is demarcated by a waxing and waning course, with periods of acute illness interspersed with recovery and relapse. ***Treatment standards and strategies for relapse prevention and for individuals with chronic Eating Disorders are poorly understood***[361]. Researchers in Australia are currently undertaking a world-leading trial to examine the efficacy of treatment for those with chronic AN. Yet, there is a great distance to go before the needs of these individuals are fully understood. Nevertheless, the availability of management and care options for individuals with chronic Eating Disorders, particularly approaches that address quality of living and harm minimisation, requires ongoing consideration. Consideration must also be given to the role of residential treatment, which might be useful for those with chronic illnesses who have not benefited from other treatment modalities, and have difficulty attaining substantial medical or psychological stability. However, it is important to note that there is no evidence that under these conditions residential treatment is superior to outpatient or other models; a lack of evidence is indicative of unknown efficacy, not effectiveness or ineffectiveness. Evaluating residential treatment, which is typically multicomponent in nature and expensive, presents challenges for researchers.

Models of Care Must Negotiate Contextual Demands

Evidence is not a panacea, but is merely one, albeit important aspect, of decision-making in clinical practice. ***Models of care must negotiate contextual demands and complexities such as population and resource distributions.*** One example that is especially relevant to Australia concerns rural- and remote-based service providers, who have different treatment delivery needs to metropolitan-based treatment providers. Rural- and remote-based service providers require tailored support to enable them to deliver appropriate standards of care. This support entails accessible training and education, opportunity for tertiary support in consultation, liaison, and supervision, and broader systemic health system support (e.g., Medicare rebates that overcome barriers to disseminating care, such as appropriate imbursement to establish and maintain teleconference infrastructure). They require access to telemedicine and access to a mobile team who can support them locally, for instance, staff from a specialist service provider (i.e., teaching hospital) who can provide rural- or remote-based support when necessary. They must be able to refer individuals to specialist service providers if required, and be included in the long-term management plan after crisis has been through intervention with metropolitan-based specialist service providers.

Professional Associations

Professional not-for-profit associations represent people working within a sector of the workforce and play an invaluable, largely unrecognised, role in supporting the health system, including the implementation of appropriate treatment standards and strategies. They provide advocacy, leadership, networking, public education, and training and education opportunities for workforce upskilling. The Australia and New Zealand Academy of Eating Disorders is the peak professional body for Eating Disorders in Australia, and represents the interests of a range of professional disciplines. Professional associations build community capacity and health by supporting the needs of specific sectors of the health workforce and form another imperative component of the extended health care system.

Research Gaps and Directions

The methodological limitations of previous research should be more thoughtfully addressed in future research studies. Methodological limitations include the generally small sample sizes used, the lack of or insufficient follow-up assessment, the limited comparison of active treatment approaches, and attrition.

More research is needed on treatments for Eating Disorders, particularly for AN in adults and Eating Disorders in youth. Compared to other illnesses in the health and mental health fields, Eating Disorders, particularly AN, have an inchoate treatment evidence base despite the serious morbidity and burden associated with these illnesses. A primary reason for this concerns the serious methodological challenges that impede treatment research. For AN, there have been many attempts to conduct treatment research among individuals with an established diagnosis, but because of severe methodological limitations these have not been able to shed light on the usefulness of treatment approaches. As Wilson and colleagues (2007)[362] wrote, "The results of the most ambitious project to date support this conclusion: Despite an extraordinary expenditure of effort, the trial produced uninterpretable findings as a function of astronomical attrition" (p. 202). Maudsley FBT is a promising approach for youth with AN, however, it has been compared only to EOIT, which is arguably not a therapy that most clinicians would regard as the most potent and relevant treatment comparator. Further research is needed to clarify the effectiveness of Maudsley FBT against other active comparators such as intensive CBT, and into treatments for Eating Disorders more generally. Australian clinical academics are ideally placed to conduct Eating Disorder treatment research because they have good established networks and working relationships which are imperative for multisite

research, many have worked together previously on National Health and Medical Research Council funded grants, and they have strong international collaborative links. A reciprocal relationship between clinicians and researchers is a valuable context for Eating Disorders treatment research - many of the approaches practitioners use in naturalistic settings have not been systematically evaluated.

RCTs are one type of evidence but there are other types too. RCTs in the Eating Disorders field, particularly for AN, require large sample sizes, years, multiple centres with lots of patients, and are costly, translating to measured progress in knowledge development. There are other types of research that can support the development of treatment standards and strategies, such as qualitative work focusing on patient experience. For instance, Rhodes and colleagues[363] qualitative work with a subset of 20 families highlighted parent-to-parent consultations as a useful augmentation to Maudsley FBT for AN, and qualitative research on nasogastric refeeding in AN[364] provided a framework and suggested principles for nasograstric refeeding clinical protocols.

The comparative benefit of treatment settings has not been adequately evaluated. There is very little evidence to discriminate between the effectiveness of inpatient, day patient, outpatient, and residential settings.

Active psychological treatments require comparison in RCTs - particularly among the populations of youth with AN, adults with AN, and individuals who do not respond to first-line treatment for BN and BED.

Future research on pharmacotherapy should investigate a longer treatment course. The medication trials have often involved very short acute treatment phases, when in actuality, the acute treatment phase is likely to be longer in community practice settings. Short acute treatment phases provide a smaller window of time for clients to improve, particularly with medications dependent upon a two- to six-week time-frame to reach therapeutic levels.

Standardised definitions of recovery, remission, and response are needed. One of the inherent challenges in the field is an appropriate definition of recovery, across diagnosis, age, and complexities of illness. There are no standardised definitions of recovery in use across treatment trials. For the binge-eating spectrum of Eating Disorders, outcome is often assessed in terms of behaviours (i.e., binge eating and purging frequency) or biomarkers (e.g., weight or BMI), while ignoring psychological features. One of the most important things learnt to date about recovery for AN is that weight recovery is not recovery. Standardised definitions of response and remission are also required.

Broader outcome evaluation is required in treatment trials. The outcome measures used in research trials are often narrow, particularly for BED and BN where outcome is primarily defined by the frequency with which a person binges and purges, and their BMI. A broader scope of measurement that captures the full experience of an Eating Disorder – the physical (e.g., binge eating and overeating episodes, spectrum of purging methods and episodes, excessive exercise), psychological (e.g., concern with weight, shape, eating, and dietary restraint, body dissatisfaction, shape and weight overvaluation), social (e.g., quality of life), and comorbid (e.g., physical functioning, anxiety, depression, other psychological processes such as dichotomous thinking and emotion regulation, substance use, self-harm etc.) aspects is arguably a more meaningful way of representing and conceptualising outcome.

Very few RCTs have been conducted among certain populations, for instance, young people with Eating Disorders, individuals with EDNOS[7] (not including BED), chronically ill individuals, and minority populations.

7 May not be of as much concern as there will be significant changes to the next revision of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V).

Research into interventions that reduce barriers to care, increase uptake of evidence-based therapies for Eating Disorders, and/or promote earlier treatment is necessary. An Eating Disorder mental health literacy initiative is an example of an intervention approach that would be worthwhile to investigate.

Treatment non-compliance and drop-out has not been adequately investigated, in terms of either reasons for non-compliance or interventions designed to enhance compliance. This research avenue is of particular relevance to the adult AN population.

Support for existing Australian treatment services to evaluate endogenous programs and models is needed. There are three relevant issues. Firstly, an unevaluated intervention may be efficacious; however, until the program has been properly evaluated it will be unclear whether or not this is the case. Wilson (2009)[365] cautioned, "The often heard objection from practitioners is that because a treatment has not been studied in an RCT does not mean it is ineffective. Of course this is so, but to take nonempirically supported therapies seriously, they will have to be evaluated in methodologically rigorous studies. Future research on such therapies is essential, given that there is some evidence that treatment naturalistically delivered by practicing clinicians in representative treatment settings may not be as effective as claimed." (p. 547). Second, from a clinical governance perspective, service settings have a responsibility to monitor and evaluate the safety and adequacy of care provided. There are methods to integrate evaluation into service delivery and to benchmark outcomes against those obtained in RCTs. The Centre for Clinical Interventions, Eating Disorders Program, in Western Australia is an example of a public mental health service model that integrates monitoring and evaluation into routine clinical practice and benchmarks naturalistic outcomes against RCT outcomes. Third, promising pilot data from evaluation of an endogenous program could be the stimulus for further innovative treatment research.

AN treatment based on a rehabilitation model, rather than an acute intervention model, is an urgent area for future research. This model would ideally focus on promoting quality of life and minimising harm, and would draw from harm minimisation, rehabilitation, and chronic illness models. This approach may have clinical relevance for those who do not engage with or fail to respond to traditional treatments and develop a more chronic course of illness.

Eating Disorders appear to be relapsing illnesses; therefore research is required to prevent episodes of relapse. It is clinically recognised that significant stressors months and years after recovery can trigger relapse in Eating Disorders. Relapse prevention is crucial to ensure individuals maintain gains made from treatment. Long-term treatment follow-ups (i.e., at least five years follow-up) are required to evaluate the long-term efficacy of treatment approaches across all of the Eating Disorders. Further research into relapse prevention for individuals with AN is needed. With AN, therapists and patients are vulnerable to burnout in treatment, so treatment may be terminated before relapse prevention has been sufficiently addressed. With BN and BED, relapse prevention is typically built-in to manualised, empirically-supported CBT interventions. A downgrading of treatment intensity for AN is common clinically following weight restoration, yet it is almost a clinical truism that weight restoration does not equate to AN recovery. Individuals with AN fear weight gain and loss of control over eating, shape, and weight, and anxiety and disordered eating typically intensify, not detensify, following weight restoration. Individuals with AN that achieve weight regain actually require a greater intensity of assistance at this point, not less, to facilitate recovery.

Studies that investigate which treatment components are potent and necessary to alleviate Eating Disorder symptoms are required. These studies - termed "dismantling" studies - are typically conducted once a significant level of evidence has accrued on the effectiveness of an intervention. This line of research is therefore currently ideally suited to psychologically-based interventions for BN and BED, where we are reasonably confident of the efficacy of available treatments. Dismantling studies assist to refine a treatment and reduce treatment duration.

Mediators and moderators of treatment outcome require identification. Mediators are the mechanisms that are affected by a treatment and lead to a reduction in symptomatology (i.e., biochemistry, behavior, etc) and moderators are the factors that determine who responds to treatment and who does not. For established treatments (e.g., CBT for BN and BED; antidepressants for BN) this is an important research avenue that will lead to important refinement and potency of interventions.

Methods to reduce latency between illness onset and professional help-seeking require investigation. Given that short illness duration is one of the factors most consistently associated with a favourable Eating Disorder prognosis[143, 144], interventions to enhance early identification, help-seeking, and early intervention are necessary.

Research involving integration with other disciplines (i.e., genetics, neurobiology, neurosciences) and fields (i.e., obesity, depression, anxiety) is warranted. Eating Disorders are complex biopsychosocial illnesses with comorbidities; integration and partnerships with other disciplines and clinical and research fields will facilitate knowledge production.

Multisite research to assess treatment efficacy is required, particularly for AN, given challenges in recruiting and retaining clinical research participants. This is an important recommendation endorsed by international experts. Agras and Robinson (2009)[366] stated, "The ultimate aim would be to identify a relatively large number of sites able to participate in treatment trials, thus forming a collaborative group. Without such a group of expert sites, it would be difficult, if not impossible, to move the quest for evidence-based treatments for AN forward" (pp. 537). This recommendation ought not render single-site studies obsolete, for single-site studies have a valuable role to play in identifying promising interventions[365].

CHAPTER 6
FINDINGS IIII: PERSONS WITH LIVED EXPERIENCE, CARERS, AND COMMUNITY-BASED SUPPORT

This chapter covers topics that are relevant to Eating Disorder management that were not contained within the scope of Chapters 3, 4, and 5.

Research on carer and consumer views of treatment approaches is summarised, examples of qualitative research examining perspectives on prevention and recovery are provided, and the role and contribution of siblings, families, and carers is discussed. Research on consumer and carer participation strategies is reviewed, drawing in some evidence from other fields within health and mental health. Peer support is discussed in some detail, as an example of a promising consumer participation strategy with some preliminary evidence of effectiveness.

There is no evidence at Level I for this review area in the field of Eating Disorders. Overall there is a paucity of qualitative and quantitative research into the experiences of individuals with a lived experience of an Eating Disorder and their carers, although the last decade has seen more progress. There are few studies in health in the area of consumer participation; however what has been done is the subject of a 2006 Cochrane review[367]. The incorporation of consumer and carer participation in the design and implementation of research, as well as consumer and carer perspective in the content of research studies is an urgent and crucial discussion for the research agenda in this field. Although not yet adopted in the Eating Disorders field, there are models and approaches from other fields that could be explored. For example consumer-driven, participatory research is often the preferred methodology in Africa and South America and is more common in nursing research than medicine and could be a suitable model for the Eating Disorders field to utilise.

Views of Treatment and Care Approaches

Historically, consumers and carers were viewed as passive recipients of services with clinical treatments designed, implemented, and evaluated by professional experts. Consequently, research on consumer perspectives has focused on determining satisfaction and acceptability of treatments. This type of research represents the bulk of the studies and therefore this section focuses on the opinions of individuals with lived experience of Eating Disorders with regard to specific treatment approaches. The gaps in research content and methods are discussed, with recommendations for future research.

A recent systematic review (search date 1990 to 2005)[368] reported on the illness and treatment experiences of people with AN and summarised individuals' perceptions of treatment modalities. Individuals reported that pharmacological treatment (i.e., antidepressant medication) as useful for helping to manage depressive and

anxiety symptoms, but less helpful for addressing core aspects of AN. Nutritional support by itself was viewed as insufficient, as "An eating disorder does not disappear just because you start eating right" (p. 44). Nutritional support is typically oriented toward weight restoration, and there was a perception that it did not address the psychological aspects of the Eating Disorder nor enhance emotional support to the extent desired, notwithstanding, nutritional guidance is a core component of a multidisciplinary approach. Individuals considered individual psychotherapy to be the most acceptable treatment approach, because it provided a means of managing the emotional aspects of the illness, addressed and promoted motivation to change, and provided a safe space in which the person with AN felt understood and accepted. Group psychotherapy was perceived as helpful for increasing the availability of social support, but sometimes this experience was double-edged, in that it could also foster unhealthy and unhelpful psychological and behavioural symptoms, such as competitiveness to attain the thinnest body, and the uptake of previously unknown weight and shape control strategies.

Other empirical investigations among individuals with Eating Disorders suggest that specialised Eating Disorder treatment is preferred[369]. Individuals with Eating Disorders prefer treatment approaches that focus on active control of eating habits and that provide psychological and emotional support[370].

Psychotherapy and pharmacological treatments are viewed as somewhat or extremely helpful by over 50% of individuals with Eating Disorders (present or past diagnosis), with individual outpatient psychotherapy and self-help groups experienced as particularly valuable[371],[372]. The treatment experience, in general, is seen as more helpful if carers, parents, and/or loved ones are involved in the treatment process[369]. Individuals with Eating Disorders in one study identified priorities for improvement in health care services such as improved clinical competence and knowledge of general practitioners and education professionals, more specialist Eating Disorder professionals, suitable inpatient treatment programs, and the provision of assistance for relatives[372]. Although the study was internationally-based, anecdotally, needs analyses suggest that these and other issues are applicable to the Australian context. In addition, an earlier systematic review[373] reported on negative perceptions of treatment such as unpalatable aspects of treatment and experiences of treatment drop out. This author noted that it would be useful to develop and evaluate strategies to assist patients with the negative, yet necessary, aspects of medical treatment such as nasogastric feeding and weight gain. An Australian qualitative study[364] on nasogastric refeeding in AN provided a framework and suggested principles for nasograstric refeeding clinical protocols. Patient perspectives on how to improve engagement with treatments and reasons for drop-out

could shed some light on this common clinical problem. The review author concluded that treatments where individuals have control over pace and goals of treatment and which address issues wider than weight and shape in the context of a supportive therapeutic relationship are more tolerable to patients.

Continuum of care, multidisciplinary management, and long waiting lists are salient challenges for this population, given the chronicity and impact of the illness and the requirement of multidisciplinary input. One person remarked, "I found it difficult to be referred from one institution to another and discuss my problems over and over again" (p. 672)[369]. Engagement in treatment, particularly among those with AN, is an ongoing challenge within the field as these individuals are characteristically ambivalent about treatment. Unsatisfactory multidisciplinary management, continuum of care disruption, and lengthy waiting lists can compound the challenges of engaging and retaining these individuals in treatment. These issues have a significant impact on the patient's experience, and on the clinician's capacity to deliver treatment. Yet, it is difficult to draw recommendations from the current research which tends to evaluate treatment models, rather than service or clinician variables in university as opposed to naturalistic settings. Valuable insight into these challenges and how to improve engagement in and quality of treatment could be obtained by utilising research methods that involve individuals with lived experience in the study design. For example, research in this area needs to move beyond assessing satisfaction and acceptance of treatment strategies into active consumer participation in the development of treatment strategies and the research studies that evaluate treatment outcomes.

Similarly, from the perspective of people with lived experience, a significant gap in the research on treatment approaches is data on the impact of the therapeutic relationship and qualities of the treatment provider. Evidence across mental health is that, in addition to the treatment model and placebo effects, client factors and the therapeutic relationship are connected to patient outcomes[374]. In the Eating Disorders field, individuals with lived experience report their own motivation and resources and attitudes and values of professional staff, such as the provision of a collaborative therapeutic relationship and a compassionate and responsive health service, as very important to engagement with and the outcome of treatment[375]. From the perspective of lived experience, service models are also priority areas for research such as the integration of treatment, clarity of access pathways, and support across the different stages of the Eating Disorder. For example, several studies which observed considerable delays in obtaining treatment[375],[376],[377] reported that this was mostly due to doctor delay in referrals, however, it would be useful to understand these issues more fully to ensure earlier referral and thereby reduce illness duration and impact and improve outcomes. There are significant gaps in our knowledge about all of these areas of service provision and naturalistic treatment studies could help determine service and practice models that are effective.

Families' views of treatment are important for understanding the acceptability of treatment. Families perceive inpatient or outpatient treatment as acceptable compared to no treatment; "Since my daughter has been admitted to the hospital I see light at the end of the tunnel" (p. 4)[378]. Specialised treatment facilities are viewed as particularly helpful by carers because of the greater degree of specialised knowledge and understanding staff have of Eating Disorders, the increased

focus of treatment on Eating Disorder symptoms, and the support patients can receive from other individuals with Eating Disorders[377]. Carers and families are more satisfied with treatment if it is inclusive of loved ones[378], [379] and they find carer support groups to be helpful so long as these groups address issues or stages of relevance to attendees[378]. One study[380] investigated the acceptability of family-based treatment for AN in youth and found that the majority of participants were positive towards the treatment and noted the most helpful aspects were - from most common to least common - whole-family inclusion in the treatment process, refeeding, externalising the illness, therapeutic alliance and support, communication strategies, therapeutic expertise, and other aspects. Least helpful aspects cited - from most common to least common - were the exclusive focus on AN, short treatment duration, sessions too infrequent, lack of individual therapy component, sibling involvement, and other aspects.

With the increasing recognition of the important role of parents in recovery, there are recent studies looking at parents' responses to Eating Disorders uncovering a range of promising actions and strategies. Treatment seeking is a key task and parents are often highly involved in activities related to seeking, negotiating, and evaluating treatment[381]. Their relationship with their child becomes a focus of their attention and attempts to alter their own ways of interacting with their child are common[382]. There is often a prioritisation of the sick child and parents tend to rearrange their other activities to fit in with caring for the child[383]. Trying to understand the illness is an active process[384]; researchers have found that the construction of the Eating Disorders influences parents' actions[385], such as whether they see the Eating Disorder as an eating issue, an illness, a psychological problem, a choice, or a mystery. Honey and colleagues[385] also explored the methods that parents use to positively influence their daughters. These ranged from searching for help, providing practical support, avoiding confrontation, complying with special requirements, persuading, explaining, and pressuring, using ploys and force, providing emotional support, and mediating interactions. Understanding parents' actions and constructions helps clinicians form more effective treatment alliances and methods and enables researchers to explore new territory that may be relevant for improving treatment approaches and outcomes. After mapping the territory of parenting approaches, the next step would be to evaluate their effectiveness, and incorporate the most effective strategies into clinical treatments.

Sibling Experiences

A review by Vandereycken and Van Vreckem[386] noted a paucity of research about siblings, as well as contradictory findings. This review identified that studies tended to focus on the impact of Eating Disorders on siblings and the problematic aspects of siblings relationships, as opposed to the potential positive contributions and influences. For example, the impact of AN on siblings was examined in a qualitative study[387]. This study found that when a sibling has AN the other siblings experience intense and conflicted emotions and can experience their sibling's illness as having a pervasive impact. Themes which affected the impact were the family perspective of the illness, level of disruption of relationships, role strain, the status awarded to the person who is unwell, and overall level of coping. Being aware of the impact on siblings, especially the factors that worsen impact will lead to more sensitive and targeted family interventions which promote the well-being of siblings and increase their capacity to support their unwell sibling.

The impact of well siblings on individuals with AN was examined in one study where siblings' expressed emotion was found to be a poor predictor of outcome after six weeks[388]. However, this study only looked at a short duration and this may conceal any meaningful trends or effects. A qualitative study[389] explored the perspectives of adolescent girls diagnosed with AN and their parents about the influence of siblings on the individual's experiences of AN. The findings indicated that siblings can have both a positive and negative influence

through their presence in the family, responses to the illness, and impact on parents. A number of contributing factors affected the influence of siblings including; the sibling's understanding of AN, individual lifestyles, pre-AN relationships, whether parents and girls encouraged or discouraged a sibling's involvement with the AN, sibling and family characteristics, and professional interventions. This study offers valuable insights for the involvement of siblings in treatment and ways to ensure interventions are supportive of the well sibling. The same researchers examined the parental role in looking after well siblings[390] and found that parents made conscious and active efforts to look after them by maintaining normality, compensating for changes to routines, protecting siblings, providing emotional support, and managing the consequences. Building interventions that focus on supporting the well sibling have potential to promote the positive influence of the well sibling and reduce the strain and burden to them.

Sibling relationships in BN have been studied less than AN. One qualitative study[391] found that BN can affect the sibling relationship by increasing the distance between sisters and reducing their capacity to seek and give support. This study also noted that the siblings regarded the father-bulimic sister relationship as being closer/better than their father-non-bulimic sister relationship and that the sisters also engaged in physical comparison with each other. Themes such as this point to the potential clinical utility of addressing the sibling relationship in therapy, in particular issues of comparison and support, however, there is a need for further attention to the potential positive influences and resources of the well siblings. It would be useful to ascertain from the perspective of siblings what interventions they would find beneficial, as well as any perceptions of treatments they have experienced. A potentially fruitful area would be to explore sibling needs, in a similar way to what has been done for carers taking into account their unique issues. Adapting and evaluating existing information, support and skill-building interventions to be relevant to siblings would be a simple step to extend the array of treatment options.

Caring for a Person with an Eating Disorder

The management of Eating Disorders generally involves care systems beyond primary, secondary, and tertiary health services through to the home and the community environment. Carers, families, and loved ones play an instrumental role in supporting and caring for individuals with Eating Disorders, particularly those with severe or long-standing illness. A carer may be a parent, partner, friend, grandparent, child, sibling, grandchild, neighbour or other individual in the person's life. Carers require support and assistance to carry out their role effectively and it is therefore important to consider their needs in addition to the needs of individuals with Eating Disorders. Carers, families, and loved ones, subsequently referred to as "carers" in this section, are an essential but largely overlooked component of the extended health care system.

Carer Experiences and Impacts

Caring for a person with an Eating Disorder is associated with a range of experiences, and can bear substantial personal, social, occupational, and economic impacts. Carers of persons with Eating Disorders may experience high levels of distress and burn-out, with data indicating impact comparable to caring for someone with psychosis[392]. Many carers experience guilt and shame about their "role" in the illness; confusion over the "best" way to assist, both at the level of daily experience and in the ultimate goal of recovery; anxiety and fear as reactions to the physical deterioration, and personality and cognitive changes that accompany starvation; hopelessness and doubt about self-capacity to provide support; and complex practical challenges[393]. Meal-times can be challenging, with the individual's eating- and food-related activities causing disruption and conflict within the home, and daily living within the home environment can change in ways that impact negatively on parents, siblings, and carers. Qualitative research has revealed that carers

report an impact of the Eating Disorder on physical health; "I was so exhausted I couldn't cope with taking my daughter to hospital and having a part-time job" (p. 261)[393] and "I don't sleep well at night, I mean, I only get about, well, I usually sleep for about 3 hours before I wake up, so that's difficult" (p. 261)[393]. Some carers report that as the Eating Disorder becomes intrepid it limits them socially, and that lost personal opportunities are a consequence not only for the person with the illness but for carers themselves[393]. The management of an Eating Disorder can be extremely costly, particularly if inpatient hospitalisations are required to achieve medical stability. Eating Disorders can impose strain and hardship on families and carers. A report on the well-being of carers in general in Australia found that they had the lowest collective well-being of any group ever previously examined by the researchers[394].

Carer Support

Guidance and support reduces carer distress, strain, and burden, and can promote the health and well-being of the person with an Eating Disorder[379]. Clinical guidelines suggest that it is preferable to manage Eating Disorder patients on an outpatient, community basis in most circumstances, therefore carers and significant others contribute a prominent role to the care and health of individuals living with an Eating Disorder. Improved assessment procedures incorporating a whole-of-family approach is a critical point for identifying carer needs in addition to the needs of those with an Eating Disorder.

The type of support required by carers of persons with Eating Disorders is diverse. A recent parliamentary inquiry into support for carers, more generally, indentified various areas of need[395]. The information contained in the inquiry is largely consistent with research into the needs and experiences of carers of persons with Eating Disorders. A summary of areas of need is provided next and contextualised where relevant[379].

Carers have a need for *information and knowledge* to support them in their caring role. These needs may include information, such as information about Eating Disorders and related issues, and guidance on the pros, cons, likely outcomes, and safe use (e.g., pharmacotherapy) of treatment approaches[379]. Access to accurate, evidence-based information early in the illness trajectory is essential, given that individuals within the general community, including carers and those with Eating Disorders themselves, underestimate the seriousness and longevity of Eating Disorders. Carers require information pertaining to services and supports available, self-care, and legal and financial issues and supports. Information needs may be addressed through a number of avenues including specific associations or organisations (e.g., Carer's Australia, respite centres), resources (e.g., information booklets, brochures) and peer support groups and networks. Clinical services and non-government organisations across Australia provide a range of parent education and support options, often in a group format. A number of studies have evaluated these type of interventions, and typically find improvements in knowledge, confidence and feelings of inclusion in care[396]. One very unique innovation in the area of parent information is an education and support group targeting fathers, which is co-facilitated by clinicians and fathers of people who have recovered. Preliminary self-report evaluation of this group indicates improvements in connections with child and partner, increased hope and knowledge. A mapping exercise of current practice to identify interventions worthy of development and evaluation would be a useful task.

Carers require *skills-based support* to assist them to interact with the individual with an Eating Disorder to promote well-being and recovery[379]. Carers need practical guidance to assist them to manage Eating Disorder symptoms and comorbidities (e.g., medical and psychological comorbidities such as depression, anxiety, substance abuse, deliberate self-harm, suicide attempts). A noteworthy development in the delivery of carer skills-based support that is deserving of special mention is a promising model from the United Kingdom. The model has been empirically evaluated and adopted within some Australian clinical settings and involves six

2-hour workshops held over a 3-month period, with one follow-up workshop. The workshop is orientated in accepted psychological techniques and theories, such as motivational interviewing and cognitive behavioural theory, and gives carers practical skills to assist them to care for and support the individual with an Eating Disorder. The workshops are designed to be facilitated by a multidisciplinary Eating Disorder team (psychiatrist, social worker, nurse) with extensive experience in the management of Eating Disorders. The program targets compassion, emotional intelligence, resilience and stress management, expressed emotion (e.g., overprotective, hostile, or critical responses that can potentially reduce treatment outcome and increase risk of relapse), and communication. The content also contains practical strategies to increase the ill person's motivation to recover and guidance on managing Eating Disorder symptoms such as overeating and binge eating. Preliminary data on the program has suggested that it reduces carer distress, unhelpful aspects of care-giving, the specific difficulties caused by Eating Disorder symptoms, and general care-giving burden[397]. The developers have recently published a skills-based book for carers of individuals with Eating Disorders[398] and a DVD/ telephone coaching version of the program is under evaluation to overcome issues associated with time and geographical constraints, demand, and scarce resources for program dissemination[399].

Siblings, parents and carers are often active participants in relational or family therapy with or without the person with the Eating Disorder. This is highly valued, in addition to supportive, informational and skill-building approaches and is discussed previously under views on treatment.

Carers of persons with Eating Disorders would benefit substantially from *public awareness initiatives* to increase understanding of and reduce the stigma associated with Eating Disorders. There is a lack of awareness in the community about the challenges that carers of persons with Eating Disorders confront. Carers - particularly those who are parents and family members of the person with an Eating Disorder - can find themselves the subject of blame for the emergence or course of the Eating Disorder illness, despite scientific knowledge that Eating Disorders are complex multifactorial illnesses and highly heritable. Carers and families should receive support, care, and acknowledgement, not blame, because they provide an invaluable contribution to society and to the Australian health care system.

Carers of persons with Eating Disorders have many support needs that are in common with carers of individuals with other types of problems. Other important and relevant areas of need include *financial support and information, community-based support* (e.g., community care services, respite services, in-home assistance), *co-ordination or case management services, advocacy training and services, help to overcome barriers to participation in paid employment,* and *support for physical and psychological well-being* of carers.

Carers face other challenges in care provision that precede the acute illness phase. Retrospectively, many carers lament having had poor mental health literacy on Eating Disorders, which led to a delay in recognising the illness for the problem that it was[400]. Another cause for frustration for carers is the often lengthy waiting period for psychiatric assessment or treatment once a problem has been identified. Carers of persons with Eating Disorders in Australia would benefit from *research into carer needs*, particularly for those groups of carers whose needs are less understood, such as children, siblings, and partners who care for persons with Eating Disorders.

Views on Recovery

If recovery from an Eating Disorder is defined only by researchers or clinicians then we are likely to overlook aspects that are important to patients and their loved ones. In one qualitative study definitions of recovery were examined in a group of middle-aged females[400]. Acceptance of self and body, to the extent the person can feel comfortable with other people, and can function sexually and emotionally in a relationship was the most important recovery variable identified. This study also found that rather than just reducing symptoms, it is "the feeling of food not dominating life and thinking", as well as being able to enjoy meals without feeling guilty that is valued by patients. Studies have consistently found recovery as defined by patients includes an emphasis on self-acceptance, self-esteem and self-respect as the cornerstone of recovery, including a self-identity no longer bound by the Eating Disorder diagnosis. Factors relating to eating are considered broadly such as rejecting Eating Disorder behaviours and developing a relaxed approach to eating. Body attitudes also feature strongly such as accepting one's body and a healthy, relaxed, kind, cooperative attitude towards body. Listening to the needs of one's body, being kind to self and body and allowing self to experience pleasure are fundamental changes in body experience that patients' use in their definitions of recovery. Recovery for patients also incorporates factors outside of eating and body concerns, such as being able to handle emotions and develop relationships, and this corresponds to their preferences for interventions that target these domains of life. For example being able to be in contact with, permitting, dealing with, and expressing emotions are reoccurring themes in the literature, alongside the creation and valuing of social connections and allowing self to become close to others[400,401,401]. Understanding what recovery means to individuals has implications for the measurement of recovery in clinical trials and also discharge and transition from treatments, both of which can use the more limited criteria of restoration of healthy BMI in AN and reduction in food- and weight-related symptoms. For some, reductionistic recovery criteria may mean leaving treatment too early and risking relapse; for example[404], "I feel like I didn't deal with any of the issues that were there to begin with. The bereavement, the self-esteem issues... I hadn't dealt with why I had this eating disorder. How can I fix something when I don't even know what the cause of it is?" (p. 5).

How recovery is achieved and enabled is a high priority for patients, researchers, clinicians and health planners, and yet the process of recovery remains a complicated and poorly understood phenomenon. Qualitative research has explored the range of factors that can assist a person to recover. There are a diverse array of contributors according to the people who have completed this journey, although some core themes are highlighted. Desire or motivation to change, desire for a better life, and a psychological readiness are key requirements for change. Support from professional and non-professional care providers who are non-judgemental, genuine, consistent, and respectful are rated as highly influential. Developing healthy and supportive relationships and removing oneself from unhelpful social or family environments was seen as important. The ability and desire to develop an identity outside the Eating Disorder was a reoccurring theme, along with taking up new activities and interests. Learning new skills such as problem-solving and decision-making was deemed influential; as well as chance and outside events that made the person reconsider life, such as change of environment or encounter with death[401]. One Australian study[405] confirmed these findings in a local context and this study reported that recovery occurs when people re-engage with life, develop necessary conflict resolution skills, and rediscover their sense of self. Whilst service providers may not be able to orchestrate life events, all of the other variables highlighted by consumers need to be given priority in the design of new treatments.

Another useful viewpoint on recovery is the question of what makes people likely to maintain recovery or be at risk of relapse. Factors that reduce risk of relapse include higher motivation

for change, the perspective of recovery as a process or a work in progress, the perceived value and length of treatment, the development of supportive relationships, awareness and tolerance of negative emotions, and self-validation[403]. Studies such as this shed light on potential targets for therapeutic and relapse prevention interventions.

Prevention

The direction of preventative approaches to Eating Disorders has moved away from providing information about Eating Disorders to students and is adopting a health promotion framework, including cognitive dissonance and media literacy approaches (see Chapter 3 and 4).
The knowledge of students and individuals with lived experience have rarely been utilised in the design of prevention studies, however there is one study[406] that examines student perceptions of an information-based intervention several years after the program took place in the school. This study found that students reported the information received was meaningful, useful and interesting, and helped them respond positively to peers experiencing difficulties. Information was poorly generalised to their personal experiences however, and the students suggested that interactive classroom discussion would be a more effective format to achieve this than classroom lecture. The results of this study are in contrast with the field steering away from information approaches and validates the direction towards interactive approaches and potentially peer-based interventions. This study shows the potential of involving the recipients of prevention programs in their development, and highlights possibilities for improving quality of programs when people with lived experience participate in their design. Another study[407] with participants who were being treated for an Eating Disorder explored their ideas on prevention through qualitative interviews. In contrast to the emphasis on school-based interventions, a family approach was the target of this study, for example[407].
Parents should support their child - you know - help them to find something to be good at, let them think their ideas are good and creative. They should help their child to find their niche, someplace to belong… but try not to push them into doing stuff they don't like to do" (23 year-old female with AN, p. 149). Eight recommendations emerged for families to prevent the onset of Eating Disorders: (1) enhance parental support; (2) decrease weight and body talk; (3) provide a supportive home food environment; (4) model healthy eating habits and physical activity patterns; (5) help your children build self-esteem beyond looks and physical appearance; (6) encourage appropriate expression of feelings and use of coping mechanisms; (7) increase your understanding of Eating Disorder signs and symptoms; and (8) gain support in dealing appropriately with your own struggles. Further qualitative studies on individual and family perspectives on etiology may also shed some light on other targets for prevention, as well as utilising the lived experience and members of the target population in the design of the prevention programs.

Consumer and Carer Participation

Consumer participation has been on the human rights agenda now for many years[408] and has become the foundation of mental health policy in Australia. However, although policy now stipulates that health services involve consumers in planning, implementation, and evaluation of services, this is an ideal to which reality lags far behind. It is not surprising therefore that formal research studies into consumer participation strategies are scant in the mental health area, including the field of Eating Disorders. This is in spite of the active participation of consumers and carers within the sector. There is reason to believe that consultation with consumers will lead to more acceptable and accessible health services and improve quality of services and outcomes[409] and that consumer involvement in health research will enhance quality and relevance and lead to greater uptake of findings[410,411].

There is a lack of research that tells us whether these ideals are being achieved and which

mechanisms of participation are the most effective and safe. A Cochrane review[367] found that there was moderate quality of evidence that involving patients in production of written materials results in material that is more relevant, readable and understandable, low quality evidence that using consumer, rather than professional interviews influences the results of surveys, low quality evidence that involving consumer in the production of an informed consent form does improve quality and low quality evidence that telephone discussions and face to face meetings engage consumers better than mail out surveys. There are studies emerging in general mental health in Australia which offer additional guidance. For example, Lammers and Happel[412] conducted qualitative interviews with service users about their experience of consumer participation and identified some important themes that could have some translation to other fields; recognition of consumers as a heterogeneous group with varying degrees of interest and experience in participation, the importance of professionals and services taking the lead to involve consumers by developing mechanisms to support consumer participation and processes to influence the attitudes of professionals towards consumer participation. Middleton, Stanton and Renouf[413] conducted a qualitative study, although in this study participants were narrowed to consumer consultants within the Victoria Health Service. The participants reported being able to positively influence services and represent the views and needs of consumers at times, however observed many barriers to their work including service cultures that promulgated disrespect and stigma towards consumers, tokenistic views of their role, and systemic resistance to change. A key step in the early stages of developing consumer participation is the training of consumers to prepare them to participate effectively and safely. In Australia this has been shown to be inadequate[414]. One study[415] explored what training consumer consultants had experienced and what they would regard to be helpful in assisting them carry out their duties. Many respondents indicated that they had not had any training on commencement of their roles, and that advocacy training and communication skills, alongside a code of ethics and performance standards would be valuable. A crucial first step for the Eating Disorders field is to map current practices in this area, such as what Browne and Hemsley[416] have achieved for mental health, with their review of the state of consumer participation in mental health Australia. When there is a clear idea of what strategies are currently being utilised, then promising ones can be targeted for development and evaluation.

Peer Support

Peer support is ill-defined, however includes the provision of support, by sharing information and experience with peers. There is evidence that for a current sufferer, having contact with someone who has had a similar experience in the past can provide beneficial support and offer hope for the future[417]. However, there are only a few studies that have evaluated peer support mechanisms in mental health, let alone for Eating Disorders. A study by Rhodes[203] explored the use of parent-to-parent consultations as an augmentation to clinical treatments. Parents were interviewed regarding their experience of parent-to-parent consultations and this was revealed to be an intense emotional experience that helped them to feel less alone, to feel empowered to progress, and to reflect on changes in family interactions. Preliminary evaluation of the involvement of fathers in running an education and support group for fathers has been positive[418]. Similar benefits could be hypothesised to occur for individuals, as peer support programs, when they are comprehensive and well-organised[419], have been found to be beneficial for other mental illnesses such as depression and schizophrenia[420]. In other areas of chronic illness, peer support interventions are becoming increasingly utilised and this subject has been the topic of a recent Cochrane review[367]. There are also practice examples in other clinical areas across Australia, for example the Freedom Centre is a project of the WA AIDS Council which uses a peer support model for people who are young and same sex attracted and/or gender diverse and Talking Realities is a South Australian government project

which uses young parent peer educators to influence the health and well-being of young parents (primarily 19 years and under) and their children. An unpublished qualitative study[421] explored the factors regarded as important in setting up a peer support "buddy" program for AN according to professionals and those with lived experience. These included a clear definition and description of the role of buddy, careful selection, training, protection and support for the buddy, supportive infrastructure, and evaluation of both process and outcomes. There are also practice examples in the area of Eating Disorders that could be explored further, such as the Body Esteem Program in Western Australia, which uses a peer support self-help model in a group setting. Evaluation of pre-treatment and post-treatment data shows reduced Eating Disorder symptoms, shame, isolation, and alienation[422]. The Royal Melbourne Hospital also provides a peer mentoring program where ex-patients share experiences with current patients to provide credible hope and practical support. These interventions warrant ongoing development and evaluation.

Community-Based Supportive Organisations

Not-for-profit community-based organisations play a powerful, important role in supporting individuals with Eating Disorders, their family and loved ones, and in providing Eating Disorder-related awareness and assistance to the general community. Their widespread existence and proliferation despite the inherent resource and personnel challenges, is a strong indication of community-based demand for support. Phone calls to community-based Eating Disorder organisations, such as the Butterfly Foundation and the Eating Disorder Helpline (a shared initiative of Eating Disorders Foundation of Victoria Inc.; Eating Disorders Association Inc. [QLD], and Eating Disorders Association of South Australia), are often first occasion contacts by parents and families who are concerned that their loved one is experiencing an Eating Disorder. Community-based organisations are a key point at which appropriate referral and direction can be provided. At optimum capacity, they offer services such as referral information, peer support groups, community training and education programs, telephone and online counselling, resource libraries, prevention programs for schools and the community, carer support and training programs, training and treatment sponsorship, media advocacy and public awareness to reduce stigmatisation of body image issues and Eating Disorders. Community-based supportive organisations are integral to supporting community-based needs pertaining to the promotion, prevention, identification, early intervention, and treatment of Eating Disorders.

Summary

The perspective of people with lived experience provides a useful "cross-check" in ascertaining whether professional treatments are acceptable and satisfactory to patients. As the field of Eating Disorders moves forward, the role of qualitative and consumer-driven participatory research designs will need to grow and steer research and clinical practice in directions of greater relevance to consumers and carers. The potential for evidence of this nature to improve the quality of treatments is immeasurable, which is vital in a field that struggles with increasing prevalence rates, low rates of engagement and retention in treatment, and many patients not embarking on treatment, let alone full recovery. Consumer participation needs to extend beyond satisfaction surveys towards real and meaningful participation in the design, delivery, and evaluation of health services and research programs. Effective and safe strategies to achieve this outcome need to be developed and evaluated. There are promising studies in other fields of health, and in the field of Eating Disorders in peer support, that have potential for translation and development in the Eating Disorder sector.

Appendix A

Search Filters Used to Retrieve Systematic Reviews

(Key Questions 1-6)

Medline

1. ("review" or "review academic" or "review tutorial").pt.
2. (medline or medlars or embase or pubmed).tw,sh.
3. (scisearch or psychinfo or psycinfo).tw,sh.
4. (psychlit or psyclit).tw,sh.
5. cinahl.tw,sh.
6. ((hand adj2 search$) or (manual$ adj2 search$)).tw,sh.
7. (electronic database$ or bibliographic database$ or computeri?ed database$ or online database$).tw,sh.
8. (pooling or pooled or mantel haenszel).tw,sh.
9. (retraction of publication or retracted publication).pt.
10. (peto or dersimonian or der simonian or fixed effect).tw,sh.
11. or/2-10
12. 1 and 11
13. meta-analysis.pt.
14. meta-analysis.sh.
15. (meta-analys$ or meta analys$ or metaanalys$).tw,sh.
16. (systematic$ adj5 review$).tw,sh.
17. (systematic$ adj5 overview$).tw,sh.
18. (quantitativ$ adj5 review$).tw,sh.
19. (quantitativ$ adj5 overview$).tw,sh.
20. (quantitativ$ adj5 synthesis$).tw,sh.
21. (methodologic$ adj5 review$).tw,sh.
22. (methodologic$ adj5 overview$).tw,sh.
23. (integrative research review$ or research integration).tw.
24. or/13-23
25. 12 or 24
26. ("eating disorder$" or "anorexia nervosa" or "bulimia nervosa" or "binge eating disorder").sh.
27. 25 and 26

PsycINFO

1. meta analysis.sh.
2. meta-anal:.tw.
3. metaanal:.tw.
4. meta analysis.id.
5. (systematic: and (review: or overview)).tw.
6. (critical: and apprais:).tw.
7. (critical: and review:).tw.
8. or/1-7
9. case report.sh.
10. 8 not 9
11. limit 10 to human
12. eating disorders/ or anorexia nervosa/ or bulimia/ or binge eating/
13. 11 and 12

Excerpta Medica Database (EMBASE)

1. exp review/
2. (medline or medlars or embase or pubmed).ti,ab,sh.
3. (scisearch or psychlit or psyclit).ti,ab,sh.
4. (psycinfo or psychinfo).ti,ab,sh.
5. cinahl.ti,ab,sh.
6. ((hand adj2 search$) or (manual$ adj search$)).tw.
7. ((electronic adj database$) or (bibliographic adj database$)).tw.
8. ((pooled adj analys$) or pooling).tw.
9. (peto or dersimonian or (fixed adj effect) or mantel haenszel).tw.
10. RETRACTED ARTICLE/
11. or/2-10
12. 1 and 11
13. exp meta analysis/
14. meta?analys$.tw,sh.
15. (systematic$ adj5 review$).tw,sh.
16. (systematic$ adj5 overview$).tw,sh.
17. (quantitativ$ adj5 review$).tw,sh.
18. (quantitativ$ adj5 overview$).tw,sh.
19. (methodologic$ adj5 review$).tw,sh.
20. (methodologic$ adj5 overview$).tw,sh.
21. ((integrative adj5 research adj5 review$) or (research adj5 integration)).tw.
22. (quantitativ$ adj5 synthesi$).tw,sh.
23. or/13-22
24. 12 or 23
25. ("eating disorder$" or "anorexia nervosa" or "bulimia nervosa" or "binge eating disorder").sh.
26. 24 and 25

SCOPUS

1. (TITLE-ABS-KEY((eating disorder*) OR (anorexia nervosa) OR (bulimia nervosa) OR (binge eating disorder)))
2. (TITLE-ABS-KEY((systematic review*) OR (systematic overview*) OR (meta?analy*) OR (quantitativ* review*) OR (quantitativ* overview*) OR (methodologic* review*) OR (methodologic* overview*)))
3. ((TITLE-ABS-KEY((eating disorder*) OR (anorexia nervosa) OR (bulimia nervosa) OR (binge eating disorder)))) AND ((TITLE-ABS-KEY((systematic review*) OR (systematic overview*) OR (meta?analy*) OR (quantitativ* review*) OR (quantitativ* overview*) OR (methodologic* review*) OR (methodologic* overview*))))

Cochrane Collaboration - Database of Systematic Reviews

1. (eating disorder):ti,ab,kw or (anorexia nervosa):ti,ab,kw or (bulimia nervosa):ti,ab,kw or (binge eating):ti,ab,kw

Search Filters Used to Retrieve Randomised Controlled Trials

(Key Questions 1 to 6)

Medline

1. exp randomized controlled trials/
2. "randomized controlled trial".pt.
3. "controlled clinical trial".pt.
4. (random$ or placebo$).ti,ab,sh.
5. ((singl$ or double$ or triple$ or treble$) and (blind$ or mask$)).tw,sh.
6. (retraction of publication or retracted publication).pt.
7. or/1-6
8. (animals not humans).sh.
9. 7 not 8
10. ("eating disorder$" or "anorexia nervosa" or "bulimia nervosa" or "binge eating disorder ").sh.
11. 9 and 10

PsycINFO

1. treatment effectiveness evaluation.sh.
2. (random: and trial:).tw.
3. (random: and allocat:).tw.
4. double blind.tw.
5. single blind.tw.
6. or/1-5
7. limit 6 to human
8. clinical trial.id.
9. clinical trial:.tw.
10. ((singl: or doubl: or trebl: or tripl:) adj5 blind).tw.
11. (clin: adj25 trial:).ti,ab.
12. placebo:.tw.
13. placebo:.ti,ab.
14. random:.ti,ab.
15. methodology.sh.
16. experimental design.sh.
17. experimentation.sh.
18. experimental methods.sh.
19. or/7-18
20. limit 19 to human
21. eating disorders/ or anorexia nervosa/ or bulimia/ or binge eating/
22. 20 and 21

Excerpta Medica Database (EMBASE)

1. (random$ or placebo$).ti,ab.
2. ((single$ or double$ or triple$ or treble$) and (blind$ or mask$)).ti,ab.
3. controlled clinical trial$.ti,ab.
4. RETRACTED ARTICLE/
5. or/1-4
6. (animal$ not human$).sh,hw.
7. 5 not 6
8. ("eating disorder$" or "anorexia nervosa" or "bulimia nervosa" or "binge eating disorder").sh.
9. 7 and 8

SCOPUS

1. (eating disorder*) OR (TITLE-ABS-KEY(anorexia nervosa)) OR (TITLE-ABS-KEY(bulimia nervosa)) OR (TITLE-ABS-KEY(binge eating disorder))
2. randomized controlled trial*
3. random* OR placebo*
4. TITLE-ABS-KEY(blind* OR mask*)
5. TITLE-ABS-KEY(singl* OR doubl* OR tripl* OR trebl*)
6. (TITLE-ABS-KEY(blind* OR mask*)) AND (TITLE-ABS-KEY(singl* OR doubl* OR tripl* OR trebl*))
7. TITLE-ABS-KEY(clinical trial)
8. TITLE-ABS-KEY(control* trial)
9. (randomized controlled trial*) OR (random* OR placebo*) OR ((TITLE-ABS-KEY(blind* OR mask*)) AND (TITLE-ABS-KEY(singl* OR doubl* OR tripl* OR trebl*))) OR (TITLE-ABS-KEY(clinical trial)) OR (TITLE-ABS-KEY(control* trial))
10. ((ED*) OR (TITLE-ABS-KEY(anorexia nervosa)) OR (TITLE-ABS-KEY(bulimia nervosa)) OR (TITLE-ABS-KEY(binge eating disorder))) AND ((randomized controlled trial*) OR (random* OR placebo*) OR ((TITLE-ABS-KEY(blind* OR mask*)) AND (TITLE-ABS-KEY(singl* OR doubl* OR tripl* OR trebl*))) OR (TITLE-ABS-KEY(clinical trial)) OR (TITLE-ABS-KEY(control* trial)))
11. TITLE((eating disorder*) OR (anorexia nervosa) OR (bulimia nervosa) OR (binge eating disorder))
12. ((randomized controlled trial*) OR (random* OR placebo*) OR ((TITLE-ABS-KEY(blind* OR mask*)) AND (TITLE-ABS-KEY(singl* OR doubl* OR tripl* OR trebl*))) OR (TITLE-ABS-KEY(clinical trial)) OR (TITLE-ABS-KEY(control* trial))) AND (TITLE((eating disorder*) OR (anorexia nervosa) OR (bulimia nervosa) OR (binge eating disorder)))

Cochrane Collaboration - Central Register of Controlled Trials

1. (eating disorder):ti,ab,kw or (anorexia nervosa):ti,ab,kw or (bulimia nervosa):ti,ab,kw or (binge eating):ti,ab,kw or (disordered eating):ti,ab,kw in Clinical Trials
2. (therap*):ti,ab,kw or *therap*:ti,ab,kw or (trial):ti,ab,kw or (treatment):ti,ab,kw or (prevent*):ti,ab,kw
3. (drug):ti,ab,kw or (medicat*):ti,ab,kw or (pharm*):ti,ab,kw
4. (#2 OR #3)
5. (#4 AND #1)

Appendix B

Critical Appraisal of Systematic Reviews

Brief Summary of Overview Quality Assessment Questionnaire (OQAQ) Items

1. Were the search methods reported?
2. Was the search for evidence reasonably comprehensive?
3. Were the study inclusion criteria reported?
4. Was selection bias avoided?
5. Were the criteria for assessing study validity reported?
6. Was assessment of study validity appropriate?
7. Were methods to combine studies reported?
8. Were the findings of studies combined appropriately?
9. Were the conclusions supported by the data/analysis?

Critical Appraisal of Systematic Reviews

OQAQ Items	Arbaizar (2008)	Brownley (2007)	Bulik (2007)	Court (2008)	Hay (2004)	Pratt (2004)	Reas (2008)	Shapiro (2007)	Stefano (2008)
1.	Yes	Yes	Yes	Partially	Yes	Yes	Yes	Yes	Yes
2.	Partially	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3.	Partially	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4.	No	Partially	Partially	Partially	Partially	Partially	No	Partially	Partially
5.	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
6.	No	Yes	Yes	Partially	Yes	Yes	Yes	Yes	Yes
7.	Partially	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8.	Partially	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9.	Yes	Yes	Yes	Partially	Yes	Yes	Yes	Yes	Partially
OQAQ Score	**8**	**17**	**17**	**12**	**17**	**17**	**14**	**17**	**16**
Overall Rating	Poor	Adequate	Adequate	Poor	Adequate	Adequate	Adequate	Adequate	Adequate

Note: OQAQ = Overview Quality Assessment Questionnaire. The OQAQ score ranges from 0 to 18, with 18 comprising the maximum quality score.

Appendix C

Annotated Bibliography of Australian Eating Disorder Research

2009

Abraham, S.[a], ***Boyd, C.***[a], ***Lal, M.***[a], ***Luscombe, G.***[a], & ***Taylor, A.***[b] (2009). Time since menarche, weight gain and body image awareness among adolescent girls: Onset of eating disorders? *Journal of Psychosomatic Obstetrics and Gynaecology, 30*, 89-94.

[a] The University of Sydney, Sydney, New South Wales
[b] Macquarie University, Sydney, New South Wales

This study used a cross-sectional computer survey to study predictors of Eating Disorders in female adolescents in relation to menarche. The sample comprised 363 female adolescent school students (aged 12-17 years). Participants reported that their ideal weight did not initially adjust to meet their increased weight gain following menarche. Some participants reported developing Eating Disorders. Weight losing behaviour and concerns about eating and body image were predicted by increases in body weight and time since menarche.

Allen, K. L.[a], ***Byrne, S. M.***[a], ***Forbes, D.***[a], & ***Oddy, W. H.***[a] (2009). Risk factors for full- and partial-syndrome early adolescent eating disorders: A population-based pregnancy cohort study. *Journal of the American Academy of Child and Adolescent Psychiatry, 48*, 800-809.

[a] University of Western Australia, Perth, Western Australia

The purpose of this study was to use historical data to determine prospective predictors of Eating Disorders in a sample of male and female adolescents aged 14 years. Male and female adolescents aged 14 years ($N = 1597$) were sampled from the Western Australian Pregnancy Cohort (Raine) Study by collecting both current (cross-sectional) data and historical (longitudinal) data at eight time points (antenatal, postnatal, and ages 1, 2, 5, 8, 10, and 14 years). Current data were Eating Disorder symptoms at age 14 (using an adaptation of the Eating Disorder Examination Questionnaire). Historical data comprised demographic, familial, antenatal, biomedical, and psychosocial information. Those with Eating Disorder symptoms were compared to psychiatric-control and general-control groups using logistic regression. The findings suggest that Eating Disorders are predicted more strongly by parents' weight-related perceptions of their child than by children's actual weight. In particular, a child being perceived as overweight by their parent had a greater likelihood of developing an Eating Disorder. Furthermore, psychiatric disturbance in children was predicted by psychosocial difficulties and elevated maternal weight.

Axelsen, M.[a] (2009). The power of leisure: "I was an anorexic; I'm now a healthy triathlete". *Leisure Sciences, 31*, 330-346.

[a] University of Queensland, Ipswich, Queensland

This paper is the author's autoethnographic description of her experiences coping with AN. In contrast to quantitative research, this paper highlights the phenomenological aspects of living with AN. The author recounts the beneficial nature of leisure in recovering from AN and challenges the dominant view construing exercise as being detrimental in Eating Disorders.

Birmingham, C. L., ***Touyz, S.***[a], & Harbottle, J. (2009). Are anorexia nervosa and bulimia nervosa separate disorders? Challenging the 'transdiagnostic' theory of eating disorders. *European Eating Disorders Review, 17*, 2-13.

[a] The University of Sydney, Sydney, New South Wales

Birmingham et al. (2009) aimed to establish whether AN and BN are actually the same disorder and share a common cause, or if they are distinct disorders and have disparate causes. They used Hill's Criteria of Causation in a theoretical and empirical review to test the hypothesis that nervosa and BN are the same disorder with a common cause. Birmingham et al. found that many of Hill's criteria were not met (i.e., specificity, consistency, temporality, coherence, biological gradient, and the majority of experimental evidence). They concluded that their hypothesis was not supported and therefore found no support for a transdiagnostic theory of these disorders.

Darby, A.[a], ***Hay, P.***[b], ***Mond, J.***[c], ***Quirk, F.***[a], ***Buttner, P.***[a], & ***Kennedy, L.***[a] (2009). The rising prevalence of comorbid obesity and eating disorder behaviours from 1995 to 2005. *International Journal of Eating Disorders, 42,* 104-108.

[a] James Cook University, Townsville, Queensland
[b] University of Western Sydney, Campbelltown, New South Wales
[c] La Trobe University, Bundorra, Victoria

This study aimed to assess the population prevalence in South Australia of co-morbid Eating Disorder behaviours and obesity, and to examine changes from 1995 to 2005. Two cross-sectional surveys were administered in 1995 and 2005. The prevalence of comorbid Eating Disorder behaviours and obesity significantly increased between 1995 (at 1%) and 2005 (at 3.5%).

Engel, S. G., Adair, C. E., Hayas, C. L., & ***Abraham, S.***[ab] (2009). Health-related quality of life and eating disorders: A review and update. *International Journal of Eating Disorders, 42,* 179-187.

[a] The University of Sydney, Sydney, New South Wales
[b] Royal North Shore Hospital, Sydney, New South Wales

Engel et al. (2009) aimed to review key empirical studies examining health-related quality of life (HRQOL) in those with Eating Disorders. They conducted a review of 25 selected empirical studies in order to extract themes. The authors identified six key themes relevant to this literature: (a) lower HRQOL is instanced in those with Eating Disorders than those without, (b) impaired HRQOL is found in those with both clinical diagnoses and sub-threshold symptomatology, (c) HRQOL impairment is also reported by family carers of Eating Disorder patients, (d) Eating Disorder patients experience a considerable degree of HRQOL impairment, (e) HRQOL improves in patients being treated for Eating Disorders, and (f) HRQOL in Eating Disorder patients differs by gender. They also described changes in how Eating Disorder HRQOL is measured, from generic to disease-specific measures of HRQOL.

Goel, N., Stunkard, A. J., ***Rogers, N. L.***[a], Van Dongen, H. P. A., Allison, K. C., O'Reardon, J. P., Ahima, R. S., Cummings, D. E., Heo, M., & Dinges, D. F. (2009). Circadian rhythm profiles in women with night eating syndrome. *Journal of Biological Rhythms, 24*, 85-94.

[a] The University of Sydney, Sydney, New South Wales

This laboratory study of night eating syndrome (NES) examined delay in circadian rhythm of food intake using both behavioural and neuroendocrine measures. Two groups of women (15 with NES and 14 without NES) were observed in a laboratory for the duration of 3 days, monitoring food intake and sleeping patterns and taking regular blood samples to measure the levels of glucose and various hormones. Compared to the control group, the NES group differed significantly in food intake, blood glucose and hormone levels. The authors suggest that the findings may be due to dissociated processes within the central nervous system. They propose that this may explain why bright light therapy for NES has shown to be effective.

Hart, L. M.[a]***, Jorm, A. F.***[a]***, Paxton, S. J.***[b]***, Kelly, C. M.***[a]***,*** & ***Kitchener, B. A.***[a] (2009). First aid for eating disorders. *Eating Disorders, 17*, 357-384.

[a] University of Melbourne, Melbourne, Victoria
[b] La Trobe University, Melbourne, Victoria

This study aimed to produce first-aid guidelines for community members regarding those who may be experiencing or developing an Eating Disorder. An expert panel of clinicians (n = 36), caregivers (n = 27), and consumers (n = 22) rated 456 statements describing first aid interventions. Of these, consensus was reached on 200 statements that were rated as either important or essential. A document was produced that presents these guidelines by themes.

Madden, S.[a]***, Morris, A.***[b]***, Zurynski, Y. A.***[c]***, Kohn, M.***[a]***,*** & ***Elliot, E. J.***[b] (2009). Burden of eating disorders in 5-13-year-old children in Australia. *Medical Journal of Australia, 190*, 410-414.

[a] Children's Hospital at Westmead, Sydney, New South Wales
[b] The University of Sydney, Sydney, New South Wales
[c] Australian Paediatric Surveillance Unit, Sydney, New South Wales

The aim of this research program was to gain epidemiological data in a representative national sample of children with Eating Disorders. Australian health specialists reported cases of early-onset Eating Disorders (EOEDs) in children of 5 to 13 years of age between 2002 and 2005. During this period 101 children with EOEDs were identified (approximately 25% were male), of whom 78% were hospitalised. In this inpatient subsample, 61% experienced symptoms of malnutrition that threatened their life, but only 37% met the DSM-IV criteria for AN. Specifically, the weight criteria were met for 51% and the psychological criteria were met for 67% of inpatients. The authors caution that the DSM-IV diagnostic criteria for AN should be used with caution in young children. They highlight the need for both biomedical and psychiatric care to address the physical and psychological symptomatology evidenced.

Martin, A. C.[ab]***, Pascoe, E. M.***[a]**,** & ***Forbes, D. A.***[a] (2009). Monitoring nutritional status accurately and reliably in adolescents with anorexia nervosa. *Journal of Paediatrics and Child Health, 45*, 53-57.

[a] ***Princess Margaret Hospital for Children, Perth, Western Australia***
[b] ***University of Western Australia, Perth, Western Australia***

This study aimed to evaluate the accuracy of using the mid-upper arm circumference (MUAC) as an indicator of nutritional status in adolescents with AN. The correlation between MUAC and body mass index (BMI) was assessed in 55 adolescent patients with AN (aged 12-17 years) receiving treatment in a Western Australian tertiary paediatric hospital. The authors report a significant correlation between MUAC and BMI ($r = 0.79$, $p < 0.001$). However they observed inconsistent longitudinal measurements between these variables and they call for further research.

McCabe, M. P.[a]**,** & ***James, T.***[a] (2009). Strategies to change body shape among men and women who attend fitness centres. *Asia-Pacific Journal of Public Health, 21*, 268-278.

[a] ***Deakin University, Melbourne, Victoria***

The aim of this research was to measure the association between disordered eating, exercise behaviours, and body shape changing behaviours in adults attending fitness centres. An anonymous survey was administered and 520 adults responded (52.9% female). Participants' reasons for exercising differed by gender – most females aimed to lose weight, most males aimed to gain muscle and fitness. Statistical regression indicated that these differing motivations (i.e., to lose weight or gain muscle) predicted respondents' body change behaviours. The authors note that while the incidence of health risk behaviours was equal across groups, the type of risk-related behaviour differed between groups, and they discuss the implications for health promotion activities.

McIver, S.[a]**,** ***McGartland, M.***[b]**,** & ***O'Halloran, P.***[c] (2009). "Overeating is not about the food": Women describe their experience of a yoga treatment program for binge eating. *Qualitative Health Research, 19*, 1234-1245.

[a] ***Deakin University, Melbourne, Victoria***
[b] ***The Alfred Hospital, Melbourne, Victoria***
[c] ***La Trobe University, Melbourne, Victoria***

This study qualitatively evaluated the experiences of obese women ($N = 20$) attending a 12-week yoga program for treatment of binge eating. Qualitative analysis was conducted of experiential themes in treatment participants' personal journals. The authors report a general shift across the treatment program in participants' experiential themes, from disconnection to connection. Various beneficial experiential outcomes were reported that the authors summarised in two main themes: healthier eating behaviours and improved physical well-being. They discuss these findings in relation to therapeutic processes.

McIver, S.[a]***, O'Halloran, P.***[b]***,*** & ***McGartland, M.***[c] (2009). Yoga as a treatment for binge eating disorder: A preliminary study. *Complementary Therapies in Medicine, 17*, 196-202.

[a] Deakin University, Melbourne, Victoria
[b] La Trobe University, Melbourne, Victoria
[c] The Alfred Hospital, Melbourne, Victoria

This randomised controlled trial evaluated the efficacy of a 12-week yoga program for treatment of binge eating in women in comparison to a wait-list control condition. Participants comprised a community sample of women (aged 25 to 63 years) meeting criteria for BED with a body mass index (BMI) greater than 25. Participants were randomly assigned to either a yoga treatment program ($n = 45$) or a wait list ($n = 45$). Analyses: included only 25 participants from each condition; found no significant outcomes in the control group, and; observed significant improvement in the yoga treatment group on measures of binge eating, physical activity, BMI, and measurements of the hips and waist. The authors note that while being statistically significant, the improvement on physical indicators (BMI and body measurements) was relatively small.

Mond, J. M.[a]***,*** & ***Calogero, R. M.*** (2009). Excessive exercise in eating disorder patients and in healthy women. *Australian and New Zealand Journal of Psychiatry, 43*, 227-234.

[a] La Trobe University, Melbourne, Victoria

The aim of this study was to compare excessive exercise behaviours in women with and without Eating Disorders. Two groups were sampled - female patients with Eating Disorders ($n = 102$) and healthy women ($n = 102$). The Eating Disorder group included women with BN ($n = 41$), and the purging ($n = 13$) and restricting ($n = 15$) subtypes of AN. Groups were compared on self-report measures of exercise behaviours and motivations for exercise. The self-report measures that differentiated the healthy and Eating Disorder groups were the presence of guilt upon missing exercise and being motivated to exercise primarily to control physical appearance or weight. These measures were also higher in patients with BN and the purging AN subtype than in those with the restricting AN subtype. The authors recommend using a wider scope for assessing excessive exercise behaviours in patients with Eating Disorders.

Mond, J. M.[a]***, Hay, P. J.***[b]***, Darby, A.***[c]***, Paxton, S. J.***[a]***, Quirk, F.***[c]***, Buttner, P.***[c]***, Owen, C.***[d]***,*** & ***Rodgers, B.***[d] (2009). Women with bulimic eating disorders: When do they receive treatment for an eating problem? *Journal of Consulting and Clinical Psychology, 77*, 835-844.

[a] La Trobe University, Melbourne, Victoria
[b] University of Western Sydney, Campbelltown, New South Wales
[c] James Cook University, Townsville, Queensland
[d] Australian National University, Canberra, Australian Capital Territory

This research aimed to determine predictors of treatment seeking behaviour in a community sample of women with symptoms of BN. In a prospective design across a 12-month follow-up period, this study compared women with symptoms of BN who either sought treatment ($n = 33$) or did not seek treatment ($n = 58$). Significant predictors of seeking treatment were participants rating higher on perceptions of difficulty regulating emotional distress and problems in role functioning. The authors discuss the role of participants' perceptions in programs aimed at prevention and early intervention.

Mond, J. M.[a], ***Hay, P. J.***[a], ***Rodgers, B.***[b], & ***Owen, C.***[b] (2009). Comparing the health burden of eating-disordered behavior and overweight in women. *Journal of Women's Health, 18*, 1081-1089.

[a] University of Western Sydney, Campbelltown, New South Wales
[b] Australian National University, Canberra, Australian Capital Territory

This study's aim was to evaluate the impact of eating-disordered behaviour and being overweight on physical health and psychosocial functioning. A cross-sectional self-report survey was administered to a community sample ($N = 4\,643$) of women (between 18 and 42 years) in the Australian Capital Territory. In this sample, disordered eating behaviours and being overweight predicted different negative outcomes. Eating-disordered behaviour was related to poor physical health, whereas being overweight (indicated by body mass index) predicted impaired psychosocial functioning.

Mussap, A. J.[a] (2009). Acculturation, body image, and eating behaviours in Muslim-Australian women. *Health and Place, 15*, 532-539.

[a] Deakin University, Melbourne, Victoria

This study's purpose was to evaluate the associations between disordered eating (binging, purging, dietary control), body dissatisfaction, and Western acculturation (cultural identification) in 101 Muslim-Australian women (aged 18 to 44 years). In a cross-sectional survey, multiple path analyses were conducted and found associations between cultural identification (for both mainstream and heritage) and indices of body dissatisfaction and disordered eating. This relationship was mediated by internalising a thin ideal (regarding mainstream cultural identification) and self-esteem (regarding heritage cultural identification).

Nathan, P. J.[a], & Bullmore, E. T. (2009). From taste hedonics to motivational drive: Central-opioid receptors and binge-eating behaviour. *International Journal of Neuropsychopharmacology, 12*, 995-1008.

[a] Monash University, Melbourne, Victoria

This paper reviews and discusses biological research regarding appetite control in order to suggest pharmacological treatment strategies for Eating Disorders involving poorly regulated appetitive motivation such as BED and obesity. The authors suggest that pharmacological regulation of endogenous opioids and opioid receptors (MORs) may be an effective means of pharmacotherapy, and they call for the development of more selective and safer MOR inverse agonists or antagonists.

Neale, A.[a], ***Abraham, S.***[a], & ***Russell, J.***[a] (2009). Ice use and eating disorders: A report of three cases. *International Journal of Eating Disorders, 42*, 188-191.

[a] The University of Sydney, Sydney, New South Wales

This paper highlights the possible association between Eating Disorders and the use of crystal methamphetamine hydrochloride ("ice") for weight management. The authors describe three case studies of young women who used "ice" and exhibited various Eating Disorder symptoms (ranging from AN to binge-purge behaviour).

O'Brien, K. S., ***Caputi, P.***[a], ***Minto, R.***[a], ***Peoples, G.***[a], ***Hooper, C.***[a], ***Kell, S.***[a], & ***Sawley, E.***[a] (2009). Upward and downward physical appearance comparisons: Development of scales and examination of predictive qualities. *Body Image, 6*, 201-206.

[a] University of Wollongong, Wollongong, New South Wales

This study reports the development and validation of a psychometric measure for upward and downward comparisons of physical appearance. In a cross-sectional Australian sample of 224 undergraduates (40% male), the newly developed scale exhibited valid psychometric properties, including convergent and discriminant validity. In particular higher scores on a measure of disordered eating were related to the upward and not downward comparison of physical appearance. In contrast, higher dislike for perceived "fat" physical appearances was associated with downward though not upward comparison.

Patching, J.[a], & ***Lawler, J.***[a] (2009). Understanding women's experiences of developing an eating disorder and recovering: A life-history approach: Feature. *Nursing Inquiry, 16*, 10-21.

[a] The University of Sydney, Sydney, New South Wales

This study investigated the subjective experience of women who previously had AN and/or BN and who exhibited stable recovery. Participants comprised 20 women who formerly suffered from AN or BN and/or who exhibited stable recovery. Life-history interviews were conducted and three main themes emerged from the thematic analysis of respondents' descriptions of the process of developing and recovering from an Eating Disorder: conflict, control, and connectedness.

Piquero, N. L., Fox, K., Piquero, A. R., Capowich, G., & ***Mazerolle, P.***[a] (2009). Gender, general strain theory, negative emotions, and disordered eating. *Journal of Youth and Adolescence,* 1-13.

[a] Griffith University, Brisbane, Queensland

This empirical study evaluated the relationship between General Strain Theory (GST) and disordered eating. GST regards negative emotions ("emotional strain"). The sample comprised 338 young adults (46% male). A cross-sectional approach was used to evaluate associations between disordered eating, emotional strain, and gender. Disordered eating was associated with: inequitable experiences leading to strain (in females, not males); symptoms of depression but not anger (in both genders), and; belonging to Greek sororities or fraternities (in males, not females).

Polimeni, A. M.[a], Austin, S. B., & ***Kavanagh, A. M.***[b] (2009). Sexual orientation and weight, body image, and weight control practices among young Australian women. *Journal of Women's Health, 18*, 355-362.

[a] Odyssey Institute of Studies, Richmond, Victoria
[b] University of Melbourne, Melbourne, Victoria

This study aimed to examine the relationship between sexual orientation and body image and weight control practices in a cross-sectional sample of Australian women (*N* = 9683 young adults) participating in the Australian Longitudinal Study on Women's Health. Findings indicate that there is a higher risk of disordered eating in bisexual and primarily heterosexual women. In contrast, lesbian women reported healthier body image.

Raykos, B. C.[a], ***Byrne, S. M.***[ab], ***Watson, H.***[a] (2009). Confirmatory and exploratory factor analysis of the distress tolerance scale (DTS) in a clinical sample of eating disorder patients. *Eating Behaviours, 10*, 215-219.

[a] Centre for Clinical Interventions, Department of Health in Western Australia, Perth, Western Australia

[b] University of Western Australia, Perth, Western Australia

This research assessed the factor structure of the Distress Tolerance Scale (DTS) in a sample of individuals diagnosed with a DSM-IV Eating Disorder. Participants were 214 women consecutively presenting at a Western Australian Eating Disorders clinic. Data were analysed with confirmatory and exploratory factor analysis. Confirmatory factor analysis found a poor fit in these data for the published three-factor model. Correspondingly, an exploratory factor analysis found a four-factor structure. Eating disorder symptoms were significantly associated with behavioural avoidance of positive affect.

Rhodes, P.[ab], ***Prunty, M.***[a], & ***Madden, S.***[a] (2009). Life-threatening food refusal in two nine-year-old girls: Re-thinking the Maudsley model. *Clinical Child Psychology and Psychiatry, 14*, 63-70.

[a] Children's Hospital at Westmead, Sydney, New South Wales

[b] The University of Sydney, Sydney, New South Wales

Two cases studies were presented to help evaluate treatment approaches for children with EDNOS. Family therapy using individualised and flexible methods was utilised with two children exhibiting life threatening cases of food avoidant emotional disorder. In each case, children resumed food intake by approximately 2 and 4 months.

Rhodes, P.[ab], ***Brown, J.***[b], & ***Madden, S.***[c] (2009). The Maudsley model of family-based treatment for anorexia nervosa: A qualitative evaluation of parent-to-parent consultation. *Journal of Marital and Family Therapy, 35*, 181-192.

[a] The University of Sydney, Sydney, New South Wales

[b] Macquarie University, Sydney, New South Wales

c ***Children's Hospital at Westmead, Sydney, New South Wales***

The paper reports on a qualitative study of an RCT for Maudsley FBT for youth with AN. Qualitative analysis of interviews conducted with parents of all 20 families suggested that parent-to-parent consultations appears to be a valuable augmentation to the Maudsley FBT model.

Rieger, E.[a], ***Dean, H. Y.***[a], ***Steinbeck, K. S.***[b], ***Caterson, I. D.***[b], & ***Manson, E.***[b] (2009). The use of motivational enhancement strategies for the maintenance of weight loss among obese individuals: A preliminary investigation. *Diabetes, Obesity and Metabolism, 11*, 637-640.

[a] The University of Sydney, Sydney, New South Wales

[b] Royal Prince Alfred Hospital, Sydney, New South Wales

This study evaluated the efficacy for maintaining weight loss and improving psychosocial functioning of a cognitive behavioural lifestyle modification program that included motivational enhancement strategies. Data were collected before, after, and 12 months after a 20 week cognitive behavioural treatment program in a sample of 22 obese adults. Significant post-test improvement, that was maintained at 12-month follow-up, was observed on measures of weight, quality of life, disordered eating, maladaptive cognitions and body dissatisfaction.

Rodgers, R. F., ***Paxton, S. J.***[a], & Chabrol, H. (2009a). Depression as a moderator of sociocultural influences on eating disorder symptoms in adolescent females and males. *Journal of Youth and Adolescence*. Advanced online publication. doi: 10.1007/s10964-009-9431-y

[a] La Trobe University, Melbourne, Victoria

This research examined whether sociocultural influences on Eating Disorders (bulimic symptoms) are moderated by depressive symptoms. A self-report survey was administered to adolescents (*N* = 509; 56% female). They found evidence that depression was limited in its role as a moderator of the relationship between sociocultural influences and symptoms of Eating Disorders in girls, but depression did have a direct effect on Eating Disorder symptoms in girls. In boys, Eating Disorder symptoms were less often directly related to depression and sociocultural factors. However, for boys depression had a larger moderation effect regarding these associations.

Rodgers, R. F., ***Paxton, S. J.***[a], & Chabrol, H. (2009b). Effects of parental comments on body dissatisfaction and eating disturbance in young adults: A sociocultural model. *Body Image, 6*, 171-177.

[a] La Trobe University, Melbourne, Victoria

The aim of this study was to measure the association between parental comments and concerns about body shape and eating. A self-report survey was administered to male and female undergraduates (*n* = 338). They found that in both males and females the relationship between parental comments and concerns about body shape and eating was only partially mediated by appearance comparison and internalisation of media ideals. The strength of association for these relationships was greater for females than males.

Smith, E.[a], & ***Rieger, E.***[a] (2009). The effect of attentional training on body dissatisfaction and dietary restriction. *European Eating Disorders Review, 17*, 169-176.

[a] The University of Sydney, Sydney, New South Wales

This experiment examined the affect of attentional training on body dissatisfaction and dietary restriction. A sample of 98 females engaged in an attentional training experiment by learning to focus on negative or positive words about body shape and weight, or neutral words. Their response was then measured to a body image challenge. They found that body dissatisfaction was increased by attentional biases to negative shape/weight words, and dietary restriction was elevated by selective attention to negative food words. The authors suggest that attentional training may play a role in treating symptoms of Eating Disorders.

Soh, N. L.[a], ***Touyz, S.***[bc], ***Dobbins, T. A.***[b], ***Clarkes, S.***[bd], ***Kohns, M. R.***[bd], Lee, E. L., ***Leow, V.***[e], Ung, K. E. K., & ***Walter, G.***[ab] (2009). The relationship between skin fold thickness and body mass index in north European caucasian and east Asian women with anorexia nervosa: Implications for diagnosis and management. *European Eating Disorders Review, 17*, 31-39.

[a] ***Northern Sydney Central Coast Area Health Service, North Ryde, New South Wales***
[b] ***The University of Sydney, Sydney, New South Wales***
[c] ***Peter Beaumont Centre for Eating Disorders, Sydney, New South Wales***
[d] ***Westmead Hospital, Sydney, New South Wales***
[e] ***Gosvenor Street, Sydney, New South Wales***

The authors examined the utility of skin fold thickness as an indicator of AN in women from Singapore and Australia. A sample of 137 young women from Singapore and Australia comprised those with and without AN. Skin fold thickness was compared with body mass index (BMI), clinical status, and demographic variables. After adjusting for BMI, women from Singapore (both with and without AN) exhibited significantly larger skin fold measurements. The authors conclude that diagnostic criteria should be re-evaluated to include lower BMI targets when treating AN patients of East Asian descent.

Swinburn, B.[a] (2009). Obesity prevention in children and adolescents. *Child and Adolescent Psychiatric Clinics of North America, 18*, 209-223.

[a] ***Deakin University, Melbourne, Victoria***

The authors discuss the problem of obesity in children and adolescents that is emerging in a variety of countries worldwide. They highlight the importance of policies and gaining government support for population prevention strategies and community-based intervention programs.

Wade, T. D.[a], ***Frayne, A.***[a], ***Edwards, S. A.***[a], ***Robertson, T.***[a], & ***Gilchrist, P.***[b] (2009). Motivational change in an inpatient anorexia nervosa population and implications for treatment. *Australian and New Zealand Journal of Psychiatry, 43*, 235-243.

[a] ***Flinders University, Adelaide, South Australia***
[b] ***Flinders Medical Centre, Adelaide, South Australia***

This randomised controlled experimented examined the effect of motivational interviewing (MI) in combination with treatment as usual (TAU) in recovery from AN. Inpatients with AN ($n = 47$) were randomly assigned to either MI in combination with TAU ($n = 22$), or TAU ($n = 25$). Independent of allocation to condition, higher motivation predicted significant improvement in disordered eating. Those receiving both MI and TAU were more likely to show improvement in readiness to change.

Wade, T. D.[a], ***Treloar, S. A.***[b], Heath, A. C., & ***Martin, N. G.***[b] (2009). An examination of the overlap between genetic and environmental risk factors for intentional weight loss and overeating. *International Journal of Eating Disorders, 42*, 492-497.

a Flinders University, Adelaide, South Australia
b University of Queensland, Brisbane, Queensland

This study examined the relationship of eating disordered behaviour with genetic and environmental factors. Female monozygotic and dizygotic twins (*n* = 1976) were administered telephone interviews. A significant positive association was observed between body mass index and risk of disordered eating behaviours (overeating and intentional weight loss). The authors report a 37% shared association between genetic risk factors and these disordered eating behaviours, but only a 6% association for environmental risk factors.

Wilksch, S. M.[a], & ***Wade, T. D.***[a] (2009a). An investigation of temperament endophenotype candidates for early emergence of the core cognitive component of eating disorders. *Psychological Medicine, 39*, 811-821.

[a] Flinders University, Adelaide, South Australia

This research examined the association between seven temperament endophenotype risk factors and respondents' concerns about shape and weight in female twins (*N* = 699; 12 – 15 years of age). The temperament endophenotype risk factors exhibited significant relationships with respondents' clinically significant concerns about shape and weight. High genetic components were found for some risk factors.

Wilksch, S. M.[a], & ***Wade, T. D.***[a] (2009b). Reduction of shape and weight concern in young adolescents: A 30-month controlled evaluation of a media literacy program. *Journal of the American Academy of Child and Adolescent Psychiatry, 48*, 652-661.

[a] Flinders University, Adelaide, South Australia

To evaluate the efficacy of a ML program in reducing adolescents' concern with body weight and shape. Male and female students in grade 8 (*N* = 540) from four schools participated in either an 8-session ML program (*n* = 233) or 13 sessions of normal school classes (*n* = 307). Significantly greater benefits were observed in the ML group on measures of concern with body shape and weight, body dissatisfaction, and dieting, as well as ineffectiveness and depression.

Yager, Z.[a], & ***O'Dea, J.***[b] (2009). Body image, dieting and disordered eating and activity practices among teacher trainees: Implications for school-based health education and obesity prevention programs. *Health Education Research, 24*, 472-482.

[a] La Trobe University, Bendigo, Victoria
[b] The University of Sydney, Sydney, New South Wales

This survey compared the incidence of body dissatisfaction, disordered eating and exercise in teacher trainees for health education / physical education (H&PE) with non-H&PE. The sample comprised Australian university students (*N* = 502 from 3 universities) training to be teachers in H&PE and non-H&PE disciplines. They found a higher incidence in the H&PE teacher trainees of body dissatisfaction, disordered eating, dieting, over- exercising, exercise and Eating Disorders. The authors discuss concerns about H&PE teachers conveying counter-productive health-related messages to their students, even unintentionally.

2008

Allen, K. L.[a], ***Byrne, S. M.***[a], ***La Puma, M.***[b], ***McLean, N.***[a], & ***Davis, E. A.***[c] (2008). The onset and course of binge eating in 8- to 13-year-old healthy weight, overweight and obese children. *Eating Behaviours, 9*, 438-446.

[a] ***University of Western Australia, Perth, Western Australia***
[b] ***Wesley Private Hospital, Sydney, New South Wales***
[c] ***Princess Margaret Hospital for Children, Perth, Western Australia***

The purpose of this research was to study the prevalence, cross-sectional and prospective predictors of overeating and binge eating in children aged 8 to 13 years. A sample of 259 male and female young people was assessed at two time points 12 months apart using semi-structured interviews. The prevalence rates of overeating and binge eating were 6% and 9% respectively; eating concern was a significant cross-sectional predictor of binge eating; using food for emotional regulation and food restraint were significant prospective predictors of binge eating.

Allen, K. L.[a], ***Byrne, S. M.***[a], ***McLean, N. J.***[a], & ***Davis, E. A.***[b] (2008). Overconcern with weight and shape is not the same as body dissatisfaction: Evidence from a prospective study of pre-adolescent boys and girls. *Body Image, 5*, 261-270.

[a] ***University of Western Australia, Perth, Western Australia***
[b] ***Princess Margaret Hospital for Children, Perth, Western Australia***

This study aimed to examine the differences between two constructs that are predictive of Eating Disorders: body dissatisfaction and overconcern with body shape and weight. A longitudinal observational study sampled 259 young people aged 8-13 years at two time points one year apart. Body dissatisfaction and overconcern with shape/weight evidenced different predictors and themselves predictors of different outcome behaviours, leading the authors to caution against conflating these two variables.

Bryant, E. J., ***King, N. A.***[a], & Blundell, J. E. (2008). Disinhibition: Its effects on appetite and weight regulation. *Obesity Reviews, 9*, 409-419.

[a] ***Queensland University of Technology, Brisbane, Queensland***

This theoretical and empirical review discusses the role of disinhibition in disordered eating. They present evidence that suggests disinhibition predicts a variety of indicators of disordered eating (including severity of Eating Disorders) and psychological problems (e.g., low self-esteem).

Byrne, S. M.[ab], ***Allen, K. L.***[a], ***Dove, E. R.***[a], ***Watt, F. J.***[a], & ***Nathan, P. R.***[ab] (2008). The reliability and validity of the dichotomous thinking in eating disorders scale. *Eating Behaviours, 9*, 154-162.

[a] ***University of Western Australia, Perth, Western Australia***
[b] ***Centre for Clinical Interventions, Department of Health in Western Australia, Perth, Western Australia***

This study evaluated the validity of the Dichotomous Thinking in Eating Disorders Scale (DTEDS) in samples of women with Eating Disorders ($N = 87$) and obesity/overweight ($N = 111$). A two-factor confirmatory factor analytic model fit the data better than a one-factor model. The two-factor model demonstrated excellent reliability and validity for use with eating disordered patients.

Carney, T.[a], ***Tait, D.***[b], ***Richardson, A.***[b], & ***Touyz, S.***[a] (2008). Why (and when) clinicians compel treatment of anorexia nervosa patients. *European Eating Disorders Review, 16*, 199-206.

[a] The University of Sydney, Sydney, New South Wales
[b] University of Canberra, Canberra, Australian Capital Territory

This paper presents the results of an observational study that charted the circumstances in which clinicians implemented legal coercion with patients when treating severe cases of AN. In a sample of 75 patients of a New South Wales Eating Disorders clinic, legal coercion was used sparingly and was primarily used in association with three factors: the number of prior admissions, presence of co-morbid psychological conditions, and patents' health risk.

Cartwright, F.[a], & ***Stritzke, W. G. K.***[a] (2008a). Children and chocolate craving Innocent longing or guilty pleasure? *Agro Food Industry Hi-Tech, 19*, 16-18.

[a] The University of Western Australia, Perth, Western Australia

Cartwright and Stritzke (2008) review the research on chocolate cravings in children. They discuss an empirically supported multidimensional ambivalence model (comprising approach, avoidance, and guilt) and highlight that ambivalence regarding chocolate in girls may predict later maladaptive food-related attitudes and dieting behaviours.

Cartwright, F.[a], & ***Stritzke, W. G. K.***[a] (2008b). A multidimensional ambivalence model of chocolate craving: Construct validity and associations with chocolate consumption and disordered eating. *Eating Behaviours, 9*, 1-12.

[a] University of Western Australia, Perth, Western Australia

In order to evaluate the validity of a scale assessing multidimensional ambivalence model (comprising approach, avoidance, and guilt) – the Orientation to Chocolate Questionnaire (OCQ). In a sample of 312 university students (79.5% female) the OCQ's proposed three-factor model was supported. They also found some support for the concurrent and discriminant validity of the OCQ regarding eating behaviours (consumption of chocolate and disordered eating).

Chen, H., & ***Jackson, T.***[a] (2008). Prevalence and sociodemographic correlates of eating disorder endorsements among adolescents and young adults from China.
European Eating Disorders Review, 16, 375-385.

[a] James Cook University, Townsville, Queensland

In order to determine the prevalence and predictors of Eating Disorder symptoms in Chinese youth, 2103 young people (aged 12 to 22 years; 37.2% male) were asked to complete demographic and body dissatisfaction measures and a translation of the Eating Disorder Diagnostic Scale. Body dissatisfaction and Eating Disorder symptoms were significantly greater in females and those from higher income families.

Colles, S. L.[a], ***Dixon, J. B.***[a], & ***O'Brien, P. E.***[a] (2008a). Grazing and loss of control related to eating: Two high-risk factors following bariatric surgery. *Obesity, 16*, 615-622.

[a] Monash University, Melbourne, Victoria

This longitudinal (12-month) observational study aimed to assess the relationship between weight loss and pre- and post-operative eating behaviours before and 12 months after gastric restrictive surgery. Participants comprised 129 patients with BED (BED), night eating disorder (NES) or uncontrolled eating. They found that two predictors of poorer weight loss were grazing and uncontrolled eating.

Colles, S. L.[a], ***Dixon, J. B.***[a], & ***O'Brien, P. E.***[a] (2008b). Loss of control is central to psychological disturbance associated with binge eating disorder. *Obesity, 16*, 608-614.

[a] Monash University, Melbourne, Victoria

This research focused on determining behavioural elements of BED that are the best predictors of psychological distress. Using a cross-sectional design participants comprised candidates for bariatric surgery ($n = 180$), with a weight loss group ($n = 93$), and general community members ($n = 158$). The strongest predictor of psychological distress was loss of control over eating.

Coomber, K.[a], & ***King, R. M.***[a] (2008). The role of sisters in body image dissatisfaction and disordered eating. *Sex Roles, 59*, 81-93.

[a] Deakin University, Geelong, Victoria

This paper evaluated the Tripartite Influence Model's (TIM) proposition that sociocultural/familial factors influence body image dissatisfaction (BID), as mediated by internalisation and social comparison. Participants were 47 pairs of Australian sisters (aged 18-27 years). Results indicate that as predicted by TIM the relationship between familial influences and BID was mediated by internalisation and social comparison. In contrast to the model's predictions, eating disorder behaviours (dietary restriction and bulimic behaviours) were predicted by sister modelling.

Court, A.[a], ***Mulder, C.***[a], ***Hetrick, S. E.***[b], ***Purcell, R.***[b], & ***McGorry, P. D.***[b] (2008). What is the scientific evidence for the use of antipsychotic medication in anorexia nervosa? *Eating Disorders, 16*, 217-223.

[a] ORYGEN Youth Health, Melbourne, Victoria
[b] Melbourne University, Melbourne, Victoria

A systematic review found four randomised controlled trials evaluating the treatment of AN with antipsychotic medications in comparison to non-pharmacological interventions. The authors conclude that there is not yet sufficient evidence to make reliable conclusions and more research is needed regarding the utility of treating AN with antipsychotic medications.

Dean, H. Y.[a], ***Touyz, S. W.***[ab], ***Rieger, E.***[a], & ***Thornton, C. E.***[b] (2008). Group motivational enhancement therapy as an adjunct to inpatient treatment for eating disorders: A preliminary study. European *Eating Disorders Review, 16*, 256-267.

[a] The University of Sydney, Sydney, New South Wales
[b] Wesley Private Hospital, Sydney, New South Wales

This controlled trial used sequential allocation of patients with Eating Disorders to either treatment as usual (TAU; *n* = 19) or TAU plus Motivational Enhancement Therapy (MET; *n* = 23), which is a four-session group-based program. No significant differences were observed between groups on outcome measures. However the authors note possible beneficial effects regarding motivation and treatment continuation.

Doggrell, S. A.[a] (2008). New indications for topiramate: Alcohol dependency and binge-eating disorder. *Expert Opinion on Pharmacotherapy, 9*, 869-873.

[a] RMIT University, Melbourne, Victoria

This paper reviews the findings of a pharmacological treatment trial comparing topiramate with a placebo in patients with BED. The results indicated a larger decrease in weight across 21 weeks in the topiramate condition. The authors note that long term effects require further study.

Dohnt, H. K.[a], & ***Tiggemann, M.***[a] (2008). Promoting positive body image in young girls: An evaluation of 'Shapesville'. *European Eating Disorders Review, 16*, 222-233.

[a] Flinders University, Adelaide, South Australia

This study evaluated the efficacy of a purposefully designed picture book (Shapesville) on promoting positive body image in young girls. A sample of 84 female private school students aged 5-9 years were randomly allocated to two conditions: being read Shapesville or a control book. In comparison to the control group, the Shapesville condition reported greater satisfaction with their appearance as well as less internalisation of media ideals and weight-based stereotyping.

Fabrianesi, B.[a], ***Jones, S. C.***[a], & ***Reid, A.***[a] (2008). Are pre-adolescent girls' magazines providing age- appropriate role models? *Health Education, 108*, 437-449.

[a] University of Wollongong, Wollongong, New South Wales

This research examined the social role modelling content provided in pre-adolescent and adolescent magazines in order to determine possible social risk factors for Eating Disorders. Over the course of six months two pre-adolescent magazines and two adolescent magazines were monitored for images of female role models. The researchers found that pre-adolescent and adolescent magazines presented similar frequency and content of celebrity images. They note that some of these celebrities were known to engage in disordered eating. They recommend greater control regarding role models in popular media for young people.

Fuller-Tyszkiewicz, M.[a], & ***Mussap, A.***[a] (2008). The relationship between dissociation and binge eating. *Journal of Trauma and Dissociation, 9*, 445-462.

[a] Deakin University, Melbourne, Victoria

This study examined the possible processes underlying the relationship between dissociation and binge eating. In a cross-sectional sample of 151 female university students they found that body dissatisfaction uniquely mediated the relationship between dissociation and binge eating.

Hart, S.[ab], ***Abraham, S.***[a], ***Luscombe, G.***[a], & ***Russell, J.***[a] (2008). Eating disorder management in hospital patients: Current practice among dietitians in Australia. *Nutrition & Dietetics, 65*, 16-22.

[a] The University of Sydney, Sydney, New South Wales
[b] Royal North Shore Hospital, Sydney, New South Wales

This cross-sectional survey aimed to record the treatment practices of dietitians working in Australian Eating Disorder clinics. Respondents comprised 36 qualified dietitians. The most frequent treatment for Eating Disorders was non-artificial feeding, including nutritional supplements. For AN approximately one in three dietitians reported using nasogastric feeding.

Hay, P.J.[a], ***Mond, J.***[b], ***Buttner, P.***[c], & ***Darby, A.***[c] (2008). Eating disorder behaviours are increasing: Findings from two sequential community surveys in South Australia. *PLoS ONE, 3*, e1541.

[a] University of Western Sydney, Campbelltown, New South Wales
[b] La Trobe University, Melbourne, Victoria
[c] James Cook University, Townsville, Queensland

This research compared the prevalence of Eating Disorder behaviours over a 10-year period. The data were derived from two consecutive community surveys of the general population conducted in 1995 ($N = 3001$) and 2005 ($N = 3047$). Eating disorder behaviours increased over two-fold among both Australian men and women during this period. Specific behaviours assessed included binge eating, purging (self-induced vomiting or laxative misuse or diuretic misuse), and strict dieting or fasting for shape and weight control.

Hillege, S.[a], ***Beale, B.***[b], & ***McMaster, R.***[a] (2008). The impact of type 1 diabetes and eating disorders: *The perspective of individuals. Journal of Clinical Nursing, 17*(7B), 169-176.

[a] Australian Catholic University, North Sydney, New South Wales
[b] University of Western Sydney, Campbelltown, New South Wales

This paper reports the qualitative (grounded theory) analysis of semi-structured interviews in a sample of 4 females with comorbid Type 1 Diabetes and Eating Disorders. A central finding of this research was that participants' management of their health is impaired by the complex biological, affective, and social factors associated with their comorbid disorders.

Holt, K. E.[a], & ***Ricciardelli, L. A.***[a] (2008). Weight concerns among elementary school children: A review of prevention programs. *Body Image, 5*, 233-243.

[a] Deakin University, Melbourne, Victoria

This paper systematically reviewed trials evaluating Eating Disorder prevention programs for body dissatisfaction and problem eating in elementary school children (aged 8-12 years). The review found evidence that while children's knowledge is increased, their body image concerns and problem eating are not reliably decreased by these programs. They call for further research, and highlight muscle concerns as an area of importance.

Jackson, T.[a], & Chen, H. (2008). Predicting changes in eating disorder symptoms among Chinese adolescents: A 9-month prospective study. *Journal of Psychosomatic Research, 64*, 87-95.

[a] James Cook University, Townsville, Queensland

This study aimed to prospectively examine predictors of problematic body image and bulimic eating behaviours in Chinese adolescents. Data were collected at two time points (9 months apart) in a sample of 593 Chinese school students (boys and girls from both middle- and high-school). Students' concerns about fatness and social pressure at baseline predicted increases in disordered eating across the study. The authors cite this as an example that bulimic dual-pathway disturbances can generalise across cultures.

Jayasinghe, Y.[abc], ***Grover, S. R.***[abc], & ***Zacharin, M.***[ac] (2008). Current concepts in bone and reproductive health in adolescents with anorexia nervosa. *BJOG: An International Journal of Obstetrics and Gynaecology, 115*, 304-315.

[a] Royal Children's Hospital, Melbourne, Victoria
[b] University of Melbourne, Melbourne, Victoria
[c] Murdoch Children's Research Institute, Melbourne, Victoria

This paper discusses the biological responses in individuals with AN, such as neuroendocrine effects. Negative health effects of AN are discussed, including osteoporosis and amenorrhoea. This paper also discusses the effects of AN on the adolescent reproductive system and reviews treatments.

Maguire, S.[ab], Le Grange, D., Surgenor, L., ***Marks, P.***[a], Lacey, H., & ***Touyz, S.***[a] (2008). Staging anorexia nervosa: Conceptualizing illness severity. *Early Intervention in Psychiatry, 2*, 3-10.

[a] The University of Sydney, Sydney, New South Wales
[b] Royal Prince Alfred Hospital, Sydney, New South Wales

This discussion paper aims to develop a theoretical model of the severity of AN. The authors highlight that a better conceptual understanding of illness severity via a functional staging system will assist treatment and case management.

Malson, H., ***Clarke, S.***[a], & Finn, M. (2008). I. 'I don't think that's normal': A reflection on accounts of experiences of treatment for eating disorders. *Feminism and Psychology, 18*, 417-424.

[a] Westmead Hospital, Sydney, New South Wales

This paper discusses the treatment of Eating Disorders from the accounts of patients as informed by both mainstream and feminist perspectives. These perspectives can either normalise or pathologize women's experiences with managing body weight and shape. One feminist account of AN and BN is that they are an extreme manifestation of the ideals and normative values of modern Western cultures, rather than being deviations from normative values.

Malson, H.***,*** & ***Ryan, V.***[ab] (2008). Tracing a matrix of gender: An analysis of the feminine in hospital-based treatment for eating disorders. *Feminism and Psychology, 18*, 112-132.

[a] TAFE New South Wales, New South Wales
[b] Rose Bay, New South Wales

This paper examines nurses' perceptions of inpatients with Eating Disorders in order to study how 'the feminine' is discursively constructed. Qualitative analysis of interviews with nurses employed post-structuralist discourse analytic methodology. The authors report that 'the feminine' is frequently represented dichotomously and is enmeshed in gender power-relations.

May, J., Andrade, J., ***Kavanagh, D.***[a], & Penfound, L. (2008). Imagery and strength of craving for eating, drinking, and playing sport. *Cognition and Emotion, 22*, 633-650.

[a] University of Queensland, Brisbane, Queensland

This study reports on the scale structure and correlates of a self-report measure designed to assess motivational force of cravings for food and drink. Four subscales are reported, including cognitive elaboration and imagery, resistance, anticipated reward or relief, and opportunity. All but the opportunity scale were significant predictors of craving strength in a multiple regression.

McNamara, C.[a], ***Chur-Hansen, A.***[b], & ***Hay, P.***[a] (2008). Emotional responses to food in adults with an eating disorder: A qualitative exploration. *European Eating Disorders Review, 16*, 115-123.

[a] James Cook University, Townsville, Queensland
[b] University of Adelaide, Adelaide, South Australia

This qualitative study examined the emotional responses of adults with Eating Disorders while viewing pictures of food during an interview. Participants were 10 adult women who were diagnosed with an Eating Disorder (AN, BN, or EDNOS). A central theme identified was that of control in relation to the negative emotions which resulted from viewing pictures of food.

McNamara, C.[a], ***Hay, P.***[a], ***Katsikitis, M.***[b], & ***Chur-Hansen, A.***[c] (2008). Emotional responses to food, body dissatisfaction and other eating disorder features in children, adolescents and young adults. *Appetite, 50*, 102-109.

[a] James Cook University, Townsville, Queensland
[b] University of the Sunshine Coast, Maroochydore, Queensland
[c] University of Adelaide, Adelaide, South Australia

This research studied the emotional responses of school and university students to pictures of food in order to examine associations with Eating Disorder symptomatology. Participants included 536 high school students and 93 university students. Results differed by gender. Males reported significantly greater positive emotional responses to food pictures. Adult females exhibited a positive relationship between a fear response to viewing food and body dissatisfaction and eating concerns.

Mond, J.[a], Myers, T. C., Crosby, R., ***Hay, P.***[b], & Mitchell, J. (2008). 'Excessive exercise' and eating-disordered behaviour in young adult women: Further evidence from a primary care sample. *European Eating Disorders Review, 16*, 215-221.

[a] La Trobe University, Bundoora, Victoria
[b] University of Western Sydney, Campbelltown, New South Wales

This United States study was implemented to test the cross-cultural replication of results from research conducted in Australia by examining the associations between exercise, Eating Disorder symptoms, and quality of life. The sample comprised young women from US primary care facilities. In line with prior research, those who experienced guilt regarding missed exercise were likely to also exhibit greater eating disordered behaviour and lower quality of life.

Mond, J. M.[a], ***Hay, P.***[b], ***Rodgers, B.***[c], & ***Owen, C.***[c] (2008). Mental health literacy and eating disorders: What do women with bulimic eating disorders think and know about bulimia nervosa and its treatment? *Journal of Mental Health, 17*, 565-575.

[a] La Trobe University, Bundoora, Victoria
[b] University of Western Sydney, Campbelltown, New South Wales
[c] Australian National University, Canberra, Australian Capital Territory

This qualitative study examined the attitudes and beliefs of 158 women with symptoms of BN. Participants were given a vignette that described a person with BN-like symptoms and were asked for their opinions regarding the symptoms and possible treatments. The authors reported that respondents exhibited a range of attitudes that would likely not promote effective or appropriate treatment seeking. They advise intervention programs to develop "mental health literacy."

Mond, J. M.[a], & ***Hay, P. J.***[b] (2008). Public perceptions of binge eating and its treatment. *International Journal of Eating Disorders, 41*, 419-426.

[a] La Trobe University, Bundoora, Victoria
[b] University of Western Sydney, Campbelltown, New South Wales

This qualitative study examined the attitudes and beliefs regarding binge eating of 1031 men and women from a community sample. Participants were given a vignette that described a person with obesity and binge eating behaviours. They were asked for their opinions regarding the symptoms and possible treatments. Respondents generally identified binge eating as being due to negative emotions, but they commonly did not regard psychotherapy as being the treatment of choice, preferring instead dietitians and general practitioners. These findings suggest that using public health promotion approaches to alter public perceptions may be useful regarding effective treatment seeking for binge eating.

Mond, J. M.[a], Myers, T. C., Crosby, R. D., ***Hay, P. J.***[b], ***Rodgers, B.***[c], Morgan, J. F., Hubert Lacey, J., & Mitchell, J. E. (2008). Screening for eating disorders in primary care: EDE-Q versus SCOFF. *Behaviour Research and Therapy, 46*, 612-622.

[a] La Trobe University, Bundoora, Victoria
[b] University of Western Sydney, Campbelltown, New South Wales
[c] Australian National University, Canberra, Australian Capital Territory

This study examined the validity of two diagnostic measures, the five-item SCOFF and the 22-item Eating Disorder Examination Questionnaire (EDE-Q). Participants comprised 257 young adult women from primary care facilities. The authors report that while both measures exhibited good specificity and sensitivity, the EDE-Q exhibited better performance, particularly regarding bias due to age and weight.

Mussap, A. J.[a], ***McCabe, M. P.***[a], & ***Ricciardelli, L. A.***[a] (2008). Implications of accuracy, sensitivity, and variability of body size estimations to disordered eating. *Body Image, 5*, 80-90.

[a] Deakin University, Melbourne, Victoria

This research examined the association between Eating Disorder symptoms and self-estimates of body size. A sample of 93 women completed self-report measures of Eating Disorder behaviours and sat experimental trials using the method of constant stimuli to assess perceptions of their own body size. The results found a relationship between the tendencies to distort and to vary one's body image perceptions and Eating Disorder symptomatology (concern about eating and dietary restraint). These relationships were mediated by internalisation of a thin ideal and body dissatisfaction.

Nunn, K.[a], Frampton, I. J., Gordon, I., & Lask, B. (2008). The fault is not in her parents but in her insula - A neurobiological hypothesis of anorexia nervosa. *European Eating Disorders Review, 16*, 355-360.

[a] University of New South Wales, Sydney, New South Wales

This discussion paper presents the hypothesis that the symptoms of AN can be accounted for by irregularities in the insular cortex. The authors explain that the functioning of the insular cortex regulates the characteristics which present as clinical features of AN. They suggest various methods of testing this hypothesis.

Patton, G. C.[ab], ***Coffey, C.***[a], ***Carlin, J. B.***[c], ***Sanci, L.***[a], & ***Sawyer, S.***[c] (2008). Prognosis of adolescent partial syndromes of eating disorder. *British Journal of Psychiatry, 192*, 294-299.

[a] Murdoch Children's Research Institute, Melbourne, Victoria
[b] William Buckland House, Melbourne, Victoria
[c] University of Melbourne, Melbourne, Victoria

This paper presents epidemiological data regarding the incidence and course of partial Eating Disorders, which were defined as meeting at least two symptoms for AN or BN. This longitudinal study sampled 1943 community participants over 10 years and comprised eight data collection points. The incidence of partial Eating Disorders in adolescents between 15-17 years of age was 9.4% in females and 1.4% in males. While partial disorders rarely progressed to full clinical diagnoses, those with partial disorders reported increased rates of mental health problems and substance misuse.

Prichard, I.[a], & ***Tiggemann, M.***[a] (2008). Relations among exercise type, self-objectification, and body image in the fitness centre environment: The role of reasons for exercise. *Psychology of Sport and Exercise, 9*, 855-866.

[a] Flinders University, Adelaide, South Australia

This study examined the relationships between motivation for exercise, type of exercise, and body image. Adult women were sampled from those attending classes in fitness centres (aged 18-71; $N = 571$). Eating disorder symptomatology and body image concerns exhibited stronger associations with the amount of time spent doing exercise in fitness centres as opposed to time spent exercising elsewhere. In contrast less self-objectification was associated with yoga-oriented fitness classes.

Sachdev, P.[ab], ***Mondraty, N.***[c], ***Wen, W.***[a], & ***Gulliford, K.***[d] (2008). Brains of anorexia nervosa patients process self-images differently from non-self-images: An fMRI study. *Neuropsychologia, 46*, 2161-2168.

[a] University of New South Wales, Sydney, New South Wales
[b] Prince of Wales Hospital, Sydney, New South Wales
[c] Wesley Private Hospital, Sydney, New South Wales
[d] Central Sydney Area Health Service, Sydney, New South Wales

This study used neuroimaging (fMRI) to examine perceptual differences in patients with AN and healthy controls. The study compared the areas of brain activation exhibited by 10 women with AN and 10 healthy women when viewing pictures of themselves and others. The findings indicate that the patients with AN and the healthy controls processed images of other people in the same way. However the AN patients processed images of themselves dissimilarly to controls, by exhibiting low activation of the attentional system.

Sanci, L.[a], ***Coffey, C.***[b], ***Olsson, C.***[b], ***Reid, S.***[b], ***Carlin, J. B.***[ab], & ***Patton, G.***[b] (2008). Childhood sexual abuse and eating disorders in females: Findings from the Victorian Adolescent Health Cohort study. *Archives of Pediatrics and Adolescent Medicine, 162*, 261-267.

[a] University of Melbourne, Melbourne, Victoria
[b] Murdoch Children's Research Institute, Melbourne, Victoria

This longitudinal cohort study examined the incidence of childhood sexual abuse (CSA) in females as risk factor for subsequent development of Eating Disorders (AN or BN). Data were collected at two time points from a cohort of 1936 students (999 females) at 44 Victorian schools. The results indicate that CSA did predict increased likelihood for development of bulimic symptoms. Furthermore, this relationship remained significant after adjusting for severe dieting and psychiatric morbidity.

Schembri, C.[a], & ***Evans, L.***[a] (2008). Adverse relationship processes: The attempts of women with bulimia nervosa symptoms to fit the perceived ideal of intimate partners. *European Eating Disorders Review, 16*, 59-66.

[a] La Trobe University, Melbourne, Victoria

This study examined the relationship between bulimic symptoms and self-silencing, anxious attachment, and self-consciousness during sexual intercourse. A sample of 225 women who were currently engaged in an intimate relationship was drawn from university and community settings and completed self-report questionnaires. The results found that bulimic symptoms were predicted by the aforementioned adverse relationship processes.

Soh, N. L. W.[ab], ***Touyz, S.***[cd], ***Dobbins, T.***[c], Surgenor, L., ***Clarke, S.***[ce], ***Kohn, M.***[ef], Lee, E. L., ***Leow, V.***[g], ***Rieger, E.***[c], Ung, K. E. K., & ***Walter, G.***[ac] (2008a). Body image disturbance in young North European and East Asian women with and without eating disorders in Australia and in Singapore. *European Eating Disorders Review, 16*, 287-296.

[a] Northern Sydney Central Coast Area Health Service, Sydney, New South Wales
[b] Coral Tree Family Service, North Ryde, New South Wales
[c] The University of Sydney, Sydney, New South Wales
[d] Wesley Private Hospital, Ashfield, New South Wales
[e] Westmead Hospital, Sydney, New South Wales
[f] Children's Hospital at Westmead, Sydney, New South Wales
[g] Grosvenor St., Bondi Junction, New South Wales

This study examined the degree of disturbed body image in 154 young women from two ethnic groups (North European and East Asian) in Australia and Singapore who either exhibited an Eating Disorder or did not. Body dissatisfaction was comparable in women with Eating Disorders from both ethnic groups. For women without an Eating Disorder, body dissatisfaction was highest in Singaporean Chinese women.

Soh, N. L. W.[ab], ***Touyz, S.***[cd], ***Dobbins, T.***[c], Surgenor, L., ***Clarke, S.***[ce], ***Kohn, M.***[cf], Lee, E. L., ***Leow, V.***[g], ***Rieger, E.***[c], Ung, K. E. K., & ***Walter, G.***[ac] (2008b). Cross-cultural differences in the macronutrient intakes of women with anorexia nervosa in Australia and Singapore.
European Eating Disorders Review, 16, 427-435.

[a] Northern Sydney Central Coast Area Health Service, Sydney, New South Wales
[b] Coral Tree Family Service, North Ryde, New South Wales
[c] The University of Sydney, Sydney, New South Wales
[d] Peter Beaumont Centre for Eating Disorders, Sydney, New South Wales
[e] Westmead Hospital, Sydney, New South Wales
[f] Children's Hospital at Westmead, Sydney, New South Wales
[g] Grosvenor St., Bondi Junction, New South Wales

This research examined the dietary nutrition of women with AN compared to those without AN, and by comparing North European and East Asian cultures in Australia and Singapore. The macronutrient intake was examined in 39 women with AN and 89 women without AN. Higher intake of protein and fat was associated with Western acculturation but not with AN. Those with AN exhibited a higher percentage of energy gained from carbohydrate but lower energy intake.

Steele, A. L.[a], & ***Wade, T. D.***[a] (2008). A randomised trial investigating guided self-help to reduce perfectionism and its impact on bulimia nervosa: A pilot study.
Behaviour Research and Therapy, 46, 1316-1323.

[a] Flinders University, Adelaide, South Australia

The utility of using guided self-help (GSH) for treating perfectionism in individuals with BN was examined in a randomised controlled trial in comparison with placebo. The 6-week GSH program comprised 8 sessions of cognitive behaviour therapy (CBT) for BN or CBT for perfectionism. A sample of 48 people diagnosed with BN or EDNOS were randomised to each condition and were monitored on diagnostic criteria and psychological outcomes at baseline, pre-test, post-test, and 6-month follow-up. Across the intervention period, significant benefits were observed in both bulimic symptoms and psychological health.

Wade, T. D.[a], & ***Byrne, S.***[b], & Bryant-Waugh, R. (2008). The eating disorder examination: Norms and construct validity with young and middle adolescent girls.
International Journal of Eating Disorders, 41, 551-558.

[a] Flinders University, Adelaide, South Australia
[b] University of Western Australia, Perth, Western Australia

This study aimed to validate and norm-reference the Eating Disorder Examination (EDE) for use in adolescent females. Data were obtained from a sample of 699 twins (aged 12-15 years). While the four factor structure was unstable, the total scale exhibited good internal reliability. However the cognitive diagnostic items of the EDE adequately discriminated the occurrence of disordered eating. The authors recommend exercising caution in using the individual subscales but suggest the EDE has utility for both prediction and diagnosis.

Wade, T. D.[a], ***Tiggemann, M.***[a], Bulik, C. M., Fairburn, C. G., ***Wray, N. R.***[b], & ***Martin, N. G.***[b] (2008). Shared temperament risk factors for anorexia nervosa: A twin study. *Psychosomatic Medicine, 70*, 239-244.

[a] Flinders University, Adelaide, South Australia
[b] Queensland Institute of Medical Research, Brisbane, Queensland

This study examined the relationship between AN and temperament traits in a community sample of 1002 female twins. Both self-report and interview data assessed Eating Disorder symptoms and temperament. The results indicate that AN is associated with traits that comprise a need for order, perfectionism and sensitivity to reward and praise.

Wade, T. D.[a], ***Treloar, S.***[b], & ***Martin, N. G.***[b] (2008). Shared and unique risk factors between lifetime purging and objective binge eating: A twin study. *Psychological Medicine, 38*, 1455-1464.

[a] Flinders University, Adelaide, South Australia
[b] University of Queensland, Brisbane, Queensland

This study aimed to examine the degree of overlap between two bulimic-type behaviours - objective binge eating (OBE) and self-induced vomiting (SIV). A sample of 1002 adult female twins provided data regarding lifetime incidence of Eating Disorder symptomatology, psychological and psychosocial variables. The authors found that the risk factors for OBE and SIV were largely discrepant and they suggest that investigation of each problematic behaviour should be independent of the other.

Wilksch, S. M.[a], ***Durbridge M. M.R.*** [a], & ***Wade, T. D.***[a] (2008). A preliminary controlled comparison of programs designed to reduce risk of eating disorders targeting perfectionism and media literacy. *Journal of the American Academy of Child and Adolescent Psychiatry, 47*, 939-947.

[a] Flinders University, Adelaide, South Australia

Wilksch and colleagues examined the efficacy of interventions designed to ameliorate risk of developing Eating Disorders in adolescents. Using a controlled trial, they compared two 8-session programs (one for perfectionism, another for ML) with a control classes. Participants were 127 adolescent school students. While the ML and control conditions were comparable, the perfectionism program exhibited clinically reliable improvement in Eating Disorder risk.

Yager, Z.[a], & ***O'Dea, J. A.***[a] (2008). Prevention programs for body image and eating disorders on University campuses: A review of large, controlled interventions. *Health Promotion International, 23*, 173-189.

[a] The University of Sydney, Sydney, New South Wales

This paper systematically reviews empirical research evaluating Eating Disorders, body dissatisfaction, and dieting and exercise behaviours. Twenty seven randomised controlled trials are reviewed, and limitations are noted. These include: small sample sizes; exclusion of males; the frequent use of female undergraduate students; and a lack of methodologically sound longitudinal studies.

Zanker, C., & ***Gard, M.***[a] (2008). Fatness, fitness, and the moral universe of sport and physical activity. *Sociology of Sport Journal, 25*, 48-65.

[a] Charles Sturt University, Bathurst, New South Wales

This discussion paper presents a qualitative critique of the modern culture's portrayal of Eating Disorders and problematic exercising in a process the authors call a collaborative autoethnography. Using a story of a woman who has both attraction and aversion to exercise, the authors present and critique the divergent messages that our modern culture presents regarding Eating Disorders, obesity, and over-exercising.

2007

Abraham, S. F.[a], ***Boyd, C.***[a], ***Luscombe, G.***[a], ***Hart, S.***[a], & ***Russell, J.***[a] (2007). When energy in does not equal energy out: *Disordered energy control. Eating Behaviours, 8*, 350-356.

[a] The University of Sydney, Sydney, New South Wales

This research study examined the relationship between clinical status and women's fears surrounding control of eating, exercise, and their body regarding the concept of disordered energy control (DEC). Participants comprised 169 Eating Disorder inpatients, 61 former inpatients, and 225 students. Computerised surveys were administered. The incidence of DEC was greater in inpatients (94%) than former patients (28%) or students (13%).

Banasiak, S. J.[a], ***Paxton, S. J.***[b], & ***Hay, P. J.***[c] (2007). Perceptions of cognitive behavioural guided self-help treatment for Bulimia Nervosa in primary care. *Eating Disorders, 15*, 23-40.

[a] University of Melbourne, Melbourne, Victoria
[b] La Trobe University, Melbourne, Victoria
[c] James Cook University, Townsville, Queensland

The purpose of this study was to qualitatively evaluate participants' perceptions of a Guided Self-Help (GSH) program for BN. Thirty six women were interviewed and asked to comment on factors that promoted effectiveness and ineffectiveness in treatment. Factors contributing to effectiveness included (*inter alia*) improvement in eating behaviours, well-being, and body image, while factors contributing to treatment ineffectiveness include (among others) not evidencing changed eating behaviour or body image, limitations to the program, and insufficient treatment dose.

Bartholomew, T.[a], & ***Carvalho, T.***[a] (2007). Medical practitioners' competence and confidentiality decisions with a minor: An anorexia nervosa case study. *Psychology, Health and Medicine, 12*, 495-508.

[a] Deakin University, Melbourne, Victoria

This study examined the legal-ethical issue of confidentiality when treating competent minors presenting with AN. A questionnaire that included a hypothetical scenario of a minor with AN was sent to a sample of 1000 general practitioners (with 305 responses). Regarding the hypothetical case study, 82% of respondents would maintain confidentiality and 62% considered the hypothetical patient to be 'competent'. However there was a large degree of variation in responses which indicates that GPs may benefit from clear legal-ethical guidelines regarding working with minors.

Bosanac, P.[a], ***Kurlender, S.***[a], ***Norman, T.***[a], ***Hallam, K.***[a], Wesnes, K., Manktelow, T., & ***Burrows, G.***[a] (2007). An open-label study of quetiapine in anorexia nervosa. *Human Psychopharmacology, 22*, 223-230.

[a] University of Melbourne, Melbourne, Victoria

This study aimed to evaluate the use of an atypical antipsychotic (quetiapine) to treat AN. A non-blind, uncontrolled longitudinal trial of quetiapine was administered to inpatients with AN for either 4 weeks ($n = 7$) or 8 weeks ($n = 5$). Significant change in body mass index was observed at 8 weeks but not 4 weeks. Significant improvement on Eating Disorder behaviours was observed at both 4 and 8 weeks.

Boyd, C.[a], ***Abraham, S.***[a], & ***Luscombe, G.***[a] (2007). Exercise behaviours and feeling in eating disorder and non-eating disorder groups. *European Eating Disorders Review, 15*, 112-118.

[a] The University of Sydney, Sydney, New South Wales

In order to evaluate whether exercise and feelings about exercise predict disordered eating, this research compared females with ($n = 287$) and without ($n = 613$) Eating Disorders on exercise behaviours and feelings about exercise. The findings indicate that feelings about exercise yield better predictive utility than actual exercise behaviours.

Bulik, C. M., Hebebrand, J., Keski-Rahkonen, A., Klump, K. L., Reichborn-Kjennerud, T., Mazzeo, S. E., & ***Wade, T. D.***[a] (2007). Genetic epidemiology, endophenotypes, and eating disorder classification. *International Journal of Eating Disorders, 40*, S52-S60.

[a] Flinders University, Adelaide, South Australia

This paper reviews and comments on the literature regarding genetic epidemiology, endophenotypes, and Eating Disorder classification. The authors observed that more rigour is needed in defining endophenotypes and subphenotypes for Eating Disorders. They recommend that future research explores the biological mechanisms for Eating Disorders which may inform treatment.

Burrows, M., Shepherd, H., ***Bird, S.***[a], Macleod, K., & Ward, B. (2007). The components of the female athlete triad do not identify all physically active females at risk. *Journal of Sports Sciences, 25*, 1289-1297.

[a] Sunshine Hospital, Melbourne, Victoria

This study examined the diagnostic utility for detecting health problems of the female athlete triad of symptoms (i.e., disordered eating, amenorrhoea, and osteoporosis). A sample of 82 adult females was administered surveys regarding exercise, diet, and menstrual cycle. Physical indicators (e.g., bone density estimates) were also measured. A high rate of disordered eating behaviours was reported for both the present (36%) and past (55%). The authors concluded that the female athlete triad symptom criteria failed to detect all participants who were at risk of long term health problems. They recommend other diagnostic criteria (including disordered eating, menstrual alterations, and osteopaenia).

Cahill, S.[a], & ***Mussap, A. J.***[a] (2007). Emotional reactions following exposure to idealized bodies predict unhealthy body change attitudes and behaviours in women and men. *Journal of Psychosomatic Research, 62*, 631-639.

[a] Deakin University, Melbourne, Victoria

This laboratory experiment examined the relationship between negative emotions resulting from viewing idealised bodies and the incidence of maladaptive attitudes and behaviours regarding body change. Psychological mediators of this relationship were also examined. Both men ($n = 93$) and women ($n = 133$) completed self-report surveys regarding body change attitudes and behaviours and psychological traits. They were then exposed to idealised images of male and female bodies, and their emotional responses were measured. The results indicate that the relationship between negative emotional reactions and maladaptive body change attitudes and behaviours differed between men and women with regard to their emotional responses, psychological traits that mediate this relationship, and body change behaviours.

Carney, T.[a], ***Tait, D.***[b], & ***Touyz, S.***[a] (2007). Coercion is coercion? Reflections on trends in the use of compulsion in treating anorexia nervosa. *Australasian Psychiatry, 15*, 390-395.

[a] The University of Sydney, Sydney, New South Wales
[b] University of Canberra, Canberra, Australian Capital Territory

This observational study records the circumstances in which clinicians utilised legal coercion with patients when treating severe cases of AN. In a sample of 117 patients in an Eating Disorders clinic, legal coercion was used sparingly and was primarily used in association with three factors: the number of prior admissions, presence of co-morbid psychological conditions, and patents' health risk.

Cartwright, F.[a], ***Stritzke, W. G. K.***[a], Durkin, K., ***Houghton, S.***[a], ***Burke, V.***[a], & ***Beilin, L. J.***[a] (2007). Chocolate craving among children: Implications for disordered eating patterns. *Appetite, 48*, 87-95.

[a] University of Western Australia, Perth, Western Australia

This study evaluated the validity of a measure based on a multidimensional ambivalence model (comprising approach, avoidance, and guilt) – the Orientation to Chocolate Questionnaire (OCQ). In a sample of 602 children (53% female; aged 11-13 years) a the OCQ's proposed three-factor model was supported. Some support for the concurrent and discriminant validity of the OCQ was found in the observation of the subscales differential association with eating behaviours (consumption of chocolate and disordered eating).

Colles, S. L.[a], ***Dixon, J. B.***[a], & ***O'Brien, P. E.***[a] (2007). Night eating syndrome and nocturnal snacking: Association with obesity, binge eating and psychological distress. *International Journal of Obesity, 31*, 1722-1730.

[a] Monash University, Melbourne, Victoria

This research investigated the associations between night eating syndrome (NES) and BED (BED), obesity, and psychological distress. Three groups were compared: 180 people considering bariatric surgery; 93 people attending a weight-loss group, and; 158 general community members. NES and binge eating episodes were examined via interview; self-report measures assessed BED, appearance dissatisfaction, depression, and mental health-related quality of life. Diagnostic criteria for NES were evidenced in 11.1% of respondents. High psychological distress was reported by those with binge eating, co-morbid NES and binge eating, but not NES alone.

Connolly, A. M.[a], ***Rieger, E.***[a], & ***Caterson, I.***[a] (2007). Binge eating tendencies and anger coping: Investigating the confound of trait neuroticism in a non-clinical sample. *European Eating Disorders Review, 15*, 479-486.

[a] The University of Sydney, Sydney, New South Wales

The relationship between binge eating and suppression of anger was re-examined by the inclusion of trait neuroticism as a potential confound. In a cross-sectional sample of 140 non-clinical women the significant relationship between binge eating behaviours and anger in expression was in part due to trait neuroticism (specifically, the depressed affect and impulsiveness facets).

Darby, A.[a], ***Hay, P.***[a], ***Mond, J.***[a], ***Rodgers, B.***[b], & ***Owen, C.***[b] (2007). Disordered eating behaviours and cognitions in young women with obesity: Relationship with psychological status. *International Journal of Obesity, 31*, 876-882.

[a] James Cook University, Townsville, Queensland
[b] Australian National University, Canberra, Australian Capital Territory

The incidence of and relationships between obesity and Eating Disorder behaviours and psychological distress where examined in a community sample of 4891 young women (18-42 years of age) from the Australian Capital Territory. Six hundred and thirty respondents were classified as obese. Compared with women of healthy weight, obese women reported significantly greater incidence of Eating Disorder behaviours. For the obese subsample, psychological distress was predicted by concerns about eating, weight and shape, plus dietary restraint and being younger in age.

Elbourne, K. E.[a], & ***Chen, J.***[b] (2007). The continuum model of obligatory exercise. A preliminary investigation. *Journal of Psychosomatic Research, 62*, 73-80.

[a] The University of Sydney, Sydney, New South Wales
[b] University of New South Wales, Sydney, New South Wales

This study tested a structural equation model of the Continuum Model of Obligatory Exercise in a sample of female triathletes. Support was found for many elements of this model which suggests relationships between attitudes towards exercise, weight, and shape, obsessive compulsive tendencies and Eating Disorder behaviour.

Evans, L.[a], & ***Stukas, A. A.***[a] (2007). Self-verification by women and responses of their partners around issues of appearance and weight: "Do I look fat in this?". *Journal of Social and Clinical Psychology, 26*, 1163-1188.

[a] La Trobe University, Melbourne, Victoria

This study examined the hypothesised tendency in body dissatisfied women to seek self-verification regarding their weight and appearance. Anonymous questionnaires were completed by 41 male-female couples. Females' desires for appearance-related negative feedback were predicted by body dissatisfaction and eating problems after controlling for body mass index, length of relationship and depression. Women's desires for negative appearance-related feedback predicted their partner providing this feedback.

Hay, P.[a], ***Darby, A.***[a], & ***Mond, J.***[a] (2007). Knowledge and beliefs about bulimia nervosa and its treatment: A comparative study of three disciplines.
Journal of Clinical Psychology in Medical Settings, 14, 59-68.

[a] James Cook University, Townsville, Queensland

Health professionals' mental health literacy regarding BN was examined in a cross-sectional survey of dietitians (*n* = 136), psychologists (*n* = 68), and counsellors (*n* = 97). An online survey presented a vignette of a woman with bulimic symptoms. Approximately half (49%) of respondents specified that she had BN, and one in five respondents (20%) made the more general proposition that she had an Eating Disorder.

Heilbronn, L. K.[a], ***Milner, K. L.***[a], ***Kriketos, A.***[b], ***Russell, J.***[c], & ***Campbell, L. V.***[a] (2007). Metabolic dysfunction in anorexia nervosa. *Obesity Research and Clinical Practice, 1*, 139-146.

[a] Garvan Institute for Medical Research, Darlinghurst, New South Wales
[b] University of Melbourne, Melbourne, Victoria
[c] The University of Sydney, Sydney, New South Wales

This study aimed to determine physiological mechanisms by which AN self-perpetuates, which may inform treatment. Metabolic responses to exercise and glucose were studied in a sample of 7 healthy women and in 10 women with AN. Data were collected both before and after a 6-week weight-gain program for AN. The AN patients did not significantly increase in weight. The metabolic analyses suggest that at rest, women with AN appear to be more metabolically healthy; however in response to exercise they exhibited different metabolic processes to the control participants.

Heinicke, B. E.[a], ***Paxton, S. J.***[a], ***McLean, S. A.***[a], & ***Wertheim, E. H.***[a] (2007). Internet-delivered targeted group intervention for body dissatisfaction and disordered eating in adolescent girls: A randomized controlled trial. *Journal of Abnormal Child Psychology, 35*, 379-391.

[a] La Trobe University, Melbourne, Victoria

An internet-based group treatment program for eating and body image problems (comprising six 1.5-hour sessions) was evaluated in a randomised controlled trial. Adolescent girls with eating and body image problems were randomised to the treatment (*n* = 36) or a wait-list (*n* = 37). At post-intervention and follow-up measures of disordered eating, body dissatisfaction, and depression exhibited clinically significant improvement.

Hepworth, N.[a], & ***Paxton, S. J.***[a] (2007). Pathways to help-seeking in bulimia nervosa and binge eating problems: A concept mapping approach. *International Journal of Eating Disorders, 40*, 493-504.

[a] La Trobe University, Melbourne, Victoria

This qualitative study aimed to identify factors promoting help-seeking behaviour for binge eating and BN. Sixty three women (aged 18-62 years) were interviewed regarding lifetime incidence of bulimic symptoms. Concept mapping was used to determine factors relevant to problem recognition, barriers and prompts to seeking help. The results indicate a need to reduce stigma and promote awareness of interventions in order to improve help-seeking.

Hutchinson-Phillips, S.[a], ***Gow, K.***[a], & ***Jamieson, G. A.***[b] (2007). Hypnotizability, eating behaviours, attitudes, and concerns: A literature survey.
International Journal of Clinical and Experimental Hypnosis, 55, 84-113.

[a] Queensland University of Technology, Brisbane, Queensland
[b] University of New England, Armidale, New South Wales

This paper reviews the literature relevant to the proposed link between Eating Disorder behaviour and hypnotisability. The research has been confounded by use of measures that do not assess the intended constructs adequately. The use of hypnosis in treatment of Eating Disorders is discussed.

Hutchinson, D. M.[a], & ***Rapee, R. M.***[a] (2007). Do friends share similar body image and eating problems? The role of social networks and peer influences in early adolescence.
Behaviour Research and Therapy, 45, 1557-1577.

[a] Macquarie University, Sydney, New South Wales

The role of adolescent females' peer relationships in Eating Disorder symptoms was evaluated. A community sample of young adolescent females identified 173 friendship groups. A significant association was observed between the Eating Disorder behaviours of individuals within friendship groups (i.e., binging, dieting and extreme weight loss behaviours).

Jackson, T.[a], & Chen, H. (2007). Identifying the eating disorder symptomatic in China: the role of sociocultural factors and culturally defined appearance concerns.
Journal of Psychosomatic Research, 62, 241-249.

[a] James Cook University, Townsville, Queensland

This research examined the role of sociocultural factors and perceived appearance in differentiating the presence of Eating Disorders in Chinese adolescents and young adults. The study compared 42 students who met all DSM-IV diagnostic criteria for an Eating Disorder with 42 subclinical students. The clinical group reported significantly greater perceptions of social pressure, comparison of appearance, and concerns about facial appearance.

Kemps, E.[a], & ***Tiggemann, M.***[a] (2007). Modality-specific imagery reduces cravings for food: An application of the elaborated intrusion theory of desire to food craving.
Journal of Experimental Psychology: Applied, 13, 95-104.

[a] Flinders University, Adelaide, South Australia

This study examined the role of visual and olfactory images in reducing food cravings. Three laboratory experiments were conducted in samples of undergraduate women that involved imaginal food craving induction. The findings indicate that visual or olfactory imagery techniques reduce cravings. The authors discuss this in relation to treating disordered eating populations.

Loxton, N. J.[a], & ***Dawe, S.***[a] (2007). How do dysfunctional eating and hazardous drinking women perform on behavioural measures of reward and punishment sensitivity? *Personality and Individual Differences, 42*, 1163-1172.

[a] Griffith University, Brisbane, Queensland

The role of punishment sensitivity in Eating Disorders was examined. A behavioural measure of sensitivity to punishment and self-report measures of eating behaviours and psychological problems were administered to 131 women. The findings indicate that women with Eating Disorder symptoms are more sensitive than those without Eating Disorder symptoms to environmental threat cues.

Martinez, E., Castro, J., Bigorra, A., Morer, A., Calvo, R., Vila, M., Toro, J., & ***Rieger, E.***[a] (2007). Assessing motivation to change in bulimia nervosa: The Bulimia Nervosa Stages of Change Questionnaire. European Eating Disorders Review, 15, 13-23.

[a] The University of Sydney, Sydney, New South Wales

The validity of a self-report measure was assessed – the Bulimia Nervosa Stages of Change Questionnaire (BNSOCQ) which measures motivation to change. Thirty patients with BN completed the BNSOCQ and measures of Eating Disorder symptoms and depression. The BNSOCQ was found to have good internal consistency and good test-retest reliability (across one week). The BNSOCQ was significantly negatively correlated with Eating Disorder symptoms and depression.

McCabe, M. P.[a], ***Ricciardelli, L. A.***[a], ***Stanford, J.***[a], ***Holt, K.***[a], Keegan, S., & Miller, L. (2007). Where is all the pressure coming from? Messages from mothers and teachers about preschool children's appearance, diet and exercise. *European Eating Disorders Review, 15*, 221-230.

[a] Deakin University, Melbourne, Victoria

This research studied the conveyance to children of concerns regarding body appearance, eating and exercise from their mothers and teachers. Behavioural observation was used to assess 53 children's exercise and eating behaviours. Interviews with 53 mothers and 10 teachers were qualitatively analysed to determine adults' concerns regarding appearance, eating, and exercise. The study found that social messages between parents and children may be influencing children's body image concerns. The authors suggest using education programs to help prevent these problems.

Mond, J.[a], & ***Marks, P.***[b] (2007). Beliefs of adolescent girls concerning the severity and prevalence of bulimia nervosa. *Australian Journal of Psychology, 59*, 87-93.

[a] James Cook University, Townsville, Queensland
[b] Central Sydney Area Health Service, Sydney, New South Wales

This study examined the relationship between adolescent girls' beliefs about BN and their eating disordered behaviour. A vignette describing an adolescent girl with symptoms of BN was presented to 522 high school students who were then asked for their perceptions of the problem's severity and prevalence. It was noted that in comparison with healthy respondents, those with Eating Disorder symptoms perceived BN to be more common and more acceptable.

Mond, J. M.[a], & ***Hay, P. J.***[a] (2007). Functional impairment associated with bulimic behaviours in a community sample of men and women. *International Journal of Eating Disorders, 40*, 391-398.

[a] La Trobe University, Melbourne, Victoria

The relationship between bulimic behaviours and functional impairment was assessed in a community sample 1290 men and 1757 women aged 15-94 years. Greater levels of eating disordered behaviour were associated with increased functional impairment (i.e., "days-out-of-role"). Of note was a significant relationship between functional impairment and concern about weight and shape in women but not men.

Mond, J. M.[a], ***Hay, P. J.***[b], ***Rodgers, B.***[c], & ***Owen, C.***[c] (2007a). Health service utilization for eating disorders: Findings from a community-based study. *International Journal of Eating Disorders, 40*, 399-408.

[a] La Trobe University, Melbourne, Victoria
[b] James Cook University, Townsville, Queensland
[c] Australian National University, Canberra, Australian Capital Territory

This study examined the prior use of and treatment received from health services in 159 women with BN or bulimic symptomatology. A structured interview was used to assess participants' Eating Disorder symptoms, prior utilisation of health services, and treatments received. The findings indicate that women with bulimic symptomatology were infrequently treated for BN, and were more likely to receive treatment for weight loss or a general mental health problem.

Mond, J. M.[a], ***Hay, P. J.***[a], ***Rodgers, B.***[b], & ***Owen, C.***[b] (2007b). Recurrent binge eating with and without the "undue influence of weight or shape on self-evaluation": Implications for the diagnosis of binge eating disorder. *Behaviour Research and Therapy, 45*, 929-938.

[a] James Cook University, Townsville, Queensland
[b] Australian National University, Canberra, Australian Capital Territory

Symptom severity, psychosocial functional impairment, and treatment seeking behaviours were examined in a sample of 110 candidates for BED who did or did not have extreme concerns about shape or weight) in comparison with samples of 457 obese people and 128 Eating Disorder patients. In the BED group, compared to those without extreme weight/shape concerns, those with such concerns reported greater Eating Disorder behaviour and functional impairment. The authors suggest that an additional criterion for BED should be the presence of "undue influence of weight or shape on self-evaluation."

Mond, J. M.[a], ***Hay, P. J.***[a], ***Rodgers, B.***[b], & ***Owen, C.***[b] (2007c). Self-report versus interview assessment of purging in a community sample of women. *European Eating Disorders Review, 15*, 403-409.

[a] James Cook University, Townsville, Queensland
[b] Australian National University, Canberra, Australian Capital Territory

This study evaluated the convergent validity between self-report and interview assessment of purging behaviours. A community sample of 324 women with Eating Disorder symptoms were administered both self-report and interview measures of Eating Disorder symptoms. Forty six respondents reported purging behaviours (vomiting, laxative use) via survey, and 19 of these denied such behaviours via interview.

Mond, J. M.[a], ***Marks, P.***[b], ***Hay, P. J.***[a], ***Rodgers, B.***[c], ***Kelly, C.***[d], ***Owen, C.***[c], & ***Paxton, S. J.***[e] (2007). Mental health literacy and eating-disordered behavior: Beliefs of adolescent girls concerning the treatment of and treatment-seeking for bulimia nervosa. *Journal of Youth and Adolescence, 36*, 753-762.

[a] James Cook University, Townsville, Queensland
[b] Central Sydney Area Health Service, Sydney, New South Wales
[c] Australian National University, Canberra, Australian Capital Territory
[d] Orygen Research Centre, Melbourne, Victoria
[e] La Trobe University, Melbourne, Victoria

This study examined the knowledge of adolescent females regarding Eating Disorders (i.e., their "mental health literacy"). A sample of 522 female secondary school students was presented with a vignette that described an adolescent girl with BN. Respondents were asked questions regarding treatment. The respondents indicated that their preferred aids for help were primary care practitioners, mothers, and close female friends, though respondents did give positive responses regarding treatment from mental health specialists or with medication.

Mond, J. M.[ab], ***Rodgers, B.***[c], ***Hay, P. J.***[ad], ***Darby, A.***[a], ***Owen, C.***[c], ***Baune, B. T.***[a], & ***Kennedy, R. L.***[a] (2007). Obesity and impairment in psychosocial functioning in women: The mediating role of eating disorder features. *Obesity, 15*, 2769-2779.

[a] James Cook University, Townsville, Queensland
[b] La Trobe University, Melbourne, Victoria
[c] Australian National University, Canberra, Australian Capital Territory
[d] University of Western Sydney, Campbelltown, New South Wales

This study examined the proposition that shape/weight concerns and binge eating mediate the relationship between obesity and psychosocial functional impairment. A community sample of 639 obese women and 4253 non-obese women completed self-report surveys. Regression analyses found support for the role of shape/weight concerns, but not binge eating, as mediators of the relationship between obesity and impaired psychosocial functioning.

Moulding, N. T.[a] (2007). "Love your body, move your body, feed your body": Discourses of self-care and social marketing in a body image health promotion program. *Critical Public Health, 17*, 57-69.

[a] University of Adelaide, Adelaide, South Australia

This study critically examines the application of an Australian health promotion program targeting dissatisfaction with body image and prevention of Eating Disorders. Interviews with the health promotion workers that run the program were qualitatively analysed. Dominant themes that emerge are the role of individualised self-care and marketing approaches. A range of challenges are discussed and additional health promotion strategies are considered.

Mussap, A. J.[a] (2007a). Motivational processes associated with unhealthy body change attitudes and behaviours. *Eating Behaviours, 8*, 423-428.

[a] Deakin University, Melbourne, Victoria

This cross-sectional study examined the covariation between sensitivity to reward and punishment and maladaptive body change behaviours and attitudes. A sample of 130 females (aged 18-40 years) was administered self-report surveys. The findings indicate that the relationship between sensitivity to punishment and unhealthy body change behaviours and attitudes was partially mediated by body dissatisfaction.

Mussap, A. J.[a] (2007b). Short Communication: The relationship between feminine gender role stress and disordered eating symptomatology in women. *Stress and Health, 23*, 343-348.

[a] Deakin University, Melbourne, Victoria

This cross-sectional study examined the associations between disordered eating and feminine gender role stress. A sample of 124 females (aged 18-40 years) completed self-report surveys. Eating concern was predicted by respondents' fears about being assertive. Various disordered eating behaviours were correlated with fear of being unattractive. Body dissatisfaction and over control mediated these relationships.

Mussap, A. J.[a] (2007c). Waist-to-hip ratio and unhealthy body change in women. *Sex Roles, 56*(1-2), 33-43.

[a] Deakin University, Melbourne, Victoria

This study examined the role of women's waist-to-hip ratio (WHR) as a predictor of unhealthy body change practices. A cross-sectional sample comprised 143 female university students. While respondents' actual, ideal, and subjective WHR were related to Eating Disorder symptoms, these WHR relationships were dependent on body weight and thus added little clinical significance.

Paxton, S. J.[a], ***McLean, S. A.***[a], ***Gollings, E. K.***[a], ***Faulkner, C.***[a], & ***Wertheim, E. H.***[a] (2007). Comparison of face-to-face and internet interventions for body image and eating problems in adult women: An RCT. *International Journal of Eating Disorders, 40*, 692-704.

[a] La Trobe University, Melbourne, Victoria

This study compared modes of delivery for a clinical intervention for Eating Disorders. A community sample of adult women reporting elevated body dissatisfaction was randomly allocated to one of three conditions: face-to-face ($n = 42$), internet ($n = 37$), or wait-list ($n = 37$). The intervention comprised 8 sessions and was group-based and targeted body dissatisfaction and disordered eating. At post-test both treatment groups reported greater improvement than the control group on body dissatisfaction. The face-to-face condition exhibited more benefit than the internet condition.

Ricciardelli, L. A.[a], ***McCabe, M. P.***[a], ***Williams, R. J.***[b], & Thompson, J. K. (2007). The role of ethnicity and culture in body image and disordered eating among males. *Clinical Psychology Review, 27*, 582-606.

[a] Deakin University, Melbourne, Victoria
[b] The University of Sydney, Sydney, New South Wales

This paper reviewed research examining problems with body image and Eating Disorders in males. The cumulative evidence indicates that compared with Anglo males, men from other cultural/heritage groups exhibit greater binge eating and body change strategies. The authors suggest a range of mediating and moderating variables, including socio-economic status and acculturation.

Russell, J.[abc], ***Hart, S.***[c], & Black, F. (2007). How to treat eating disorders in females. Australian Doctor, 2009(Sep 14), 27-34.

[a] The University of Sydney, Sydney, New South Wales
[b] Royal Prince Alfred Hospital, Sydney, New South Wales
[c] Northside Clinic, Greenwich, New South Wales

For a medical practitioner readership this paper discusses the treatment of Eating Disorders in females, including AN, BN, BED, and EDNOS. A number of topics are discussed, these comprise: outcome and mortality rates, causal theories, diagnosis, treatment and monitoring, a special feature regarding osteoporosis in Eating Disorders, treatments and important management factors (including refeeding syndrome). A number of online resources and professional publications are cited for further reading.

Sallet, P. C., Sallet, J. A., ***Dixon, J. B.***[a], Collis, E., Pisani, C. E., Levy, A., Bonaldi, F. L., & Cordás, T. A. (2007). Eating behavior as a prognostic factor for weight loss after gastric bypass. *Obesity Surgery, 17*, 445-451.

[a] Monash University, Melbourne, Victoria

This study examined the clinical predictive utility of BED symptoms in weight loss for obese women after bariatric surgery. A sample of 216 obese patients was classified as non-binge eating, sub-threshold BED, or BED. Their weight loss was followed across time following bariatric surgery and during a weight loss program, with long-term follow-up at 1, 2, and 3 years. While there was no significant difference between the sub-threshold and BED participants, non-binge eating participants lost significantly more weight at 2-year follow-up.

Schutz, H. K.[a], & ***Paxton, S. J.***[b] (2007). Friendship quality, body dissatisfaction, dieting and disordered eating in adolescent girls. *British Journal of Clinical Psychology, 46*, 67-83.

[a] University of Melbourne, Melbourne, Victoria
[b] La Trobe University, Melbourne, Victoria

Adolescent girls' disordered eating and body dissatisfaction was examined in relation to peer relationships. A sample of 324 grade 10 females responded to self-report surveys. Significant relationships were found between negative (but not positive) friendship qualities and disordered eating and body dissatisfaction.

Seibel, M. J.[a] (2007). Bone turnover in nutrition-related disorders. *Wiener Medizinische Wochenschrift, 157*, 582-588.

[a] The University of Sydney, Sydney, New South Wales

This paper highlights the problem of detrimental changes in bone structure in Eating Disorders such as AN and during weight loss in obese people. Biochemical markers are presented as non-invasive methods for assessing bone resorption and bone renewal.

Soh, N. L. W.[ab], ***Touyz, S.***[cd], ***Dobbins, T. A.***[c], Surgenor, L. J., ***Clarke, S.***[ce], ***Kohn, M. R.***[f], Lee, E. L., Leow, V., ***Rieger, E.***[c], Ung, K. E. K., & ***Walter, G.***[ac] (2007). Restraint and eating concern in North European and East Asian women with and without eating disorders in Australia and Singapore. *Australian and New Zealand Journal of Psychiatry, 41*, 536-545.

[a] Northern Sydney and Central Coast Area Health Service, Sydney, New South Wales
[b] Coral Tree Family Service, North Ryde, New South Wales
[c] The University of Sydney, Sydney, New South Wales
[d] Peter Beaumont Centre for Eating Disorders, Ashfield, New South Wales
[e] Westmead Hospital, Sydney, New South Wales
[f] Children's Hospital at Westmead, Sydney, New South Wales

In various cultural groups in Australia and Singapore this study examines eating concern, dietary restraint, and Eating Disorders in young women. A sample of 154 females completed self-report surveys. The findings indicate that eating disordered individuals had common psychopathology regardless of cultural group. The authors further note that symptoms of eating concern extend across cultures.

Steele, A.[a], ***Corsini, N.***[a], & ***Wade, T. D.***[a] (2007). The interaction of perfectionism, perceived weight status, and self-esteem to predict bulimic symptoms: The role of 'benign' perfectionism. *Behaviour Research and Therapy, 45*, 1647-1655.

[a] Flinders University, Adelaide, South Australia

This study examined a predictive model of bulimic symptoms for purposes of replication. The model described the interaction of self-esteem, perceived weight, and global perfectionism in predicting bulimic symptoms. A sample of 95 female university students was followed across 3 months. The development of bulimic symptoms was predicted by 'benign' perfectionism most strongly in women with high self esteem who perceived themselves as overweight.

Stein, R. I., ***Kenardy, J.***[a], Wiseman, C. V., Dounchis, J. Z., Arnow, B. A., & Wilfley, D. E. (2007). What's driving the binge in binge eating disorder?: A prospective examination of precursors and consequences. *International Journal of Eating Disorders, 40*, 195-203.

[a] University of Queensland, Brisbane, Queensland

This longitudinal observational study aimed to assess the antecedents and consequences of binge eating behaviour in those with BED. A sample of 33 women diagnosed with BED was monitored via experiential sampling using self-report in response to handheld computer prompts. The results indicate that before binges, hunger and negative mood were significantly elevated, while after binges negative mood was higher than before binging.

Surgenor, L., ***Soh, N.***[a], ***Touyz, S.***[b], & ***Walter, G.***[ab] (2007). Eating disorders across two cultures: Does the expression of psychological control vary? *Australian and New Zealand Journal of Psychiatry, 41*, 351-358.

[a] Northern Sydney Central Coast Area Health Service, Sydney, New South Wales
[b] The University of Sydney, Sydney, New South Wales

This research aimed to determine if psychological control style in relation to Eating Disorder symptoms vary across cultures. A sample of 117 women from two cultures (North European and Chinese Singaporean) from two countries (Australia and Singapore) were sampled and compared in groups who had no Eating Disorder, AN, BN, or EDNOS. Self-report measures of control were similar across cultural groups for non-eating disordered respondents, however psychological control differed between cultural groups for those with Eating Disorders.

Surgenor, L. J., ***Maguire, S.***[ab], ***Russell, J.***[cd], & ***Touyz, S.***[ab] (2007). Self-liking and self-competence: Relationship to symptoms of anorexia nervosa. *European Eating Disorders Review, 15*, 139-145.

[a] The University of Sydney, Sydney, New South Wales
[b] The Peter Beaumont Centre for Eating Disorders, Sydney, New South Wales
[c] Northside Clinic, Sydney, New South Wales
[e] Royal Prince Alfred Hospital, Sydney, New South Wales

This study investigates the role of self-competence and self-liking as two facets of self-esteem that are predictive of clinical outcomes in the treatment of AN. A sample of 77 women with AN was monitored across a treatment episode. Self-competence and self-liking predicted different psychological variables associated with pathology. Furthermore, changes across treatment in patients' motivation to be thin were associated with changes in self-competence and self-liking.

Swinbourne, J. M.[a], & ***Touyz, S. W.***[ab] (2007). The co-morbidity of eating disorders and anxiety disorders: A review. *European Eating Disorders Review, 15*, 253-274.

[a] The University of Sydney, Sydney, New South Wales
[b] Peter Beaumont Centre for Eating Disorders, Sydney, New South Wales

This paper reviewed the literature regarding co-morbid anxiety disorders and Eating Disorders. The authors found inconsistent findings in the extant research. They critically review methodological limitations and highlight areas for further research.

Wade, T. D.[a] (2007). A retrospective comparison of purging type disorders: Eating disorder not otherwise specified and bulimia nervosa. *International Journal of Eating Disorders, 40*, 1-6.

[a] Flinders University, Adelaide, South Australia

This research compared the severity of retrospectively reported Eating Disorder symptomatology across diagnostic groups. Women with the purging form of BN (BN-P) were compared with women diagnosed with EDNOS-purging subtype (EDNOS-P) and healthy controls. The authors conclude that those with EDNOS-P exhibited clinically significant symptomatology that represented a mid-point between the BN-P and control groups.

Wade, T. D.[a], & Bulik, C. M. (2007). Shared genetic and environmental risk factors between undue influence of body shape and weight on self-evaluation and dimensions of perfectionism. *Psychological Medicine, 37*, 635-644.

[a] Flinders University, Adelaide, South Australia

This research examined a model of the role of perfectionism in AN and BN. This model proposes that AN and BN share a common cause in environmental and genetic risk factors. A cross-sectional sample of 1002 female adult twins was obtained. The findings did not support the common cause model, but rather suggested independent etiological pathways regarding perfectionism in the cognitive diagnostic criterion for Eating Disorders.

Wade, T. D.[a], ***Gillespie, N.***[b], & ***Martin, N. G.***[b] (2007). A comparison of early family life events amongst monozygotic twin women with lifetime anorexia nervosa, bulimia nervosa, or major depression. *International Journal of Eating Disorders, 40*, 679-686.

[a] Flinders University, Adelaide, South Australia
[b] Queensland Institute of Medical Research, Brisbane, Queensland

The role of early familial experiences was explored in association with BN, AN, and major depression. Participants comprised a community sample of 622 monozygotic female twins. The results indicate both similarity and disparity in the early familial experiences of those with each disorder. Among other findings, greater parental expectations were associated with BN, while higher paternal protection was related to AN.

Wallis, A.[a], ***Rhodes, P.***[a], ***Kohn, M.***[a], & ***Madden, S.***[a] (2007). Five-years of family based treatment for anorexia nervosa: The Maudsley Model at the Children's Hospital at Westmead. *International Journal of Adolescent Medicine and Health, 19*, 277-283.

[a] Children's Hospital at Westmead, Sydney, New South Wales

This paper reports on the use of the Maudsley Model for treatment of AN at the Children's Hospital at Westmead in Sydney. Across the five years that the program has been utilised, the authors report decreased rates of readmission as well as positive changes in the experiences of the health professionals and patient families. The use of the Maudsley model at the Children's Hospital at Westmead is described.

Zehle, K.[a], ***Wen, L. M.***[a], ***Orr, N.***[a], & ***Rissel, C.***[a] (2007). "It's not an issue at the moment": A qualitative study of mothers about childhood obesity. MCN The American *Journal of Maternal/Child Nursing, 32*, 36-41.

[a] Sydney South West Area Health Service, Liverpool, New South Wales

This paper explores mothers' perceptions of their children's obesity. Sixteen mothers with children aged 0-2 years were interviewed, and thematic analysis was employed. Five main themes were found, that related to eating habits, activity behaviours, age group differences, information sources and response to information.

2006

Abraham, S. F.[a], ***Brown, T.***[a], ***Boyd, C.***[a], ***Luscombe, G.***[a], & ***Russell, J.***[a] (2006). Quality of life: Eating disorders. *Australian and New Zealand Journal of Psychiatry, 40*, 150-155.

[a] The University of Sydney, Sydney, New South Wales

The correlates and predictive utility of the Quality of Life for Eating Disorders (QOL ED) survey was assessed in a sample of Eating Disorder inpatients whose diagnoses included AN, BN, EDNOS and no diagnosis (recovered). The QOL ED exhibited good reliability, differentiated recovered from symptomatic patients, showed improvement across the course of treatment and showed convergent validity with measures of Eating Disorders, psychological distress and general quality of life.

Abraham, S. F.[a], ***Hart, S.***[a], ***Luscombe, G.***[a], & ***Russell, J.***[a] (2006). Fluid intake, personality and behaviour in patients with eating disorders. *Eating and Weight Disorders, 11*, e30-e34.

[a] The University of Sydney, Sydney, New South Wales

This study examined the association between fluid intake and eating disordered behaviour, personality traits, and mood in Eating Disorder patients. Patients with Eating Disorders ($N = 112$) were monitored across one week. Eating disordered behaviour but not personality or mood was associated with fluid intake.

Abraham, S. F.[a], ***Pettigrew, B.***[ab], ***Boyd, C.***[ab], & ***Russell, J.***[bc] (2006). Predictors of functional and exercise amenorrhoea among eating and exercise disordered patients. *Human Reproduction, 21*, 257-261.

[a] Royal North Shore Hospital, Sydney, New South Wales
[b] The University of Sydney, Sydney, New South Wales
[c] Department of Psychological Medicine, Sydney, New South Wales

This longitudinal study examined the predictors of amenorrhoea in patients with disordered eating and exercise behaviours. A total of 268 female patients (aged 16-40 years) were assessed at two time points – hospital admission and one year follow-up. Amenorrhoea was predicted by self-reported emotional or behavioural disturbances regarding body weight/shape control.

Baird, D. T., Cnattingius, S., Collins, J., Evers, J. L.H. , Glasier, A., Heitmann, B. L., ***Norman, R.***[a], Ong, K. K., Sunde, A., Cohen, J., Cometti, B., Crosignan, P. G., Devroey, P., Diczfalusy, E., Diedrich, K., Fraser, L., Gianaroli, L., Liebaers, I., Mautone, G., Tarlatzis, B., Ragni, G., & Van Steirteghem, A. (2006). Nutrition and reproduction in women. *Human Reproduction Update, 12*, 193-207.

[a] Research Centre for Reproductive Health and Repromed., Department of Obstetrics and Gynecology, Reformed Pty. Ltd.

This paper discusses the influence on fertility of Eating Disorders and obesity. Biological and metabolic processes are described in relation to detrimental outcomes.

Colles, S. L.[a], & ***Dixon, J. B.***[a] (2006). Night eating syndrome: Impact on bariatric surgery. *Obesity Surgery, 16*, 811-820.

[a] Monash University, Melbourne, Victoria

This paper discusses night eating syndrome (NES), which has high incidence in those with obesity. Evidence is reviewed for NES as a predictor of poor prognosis for weight loss in obese people. By reviewing the literature, suggestions for future research are made, including clarifying the psychological and behavioural components of NES.

Crisp, A., Gowers, S., Joughin, N., McClelland, L., Rooney, B., Nielsen, S., Bowyer, C., Halek, C., ***Hartman, D.***[a], Tattersall, M., Hugo, P., Robinson, D., Atkinson, R., & Clifton, A. (2006a). 1.5. Anorexia nervosa in males: Similarities and differences to anorexia nervosa in females. *European Eating Disorders Review, 14*, 163-167.

[a] James Cook University, Townsville, Queensland

This paper reviews case reports from a number of publications regarding males with AN. The authors also re-analyse case history data from 1960 to 1995 comprising 62 males and 751 females with AN. The conclude that AN presents similarly in males and females.

Crisp, A., Gowers, S., Joughin, N., McClelland, L., Rooney, B., Nielsen, S., Bowyer, C., Halek, C., ***Hartman, D.***[a], Tattersall, M., Hugo, P., Robinson, D., Atkinson, R., & Clifton, A. (2006b). 1.6. Death, survival and recovery in anorexia nervosa: A thirty five year study. *European Eating Disorders Review, 14*, 168-175.

[a] James Cook University, Townsville, Queensland

This paper examines the long-term mortality and recovery rates of individuals with AN seeking treatment at two UK hospitals, Middlesex Hospital and St George's Hospital across 35 years. A range of clinical observations are reported, including data regarding incidence, mortality rate, treatment efficacy and causes of death.

Donovan, C. L.[a], ***Spence, S. H.***[b], & ***Sheffield, J. K.***[a] (2006). Investigation of a model of weight restricting behaviour amongst adolescent girls. *European Eating Disorders Review, 14*, 468-484.

[a] University of Queensland, Brisbane, Queensland
[b] Macquarie University, Sydney, New South Wales

This research investigated predictors of weight restricting behaviour (WRB) in a sample of 1207 adolescent girls (aged 12 – 14 years). Self-report data were collected in three waves across 12 months. Cross-sectional predictors of WRB were body dissatisfaction and pre-occupation with weight. Longitudinal predictors of WRB comprised only body dissatisfaction.

Endacott, R.[a], ***Kidd, S.***[b], ***Deacon-Crouch, M.***[a], ***Judd, F.***[cd], ***Menzel, M.***[cd], & ***Cornett, M.***[e] (2006). Developing new services for eating disorders: An evaluation study. *Australasian Psychiatry, 14*, 57-62.

[a] La Trobe University, Bendigo, Victoria
[b] Bendigo Community Mental Health, Bendigo, Victoria
[c] Monash University, Melbourne, Victoria
[d] Bendigo Health Care Group, Bendigo, Victoria
[e] GP Association of Geelong, Geelong, Victoria

The purpose of this research was to evaluate the service provision in two Australian Eating Disorder clinics. Interviews and questionnaires were administered to stakeholders and service provision data were collected cross a period of four years. Barriers to service provision that were identified included unrealistic expectations and difficulties regarding capacity building. Elements promoting success that were identified included effective communication, using credible clinicians, and providing a local service.

Finch, M.[ab], ***Sutherland, R.***[ab], ***Harrison, M.***[a], & ***Collins, C.***[b] (2006). Canteen purchasing practices of year 1-6 primary school children and association with SES and weight status. Australian and New Zealand *Journal of Public Health, 30*, 247-251.

[a] Hunter Population Health, Wallsend, New South Wales
[b] University of Newcastle, Newcastle, New South Wales

This study aimed to identify the eating behaviours of school children during school. A sample of 5,206 primary school students (from grades 1-6 in 16 schools) participated in this cross-sectional study. The findings indicate that while most children bring food from home for lunch and recess, most children also purchase canteen food and drink that is less healthy.

Frayne, A.[a], & ***Wade, T. D.***[a] (2006). A comparison of written emotional expression and planning with respect to bulimic symptoms and associated psychopathology. *European Eating Disorders Review, 14*, 329-340.

[a] Flinders University, Adelaide, South Australia

This randomised controlled trial aimed to evaluate the efficacy of using an emotional expressive writing task (Permebaker's paradigm) to benefit bulimic symptoms and related psychological disturbances. A sample of 98 female university students were randomly allocated to one of two writing tasks that were conducted in three sessions across one week: writing about past trauma (treatment) or about future planning (control). Data were collected at pre-test and 10 weeks after. Contrary to expectations the future planning condition exhibited better outcomes over time for disordered eating and ineffectiveness.

Frydrych, A. M.[a], ***Davies, G. R.***[a], & ***McDermott, B. M.***[a] (2006). Eating disorders and oral health. Essst√∂rungen und orale gesundheit, 9, 32-43.

[a] University of Western Australia, Perth, Western Australia

This paper reviews recent literature regarding the oral health problems associated with Eating Disorders. Oral health problems related to Eating Disorders include dental destruction, biochemical abnormalities, and parotid swelling. The authors cite a dearth of published research examining the oral sequelae of Eating Disorders.

Gollings, E.[a], & ***Paxton, S. J***.[b] (2006). Comparison of internet and face-to-face delivery of a group body image and disordered eating intervention for women: A pilot study. *Eating Disorders, 14*, 1-15.

[a] ***University of Melbourne, Melbourne, Victoria***
[b] ***La Trobe University, Melbourne, Victoria***

This pilot study examined a group intervention targeting disordered eating and body dissatisfaction in women that was delivered via two modes: face-to-face and on the internet. Women seeking treatment for disordered eating or body image concerns were randomly assigned to two conditions, face-to-face delivery ($n = 19$) or internet delivery ($n = 21$). At post-test and 2-month follow-up, both groups showed significant improvement on measures of disordered eating, body dissatisfaction, and psychological outcomes. However the two conditions did not significantly differ.

Gunstad, J., ***Schofield, P.***[a], Paul, R. H., Spitznagel, M. B., Cohen, R. A., ***Williams, L. M.***[bc], ***Kohn, M.***[bd], & ***Gordon, E.***[bce] (2006). BDNF Val66Met polymorphism is associated with body mass index in healthy adults. *Neuropsychobiology, 53*, 153-156.

[a] ***University of New South Wales, Sydney, New South Wales***
[b] ***Westmead Hospital, Sydney, New South Wales***
[c] ***The University of Sydney, Sydney, New South Wales***
[d] ***Children's Hospital at Westmead, Sydney, New South Wales***
[e] ***Brain Resource Company, Paddington, New South Wales***

This study investigated whether a genetic factor (the Met-Met genotype) found in Eating Disorders is also found in healthy individuals with low body mass index (BMI). A sample of 481 healthy adults aged 18 to 82 years was examined. Analysis of covariance was used to control for gender in examining the BMI of three genotypes – Met-Met, Val-Val, and Val-Met. The results indicate that significantly lower BMI was instanced in those with the Met-Met genotype compared with the other genotypes.

Hanna, A. C.[a], & ***Bond, M. J.***[a] (2006). Relationships between family conflict, perceived maternal verbal messages, and daughters' disturbed eating symptomatology. *Appetite, 47*, 205-211.

[a] ***Flinders University, Adelaide, South Australia***

This study examined the relationships between Eating Disorder symptoms, family conflict, and daughters' perceptions of weight/shape communications from their mothers. A sample of 315 female students at secondary school and university (aged 14 to 28) was asked to complete self-report measures of the aforementioned variables. BMI was also recorded and entered as a covariate. The results indicate that Eating Disorder symptoms are more strongly predicted by the frequency of negative messages than by family conflict.

Hasking, P. A.[ab] (2006). Reinforcement sensitivity, coping, disordered eating and drinking behaviour in adolescents. *Personality and Individual Differences, 40*, 677-688.

[a] ***Monash University, Melbourne, Victoria***
[b] ***Bond University, Gold Coast, Queensland***

Adolescents' attitudes regarding eating and drinking behaviours were investigated in relation to reinforcement sensitivity and coping strategies. In a sample of 347 adolescents, the association between reward sensitivity and eating attitudes was moderated by non-productive coping strategies. Furthermore, the association between behavioural inhibition and eating attitudes was mediated by non-productive coping strategies.

Heywood, S.[a], & ***McCabe, M. P.***[a] (2006). Negative affect as a mediator between body dissatisfaction and extreme weight loss and muscle gain behaviours. *Journal of Health Psychology, 11*, 833-844.

[a] Deakin University, Melbourne, Victoria

This purpose of this research was to determine whether the association between body dissatisfaction and body change strategies is mediated by positive and negative affect. In a young adult sample of 97 females and 93 males, both genders exhibited a relationship between body dissatisfaction and body change strategies. However only in females was this relationship moderated by negative affect.

Hillege, S.[a], ***Beale, B***.[b], ***& McMaster, R.***[a] (2006). Impact of eating disorders on family life: Individual parents' stories. *Journal of Clinical Nursing, 15*, 1016-1022.

[a] Australian Catholic University, North Sydney, New South Wales
[b] University of Western Sydney, Campbelltown, New South Wales

In an effort to cover a dearth of research regarding how Eating Disorders affect family life, interviews were conducted with parents (19 mothers, 3 fathers) of children with Eating Disorders. A qualitative analysis identified the following themes: parents' inability to cope, financial effects, family unification or disintegration, significant others' inconsiderate comments, and social isolation.

Honey, A.[a], ***Clarke, S.***[b], ***Halse, C.***[a], ***Kohn, M.***[c], ***& Madden, S.***[c] (2006). The influence of siblings on the experience of anorexia nervosa for adolescent girls. *European Eating Disorders Review, 14*, 315-322.

[a] University of Western Sydney, Penrith South, New South Wales
[b] Westmead Hospital, Sydney, New South Wales
[c] Children's Hospital at Westmead, Sydney, New South Wales

The influence of siblings on the experiences of adolescent girls with AN was the focus of this research. A sample of 24 adolescents and their parents were interviewed. Qualitative analysis comprised constant comparative methods. The results suggest that sufferers of AN can be both beneficially and detrimentally influenced by their siblings with regard to siblings' family presence, influence on the parents, and reaction to the illness.

Honey, A.[a], & ***Halse, C.***[a] (2006). The specifics of coping: Parents of daughters with anorexia nervosa. *Qualitative Health Research, 16*, 611-629.

[a] University of Western Sydney, Campbelltown, New South Wales

Parents' experiences of having a daughter with AN were explored in this qualitative study. Parents were asked to describe coping strategies and their responses were compared with conceptual rubrics used in quantitative research. The results indicate that the conceptual templates used in quantitative research may not be adequate because parents reported unique, complex, and multiple motivational attributions.

Jennings, P. S.[a], ***Forbes, D.***[a], ***McDermott, B.***[ab], & ***Hulse, G.***[a] (2006). Acculturation and eating disorders in Asian and Caucasian Australian university students. *Eating Behaviours, 7*, 214-219.

[a] ***University of Western Australia, Perth, Western Australia***
[b] ***University of Queensland, Brisbane, Queensland***

The effects of cultural heritage on Eating Disorder psychopathology were examined in a cross-sectional survey that compared 130 Asian and 110 Caucasian female university students. Participants completed questionnaires regarding Eating Disorder symptomatology and acculturation. The findings indicate that both cultural groups exhibited equal degree of symptomatology and this was not influenced by acculturation.

Jennings, P. S.[a], ***Forbes, D.***[a], ***McDermott, B.***[a], ***Hulse, G.***[a], & ***Juniper, S.***[a] (2006). Eating disorder attitudes and psychopathology in Caucasian Australian, Asian Australian and Thai university students. *Australian and New Zealand Journal of Psychiatry, 40*, 143-149.

[a] ***University of Western Australia, Perth, Western Australia***

The influence of culture on severity of Eating Disorder psychopathology was examined in a cross-sectional survey that compared female university students in Australia (130 Asian Australians, 110 Caucasian Australian), and Thailand (101 Thais). Participants completed questionnaires regarding Eating Disorder symptomatology and attitudes. The findings indicate that those in Thailand had significantly higher Eating Disorder symptomatology than the other groups.

Kemps, E.[a], ***Tiggemann, M.***[a], ***Wade, T.***[a], ***Ben-Tovim, D.***[a], & ***Breyer, R.***[b] (2006). Selective working memory deficits in anorexia nervosa. *European Eating Disorders Review, 14*, 97-103.

[a] ***Flinders University, Adelaide, South Australia***
[b] ***Flinders Medical Centre, Adelaide, South Australia***

This study examined the possible effect of working memory deficits contributing to symptoms of food preoccupation in people with AN. The Double Span Memory task (which examines phonological processing, visuo-spatial processing, and executive control) was administered to 24 females with AN (aged 17-27 years), 24 dieting females, and 24 non-dieting controls. Compared to non-dieters, the dieting and AN groups exhibited significantly worse combined recall. The authors discuss how these deficits may contribute to food preoccupation as well as problems coping with detailed information in therapy.

Loxton, N. J.[a], & ***Dawe, S.***[a] (2006). Reward and punishment sensitivity in dysfunctional eating and hazardous drinking women: Associations with family risk. *Appetite, 47*, 361-371.

[a] ***Griffith University, Brisbane, Queensland***

This cross-sectional study examined the associations between sensitivity to reward and punishment, disordered eating, and problematic drinking. In a sample of 443 female respondents disordered eating was related to both reward sensitivity and punishment sensitivity.

Makino, M.[a], Hashizume, M., Yasushi, M., Tsuboi, K., & ***Dennerstein, L.***[a] (2006). Factors associated with abnormal eating attitudes among female college students in Japan.
Archives of Women's Mental Health, 9, 203-208.

[a] University of Melbourne, Melbourne, Victoria

This cross-sectional study examined the predictors of abnormal eating attitudes in Japanese female college students (*N* = 7812). The significant predictors of abnormal eating attitudes which emerged in a multiple regression analysis were body image distortions, irregular meal times, decreased sleep, greater exercise, and smoking cigarettes.

McCabe, M. P.[a], ***Ricciardelli, L. A.***[a], & Ridge, D. (2006). "Who thinks I need a perfect body?" Perceptions and internal dialogue among adolescents about their bodies. *Sex Roles, 55*, 409-419.

[a] Deakin University, Melbourne, Victoria

This qualitative study investigated the body-related messages perceived by adolescents. In a sample of 40 males and 40 females, interviews were conducted that examined the nature and sources of body-related messages. The results indicate different processes for males and females. While males indicated that they received almost no negative social messages, girls received more negative (as well as positive) messages.

McDermott, B.[a], Forbes, D., Harris, C., McCormack, J., & Gibbon, P. (2006). Non-eating disorders psychopathology in children and adolescents with eating disorders: Implications for malnutrition and symptom severity. *Journal of Psychosomatic Research, 60*, 257-261.

[a] University of Queensland, Brisbane, Queensland

This study compared the incidence of general symptoms of psychopathology in a group of children with Eating Disorders and a group of controls who were mental health outpatients (matched on age and gender). A sample of 109 young people diagnosed with Eating Disorders was compared with 109 controls matched on age and gender. A high rate of co-morbid symptoms of anxiety and depression was found in children and adolescents with Eating Disorders. Illness severity was related to comorbidity, particularly in those with anorexia.

McFerran, K.[a], ***Baker, F.***[b], ***Patton, G.C.***[a], & ***Sawyer, S. M.***[ac] (2006). A retrospective lyrical analysis of songs written by adolescents with anorexia nervosa. *European Eating Disorders Review, 14*, 397-403.

[a] University of Melbourne, Melbourne, Victoria
[b] University of Queensland, Brisbane, Queensland
[c] Royal Children's Hospital, Melbourne, Victoria

This qualitative study retrospectively analysed themes in the lyrics of songs written by adolescents suffering from AN. Content analysis was applied to 17 songs from 15 participants. Six themes were determined *a priori* from the clinical literature. The theme of identity was most frequently reported.

Mond, J.[a], ***Hay, P.***[a], ***Rodgers, B.***[b], & ***Owen, C.***[b] (2006). Self-recognition of disordered eating among women with bulimic-type eating disorders: A community-based study. *International Journal of Eating Disorders, 39*, 747-753.

[a] James Cook University, Townsville, Queensland
[b] Australian National University, Canberra, Australian Capital Territory

This research examined the predictors of self-identification of bulimic eating disordered behaviours in sample of 158 young adult females. Participants were presented a vignette that described an individual with BN, and were asked if they currently exhibit similar symptoms. Those who self-identified problems with their behaviour scored higher on measures of Eating Disorder symptoms and psychological distress.

Mond, J., ***Hay, P.***[a], ***Rodgers, B.***[b], ***Owen, C.***[b], Crosby, R., & Mitchell, J. (2006). Use of extreme weight control behaviours with and without binge eating in a community sample: Implications for the classification of bulimic-type eating disorders. *International Journal of Eating Disorders, 39*, 294-302.

[a] James Cook University, Townsville, Queensland
[b] Australian National University, Canberra, Australian Capital Territory

This study aimed to assist classification of cases of bulimic symptoms that did not meet the diagnostic criteria for BN. In a community sample of 5,232 women, greater functional impairment and psychopathology relating to Eating Disorder symptoms was reported by those with frequent bulimic episodes and by those experiencing both bulimic episodes and extreme weight control practices.

Mond, J. J., ***Hay, P. J.***[a], ***Rodgers, B.***[b], ***Owen, C.***[b], & Mitchell, J. (2006). Correlates of the use of purging and non-purging methods of weight control in a community sample of women. *Australian and New Zealand Journal of Psychiatry, 40*, 136-142.

[a] James Cook University, Townsville, Queensland
[b] Australian National University, Canberra, Australian Capital Territory

In order to assist classification of bulimic symptoms, the relationships between purging status and Eating Disorder psychopathology and functional impairment were examined in a community sample of young women who exhibited frequent binge eating. There were no significant differences between those who purged and those who did not (although trends were observed). Functional impairment was predicted by the frequency of extreme dietary restriction.

Mond, J. M., ***Hay, P. J.***[a], ***Rodgers, B.***[b], & ***Owen, C.***[b] (2006a). Eating Disorder Examination Questionnaire (EDE-Q): Norms for young adult women. *Behaviour Research and Therapy, 44*, 53-62.

[a] James Cook University, Townsville, Queensland
[b] Australian National University, Canberra, Australian Capital Territory

This study aimed to provide normative data for the Eating Disorder Examination Questionnaire (EDE-Q). The reference group was women between the ages of 18 and 42 years from the Australian Capital Territory. The paper presents normative data by age bands for each EDE-Q subscale, and the incidence of Eating Disorders is reported.

Mond, J. M., ***Hay, P. J.***[a], ***Rodgers, B.***[b], & ***Owen, C.***[b] (2006b). An update on the definition of "excessive exercise" in eating disorders research. *International Journal of Eating Disorders, 39*, 147-153.

[a] James Cook University, Townsville, Queensland
[b] Australian National University, Canberra, Australian Capital Territory

This study examined the associations between eating-disordered behavior, exercise behavior, and quality of life (QOL) in order to help define "excessive exercise". A community sample of 3,472 regularly exercising women (aged 18-42) completed self-report measures. The analyses indicate that "excessive exercise" is best defined as exercise that is done for the single purpose of regulating weight/shape or when intense guilt results from forgoing exercise.

Mond, J. M., ***Hay, P. J.***[a], ***Rodgers, B.***[b], ***Owen, C.***[b], & Mitchell, J. E. (2006). Correlates of self-induced vomiting and laxative misuse in a community sample of women. *Journal of Nervous and Mental Disease, 194*, 40-46.

[a] James Cook University, Townsville, Queensland
[b] Australian National University, Canberra, Australian Capital Territory

This study examined the associations of bulimic behaviours with psychological distress and functional impairment. A community sample of 5255 women was surveyed. *Inter alia*, the results suggest that severe psychiatric disturbance is more likely in association with the occurrence of both laxative misuse and self-induced vomiting.

Mond, J. M.[a], Robertson-Smith, G., & Vetere, A. (2006). Stigma and eating disorders: Is there evidence of negative attitudes towards anorexia nervosa among women in the community? *Journal of Mental Health, 15*, 519-532.

[a] James Cook University, Townsville, Queensland

This research aimed to examine negative attitudes in the community regarding AN. A sample of 250 female university students was given a vignette describing an adolescent with AN. Participants were asked a series of questions regarding their perception of the person in the vignette and their knowledge about AN. Respondents' Eating Disorder psychopathology was also measured. The research observed negative attitudes towards sufferers of AN in addition to ambivalence regarding its severity.

Monro, F. J.[a], & ***Huon, G. F.***[a] (2006). Media-portrayed idealized images, self-objectification, and eating behavior. *Eating Behaviours, 7*, 375-383.

[a] University of New South Wales, Sydney, New South Wales

This experiment studied the influence on the eating behaviour of young women of idealised images in the media. A sample of 72 female university students was classified as low and high self-objectifiers. Participants were shown pictures of female models or control pictures, and their eating behaviour was subsequently examined in a taste test. The study found that viewing idealised media models influences eating behaviour, but that this occurred differently for objectifiers and non-objectifiers.

Moulding, N.[a] (2006). Disciplining the feminine: The reproduction of gender contradictions in the mental health care of women with eating disorders. *Social Science and Medicine, 62*, 793-804.

[a] University of Adelaide, Adelaide, South Australia

This study examined the influence of gendered assumptions on the provision of health care for females with Eating Disorders. A sample of Australian health care professionals from various disciplines was interviewed regarding their treatment approaches. Discourse analysis found that in the context of treating AN patients with psychotherapy and bed rest, there was contradictory positioning of patients regarding control and autonomy.

Mussap, A. J.[a] (2006). Reinforcement sensitivity theory (RST) and body change behaviour in males. *Personality and Individual Differences, 40*, 841-852.

[a] Deakin University, Melbourne, Victoria

This study examined the relationship between males' body change behaviours (weight loss and muscle development) of two elements of reinforcement sensitivity - the behavioural approach system (BAS), and the behavioural inhibition system (BIS). In data from a non-clinical sample of 120 adult males (between 18 and 40 years of age), BIS sensitivity predicted weight loss, and BAS sensitivity predicted muscle development. A variety of psychological and social factors mediated these relationships.

Mussap, A. J.[a], & ***Salton, N.***[ab] (2006). A 'rubber-hand' illusion reveals a relationship between perceptual body image and unhealthy body change. *Journal of Health Psychology, 11*, 627-639.

[a] Deakin University, Melbourne, Victoria
[b] Victoria University, Melbourne, Victoria

This study examined the relationship between the 'rubber hand' illusion, body image perceptions, and maladaptive body change behaviours. One hundred and twenty eight male and female volunteers were assessed for susceptibility to the illusion, which involves perceiving physical sensations in one's hand as a result of seeing a prosthetic hand being stimulated. Susceptibility to this illusion was related to maladaptive body change behaviours in males and bulimic symptoms in both genders. The authors suggest that this illusion may be useful as an indicator of patients who are responsive to treatment for inaccurate body perceptions.

Neumark-Sztainer, D., Levine, M., ***Paxton, S.***[a], Smolak, L., Piran, N., ***& Wertheim, E.***[a] (2006). Prevention of body dissatisfaction and disordered eating: What next? *Eating Disorders, 14*, 265-285.

[a] La Trobe University, Melbourne, Victoria

The review paper examines the literature regarding prevention of Eating Disorders. The authors discuss a variety of salient issues, including global vs. specific disorder approaches, environmental approaches, participatory approaches, males, integrated prevention of Eating Disorders and obesity, evaluation of programs, and the utility of our extant knowledge.

Neumark-Sztainer, D., ***Paxton, S. J.***[a], Hannan, P. J., Haines, J., & Story, M. (2006). Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviors in adolescent females and males. *Journal of Adolescent Health, 39*, 244-251.

[a] La Trobe University, Melbourne, Victoria

This longitudinal observational study examined the relationship between body satisfaction and weight management practices in adolescents. A sample of 2516 male and female adolescents was followed across five years. The data suggest that lower body satisfaction is related to unhealthy but not healthy weight management practices.

Parker, G.[a], ***Parker, I.***[b], & ***Brotchie, H.***[b] (2006). Mood state effects of chocolate. *Journal of Affective Disorders, 92*(2-3), 149-159.

[a] University of New South Wales, Sydney, New South Wales
[b] Black Dog Institute, Sydney, New South Wales

This paper reviews the psychological and physiological processes involved in chocolate consumption. In particular this paper evaluates the mood altering properties of chocolate consumption. The psycho-physiological processes involved in emotional eating and food craving are examined. The authors propose that while chocolate consumption can satisfy cravings and thus provide hedonistic reward, it can also prolong dysphoric mood when eaten for comfort to cope with negative emotions.

Rieger, E.[a], & ***Touyz, S.***[a] (2006). An Investigation of the factorial structure of motivation to recover in Anorexia Nervosa using the Anorexia Nervosa stages of change questionnaire. *European Eating Disorders Review, 14*, 269-275.

[a] The University of Sydney, Sydney, New South Wales

The purpose of this study was to evaluate the factor structure of the Anorexia Nervosa Stages of Change Questionnaire (ANSOCQ) which measures readiness to change symptoms of AN. Data were obtained from 115 inpatients with AN. Exploratory factor analysis yielded a three-factor structure comprising factors that related to (a) weight gain, (b) eating, shape and weight concerns, and (c) ego-alien aspects. Evidence for an overarching factor was also found.

Rogers, N. L.[a], Dinges, D. F., Allison, K. C., Maislin, G., Martino, N., O'Reardon, J. P., & Stunkard, A. J. (2006). Assessment of sleep in women with night eating syndrome. *Sleep, 29*, 814-819.

[a] The University of Sydney, Sydney, New South Wales

This laboratory study examined the characteristics of sleep in those with night eating syndrome (NES). Across a 3 day observation period, sleeping behaviour was monitored for 15 women with NES and 14 women without NES. The groups significantly differed on a number of sleep characteristics, including the amount of food consumed at night, amount of stage 2 and 3 sleep, sleep time, and sleep efficacy. The NES instanced poorer outcomes on these variables than the control group. Rather than being a sleep-related Eating Disorder, the authors conclude that NES is a case of sleep maintenance insomnia.

Rushford, N.[a] (2006a). Fear of gaining weight: Its validity as a visual analogue scale in anorexia nervosa. *European Eating Disorders Review, 14*, 104-110.

[a] University of Melbourne, Melbourne, Victoria

This study aimed to validate a visual analogue scale (VAS) for assessing the fear of gaining weight (FGW) criterion of AN. In a sample of 114 AN female inpatients the FGW VAS exhibited adequate reliability, good convergent validity with the Fear of Fat Scale, and a high correlation with the Eating Disorders Inventory.

Rushford, N.[ab] (2006b). Readiness to recover in anorexia nervosa: What does it depend on in female inpatients? *European Eating Disorders Review, 14*, 388-396.

[a] University of Melbourne, Melbourne, Victoria
[b] Royal Melbourne Hospital, Melbourne, Victoria

This research reports on the concurrent predictive validity and correlates of a visual analogue scale (VAS) that measures readiness to recover (RR) in AN patients. The VAR RR was correlated with a variety of AN diagnostic criteria and risk factors, as well as measures of drive for thinness and stages of change.

Ryan, V.[a], Malson, H., ***Clarke, S.***[b], ***Anderson, G.***[b], & ***Kohn, M.***[b] (2006). Discursive constructions of 'eating disorders nursing': An analysis of nurses' accounts of nursing eating disorder patients. *European Eating Disorders Review, 14*, 125-135.

[a] TAFE Counselling, Sydney, New South Wales
[b] Westmead Hospital, Sydney, New South Wales

This research investigated the experiences of nurses caring for children and adolescents with Eating Disorders. Discourse analysis was employed on interview data from 15 nurses. The ways in which nurses construed their role comprised three themes: empathetic or loving support; discipline and surveillance of patients, and; constant care.

Smith, E.[a], & ***Rieger, E.***[a] (2006). The effect of attentional bias toward shape- and weight-related information on body dissatisfaction. *International Journal of Eating Disorders, 39*, 509-515.

[a] The University of Sydney, Sydney, New South Wales

This experiment examined the influence on body dissatisfaction of selective attention towards body shape and weight. An attentional training task was employed with 70 female university students (aged 17-28 years). The results indicate that selectively attending to information about weight or shape affects body dissatisfaction.

Soh, N. L.[a], ***Touyz, S. W.***[a], & Surgenor, L. J. (2006). Eating and body image disturbances across cultures: A review. *European Eating Disorders Review, 14*, 54-65.

[a] The University of Sydney, Sydney, New South Wales

This paper reviews the extant research examining problems with eating and body image across cultures. The authors found a dearth of empirical studies that (a) use the same methodology to compare disordered eating within a cultural group between countries, (b) consider acculturation, and (c) examine psychological control in non-Western cultures.

Stefano, S. C., Bacaltchuk, J., Blay, S. L., & ***Hay, P.***[a] (2006). Self-help treatments for disorders of recurrent binge eating: A systematic review. *Acta Psychiatrica Scandinavica, 113*, 452-459.

[a] James Cook University, Townsville, Queensland

This systematic review examined randomised controlled trials of self-help treatments for BN and BED. A total of 9 studies met the evaluative criteria for this review. All 9 randomised controlled trials of self-help interventions found significant reductions in episodes of binge eating. The authors caution that this literature base is small and call for more research.

Tiggemann, M.[a] (2006). Nonreporting of body mass index: A research note on the interpretation of missing data. International Journal of Eating Disorders, 39, 346-349.

[a] Flinders University, Adelaide, South Australia

This study evaluated the possible reasons for missing data regarding body mass index (BMI) in adolescent school students. In a sample of 1 452 students completing self-report questionnaires regarding Eating Disorder symptomatology and related variables, over 25% of respondents did not provide data for weight or height. Analysis found that missing data were (a) most common for older female students and (b) correlated with worse body image in females but not males. The authors conclude that missing height and weight data were most likely withheld on purpose.

Wade, T. D.[a], ***Bergin, J. L.***[a], ***Martin, N. G.***[b], ***Gillespie, N. A.***[b], & Fairburn, C. G. (2006). A transdiagnostic approach to understanding eating disorders. *Journal of Nervous and Mental Disease, 194*, 510-517.

[a] Flinders University, Adelaide, South Australia
[b] University of Queensland, Brisbane, Queensland

This study aimed to investigate the validity of a transdiagnostic dimensional model of Eating Disorders in a sample of 1 002 female twins. The frequency of lifetime Eating Disorder behaviours (LEDB) was examined. Approximately one third (29%) of women reported one or more LEDBs, and 15.4% met the diagnostic criteria for an Eating Disorder at some point in their life. The frequency of LEDBs was correlated with impaired functioning and was most strongly related to nonshared environment.

Wade, T. D.[a], ***Bergin, J. L.***[a], ***Tiggemann, M.***[a], Bulik, C. M., & Fairburn, C. G. (2006). Prevalence and long-term course of lifetime eating disorders in an adult Australian twin cohort. Australian and New Zealand Journal of Psychiatry, 40, 121-128.

[a] Flinders University, Adelaide, South Australia

This cross-sectional study assessed the lifetime prevalence and course of Eating Disorders (AN, BN, and EDNOS) in a sample of 1002 adult female twins. They report the prevalence rates by disorder and symptom, and conclude that over time clinical Eating Disorders improve to sub-clinical levels; however it is less often that symptoms abate entirely.

Wade, T. D.[a], Crosby, R. D., & ***Martin, N. G.***[b] (2006). Use of latent profile analysis to identify eating disorder phenotypes in an adult Australian twin cohort. *Archives of General Psychiatry, 63*, 1377-1384.

[a] ***Flinders University, Adelaide, South Australia***
[b] ***University of Queensland, Brisbane, Queensland***

This study aimed to disambiguate the profiles and relationships of Eating Disorders, particularly regarding sub-clinical conditions involving bingeing or purging. Latent profile analysis was used on data regarding incidence of lifetime Eating Disorder symptoms and weight from a community sample of 1 002 twins. Five profiles were identified that combined a range of Eating Disorder diagnostic categories. The authors suggest that weight and the severity of Eating Disorder symptoms have more utility in understanding symptom clusters than do Eating Disorder diagnostic categories.

Wilksch, S. M.[a], ***Tiggemann, M.***[a], & ***Wade, T. D.***[a] (2006). Impact of interactive school-based media literacy lessons for reducing internalization of media ideals in young adolescent girls and boys. *International Journal of Eating Disorders, 39*, 385-393.

[a] ***Flinders University, Adelaide, South Australia***

This study examined the effectiveness of administering one ML lesson in decreasing young adolescents' internalisation of media ideals. A sample comprising 237 students from 11 classes was given baseline measures of Eating Disorder risk factors, a single ML class was given, and then media internalisation was assessed. At post-test males scored significantly lower than females on most indices of media internalisation.

Wilsdon, A.[a], & ***Wade, T. D.***[a] (2006). Executive functioning in anorexia nervosa: Exploration of the role of obsessionality, depression and starvation. *Journal of Psychiatric Research, 40*, 746-754.

[a] ***Flinders University, Adelaide, South Australia***

This experiment examined variability of attentional deficits in executive functioning between those with and without AN. Using the Wisconsin card sorting test, a sample of 22 women with AN was compared with two non-eating disordered control groups – women either high ($n = 20$) or low ($n = 21$) in obsessionality. Executive functioning was only significantly different between groups when controlling for depression or obsessionality, in which case the AN group and the high-obsessionality control group exhibited greater attentional perseverance than the low-obsessionality group. In light of these results, the authors call for further research.

2005

Abraham, S. F.[a], ***Pettigrew, B.***[a], ***Boyd, C.***[a], ***Russell, J.***[a], & ***Taylor, A.***[b] (2005). Usefulness of amenorrhoea in the diagnoses of eating disorder patients. *Journal of Psychosomatic Obstetrics and Gynecology, 26*, 211-215.

[a] The University of Sydney, Sydney, New South Wales
[b] Macquarie University, Sydney, New South Wales

This paper evaluates the clinical utility of amenorrhoea as a diagnostic criterion in Eating Disorders. Data regarding eating disordered behaviour, weight and menstrual history from 251 females admitted as Eating Disorder inpatients was reviewed. The authors conclude that amenorrhoea is not useful as a criterion for Eating Disorders because, *inter alia*, it is not always possible to assess and does not support treatment planning.

Banasiak, S. J.[a], ***Paxton, S. J.***[b], & ***Hay, P***[c]**.** (2005). Guided self-help for bulimia nervosa in primary care: A randomized controlled trial. *Psychological Medicine, 35*, 1283-1294.

[a] University of Melbourne, Melbourne, Victoria
[b] La Trobe University, Melbourne, Victoria
[c] James Cook University, Townsville, Queensland

Individuals with Bulimia Nervosa were randomised to either cognitive-behavioural therapy guided self-help or delayed treatment in primary care. Intention-to-treat analyses revealed significant outcomes favouring those that received guided self-help. Treatment benefits were maintained at
3- and 6-months follow-up.

Boyd, C.[a], ***Abraham, S.***[a], & ***Kellow, J.***[a] (2005). Psychological features are important predictors of functional gastrointestinal disorders in patients with eating disorders.
Scandinavian Journal of Gastroenterology, 40, 929-935.

[a] The University of Sydney, Sydney, New South Wales

This study aimed to measure the incidence of comorbid functional gastrointestinal disorders (FGIDs) in patients with Eating Disorders. The sample comprised a total of 101 female patients who were admitted to hospital with AN, BN, or EDNOS. Analyses investigated the relationships between FGIDs observed, eating-disordered attitudes and behaviours, psychological symptoms, and demographic variables. The majority of patients (98%) exhibited at least one FGID, and the most common comorbid FGID was irritable bowel syndrome. A range of psychological traits (somatisation, state and trait anxiety, and neuroticism) predicted the type and number of FGIDs.

Court, J.[a], ***Carr-Gregg, M.***[a], Bergh, C., Brodin, U., Callmar, M., Ejderhamn, J., & Södersten, P. (2005). An innovative treatment programme for anorexia nervosa. *Journal of Paediatrics and Child Health, 41*(5-6), 305-306.

[a] Albert Road Centre for Health, Melbourne, Victoria

This paper describes the case of a treatment-resistant individual with severe AN, an Australian girl, who responded well to an innovative treatment at the Karolinska Institute in Stockholm. This program focuses on re-feeding behaviours (e.g., learning to perceive hunger and satiety), social processes (warm treatment relationships, building social skills), and limiting exercise.

Durkin, S. J.[a], ***Paxton, S. J.***[b], & ***Wertheim, E. H.***[b] (2005). How do adolescent girls evaluate body dissatisfaction prevention messages? *Journal of Adolescent Health, 37*, 381-390.

[a] University of Melbourne, Melbourne, Victoria
[b] La Trobe University, Melbourne, Victoria

This study aimed to evaluate female adolescents' perceptions of messages delivered in Eating Disorder prevention programs, and to rate their relevance and believability. Young adolescent females from grades 7, 8 and 10 provided self-report data at two time points 2 weeks apart, before and after viewing 9 videotaped persuasive messages. The most highly rated messages were (a) media messages are not real, (b) body ideal change across time and cultures, and (c) don't fall for the comparison trap.

Evans, L.[a], ***Kennedy, G. A.***[b], & ***Wertheim, E. H.***[a] (2005). An examination of the association between eating problems, negative mood, weight and sleeping quality in young women and men. *Eating and Weight Disorders, 10*, 245-250.

[a] La Trobe University, Melbourne, Victoria
[b] Victoria University, St. Albans, Victoria

This cross-sectional survey of a non-clinical sample examined the associations between eating problems, mood and sleeping difficulties. A sample of 381 university students of both genders completed self-report measures. Support was found for a model that indicated low mood partially mediated the relationship between symptoms of eating problems predicting poor sleep.

Evans, L.[a], & ***Wertheim, E. H.***[a] (2005). Attachment styles in adult intimate relationships: Comparing women with BN symptoms, women with depression and women with no clinical symptoms. *European Eating Disorders Review, 13*, 285-293.

[a] La Trobe University, Melbourne, Victoria

In order to examine the relationships between women's attachment style with partners and Eating Disorder symptomatology, this research compared various clinical groups. Self-report surveys were administered to women with clinical symptoms of BN ($n = 55$) and subclinical bulimic symptoms ($n = 42$). Two comparison groups were used comprising women without eating problems, but either with depression ($n = 44$) or without depression ($n = 80$). Insecure attachment styles and negative feelings about partners were observed in those with Eating Disorders and depression. In comparison, the healthy control group reported positive attachment and feelings towards their partners.

Favaro, A., Zanetti, T., ***Huon, G.***[a], & Santonastaso, P. (2005). Engaging teachers in an eating disorder preventive intervention. *International Journal of Eating Disorders, 38*, 73-77.

[a] University of New South Wales, Sydney, New South Wales

A preventive program for Eating Disorders in female students was evaluated. The psychoeducational program comprised 9 sessions. Data at 1-year follow-up from 141 female students allocated to either the prevention program or a control group indicated that while there was a significant improvement on self-reported BN symptoms, a number of participants developed clinically significant Eating Disorders across the intervention.

Frydrych, A. M.[a], ***Davies, G. R.***[a], & ***McDermott, B. M.***[b] (2005). Eating disorders and oral health: A review of the literature. *Australian Dental Journal, 50*, 6-15.

[a] University of Western Australia, Perth, Western Australia
[b] University of Queensland, Brisbane, Queensland

This paper reviews recent literature regarding the oral health problems associated with Eating Disorders. Oral health problems related to disordered eating include dental destruction, biochemical abnormalities, and parotid swelling. The authors cite a dearth of published research examining the oral sequelae of Eating Disorders.

Gerner, B.[a], & ***Wilson, P. H.***[a] (2005). The relationship between friendship factors and adolescent girls' body image concern, body dissatisfaction, and restrained eating. *International Journal of Eating Disorders, 37*, 313-320.

[a] RMIT University, Melbourne, Victoria

The social correlates of Eating Disorder risk factors were examined in adolescent girls. Self-report questionnaires were completed by 131 secondary school girls regarding their perceptions of social support, acceptance by friends, intimacy in friendship, and the influence of thinness on friendships and Eating Disorder risk factors. The findings indicate that these friendship variables were significantly related to restrained eating, body image concern and dissatisfaction.

Hallsworth, L.[a], ***Wade, T.***[a], & ***Tiggemann, M.***[a] (2005). Individual differences in male body-image: An examination of self-objectification in recreational body builders. *British Journal of Health Psychology, 10*, 453-465.

[a] Flinders University, Adelaide, South Australia

This study examined differences in self-objectification in men who did or did not engage in body shape altering practices. A cross-sectional sample comprised 31 bodybuilders, 17 weightlifters, and 45 non-athletic males. Compared to controls, bodybuilders reported significantly greater self-objectification, body dissatisfaction, and motivation to become muscular.

Halse, C.[a], ***Boughtwood, D.***[a], ***Clarke, S.***[b], ***Honey, A.***[a], ***Kohn, M.***[c], & ***Madden, S.***[c] (2005). Illuminating multiple perspectives: Meanings of nasogastric feeding in anorexia nervosa. *European Eating Disorders Review, 13*, 264-272.

[a] University of Western Sydney, Bankstown, New South Wales
[b] Westmead Hospital, Sydney, New South Wales
[c] Children's Hospital at Westmead, Sydney, New South Wales

A qualitative examination was conducted of female adolescent patients' construal of nasogastric feeding (NGF). Twenty three patients were interviewed, and four themes emerged. NGF was perceived as: an unpleasant experience; a necessary treatment; an identifier of AN, and; an instance of the struggle for control.

Hart, S.[a], ***Abraham, S.***[ab], ***Luscombe, G.***[a], & ***Russell, J.***[a] (2005). Fluid intake in patients with eating disorders. *International Journal of Eating Disorders, 38*, 55-59.

[a] The University of Sydney, Sydney, New South Wales
[b] Royal North Shore Hospital, Sydney, New South Wales

This paper reports observational data regarding the fluid intake of Eating Disorder inpatients. During intake to hospital, 81 patients were asked to report on the amount and type of fluids consumed in the last 7 days. A wide variety of fluids were consumed, though the most common was water. Greater fluid intake was associated with lower body mass index and greater age.

Hart, S.[ab], ***Twigg, S.***[c], ***Abraham, S.***[bc], & ***Russell, J.***[c] (2005). The practical management of patients with type 1 diabetes requiring in-patient care due to an eating disorder. *Practical Diabetes International, 22*, 165-170.

[a] Northside Clinic, Greenwich, New South Wales
[b] Royal North Shore Hospital, Sydney, New South Wales
[c] The University of Sydney, Sydney, New South Wales

This paper discusses the issue and treatment of Eating Disorders that are co-morbid with type 1 diabetes. The authors review increased health risks of this co-morbidity and discuss strategies for managing the demands of treating both conditions.

Harvey, K.[a], ***Kemps, E.***[a], & ***Tiggemann, M.***[a] (2005). The nature of imagery processes underlying food cravings. *British Journal of Health Psychology, 10*, 49-56.

[a] Flinders University, Adelaide, South Australia

This research evaluated the role of imagery processes in creating food cravings using a working memory task in 60 people who were dieting and 60 people who were not dieting. After being asked to imagine either food or a holiday, participants completed either a visual imagery task or an auditory imagery task. Pre-post assessment of food cravings indicated that cravings were induced by imagining food, and most strongly in dieters. Furthermore, food cravings were more effectively reduced by the visual imagery task than the auditory imagery task. Implications for treating Eating Disorders are discussed.

Hay, P. J.[a], De Angelis, C., Millar, H., & Mond, J. (2005). Bulimia nervosa mental health literacy of general practitioners. *Primary Care and Community Psychiatry, 10*, 103-108.

[a] James Cook University, Townsville, Queensland

In order to evaluate the mental health literacy of general practitioners (GPs) regarding BN, a cross-sectional survey was conducted that used a vignette describing a woman with BN. In the 149 GPs who responded, most (95%) identified the vignette case study as an Eating Disorder, and half (51%) identified it as BN.

Hay, P. J.[a], ***Loukas, A.***[b], & ***Philpott, H.***[b] (2005). Prevalence and characteristics of men with eating disorders in primary care: How do they compare to women and what features may aid in identification? *Primary Care and Community Psychiatry, 10*, 1-6.

[a] James Cook University, Townsville, Queensland
[b] University of Adelaide, Adelaide, South Australia

This cross-sectional study aimed to develop a greater understanding of Eating Disorders in men being treated in primary care facilities. From two general practices a sample of 500 men was randomly selected and asked to complete self-report data regarding Eating Disorder prevalence and features, exercise and weight, co-morbid conditions and treatment sought. Eating disorders were exhibited in 1.2% of this sample, with the most common type being the bulimic form of Eating Disorders Not Otherwise Specified (EDNOS).

Hay, P. J.[a], & Mond, J. (2005). How to 'count the cost' and measure burden? A review of health-related quality of life in people with eating disorders. *Journal of Mental Health, 14*, 539-552.

[a] James Cook University, Townsville, Queensland

This paper systematically reviewed the literature evaluating health-related quality of life (HRQOL) in relation to Eating Disorders. A total of 15 studies were reviewed, and each indicated that HRQOL is negatively impacted by Eating Disorders. However there were mixed findings for AN. *Inter alia*, the authors recommend studies sampling large numbers of community participants.

Hechler, T.[a], Beumont, P., ***Marks, P.***[a], & ***Touyz, S.***[a] (2005). How do clinical specialists understand the role of physical activity in eating disorders. *European Eating Disorders Review, 13*, 125-132.

[a] The University of Sydney, Sydney, New South Wales

This study examined clinicians' knowledge of the relationship between Eating Disorders and physical activity. A sample of 33 specialists was obtained that comprised respondents from a number of countries. The findings indicate that most respondents: consider exercise as an important factor in Eating Disorder symptomatology (84.8%), and; comprehensively assess physical activity (75%).

Highet, N.[a], ***Thompson, M.***[a], & ***King, R. M.***[b] (2005). The experience of living with a person with an eating disorder: The impact on the carers. *Eating Disorders, 13*, 327-344.

[a] National Depression Initiative, Melbourne, Victoria
[b] Deakin University, Geelong, Victoria

The experience of people caring for sufferers of Eating Disorders was studied. In focus groups and interviews a sample of 24 carers discussed their experiences. Important aspects of the experience were the impact on the family and the primary carer, and the lack of acknowledgement of this burden by health professionals.

Honey, A.[a], & ***Halse, C.***[a] (2005). Parents dealing with anorexia nervosa: Actions and meanings. *Eating Disorders, 13*, 353-367.

[a] University of Western Sydney, Sydney, New South Wales

In order to assist clinicians treating AN to work collaboratively with parents, this paper explores the behavioural responses of parents to their children's AN. A range of actions were instanced, including providing emotional and practical support, avoiding confrontation, and pressuring (among others). Importantly, this research found that parents' actions are influenced by how they understand AN (e.g., as a medical illness, a psychological condition, or a mystery).

Hutchinson-Phillips, S.[a], ***Jamieson, G.A.***[b], & ***Gow, K.***[a] (2005). Differing roles of imagination and hypnosis in self-regulation of eating behaviour. *Contemporary Hypnosis, 22*, 171-183.

[a] Queensland University of Technology, Brisbane, Queensland
[b] University of New England, Armidale, New South Wales

This cross-sectional study examined associations between self-regulated eating behaviour and two cognitive processes, imaginative ability and hypnotic ability. A sample of 80 respondents completed self-report measures of eating behaviour, body image perceptions, and both trait and process measures of imaginative ability and hypnotic ability. The results indicate differential associations with eating behaviour of imaginative ability and hypnotic ability.

Jackson, T.[a], Weiss, K. E., Lunquist, J. J., & Soderlind, A. (2005). Sociotropy and perceptions of interpersonal relationships as predictors of eating disturbances among college women: Two prospective studies. *Journal of Genetic Psychology, 166*, 346-359.

[a] James Cook University, Townsville, Queensland

This longitudinal observational study examined the predictive utility for eating disordered behaviour of sociotropy and interpersonal relationship perceptions in female US college students. In two samples of 118 and 138 women, self-report measures were administered at two time points (6 or 10 weeks apart respectively). Data from self-reported Eating Disorder symptoms was regressed on measures of sociotropy and either perceived social support or interpersonal hassles. The results indicate that a significant association existed between eating disturbances and perceptions of interpersonal problems (reduced support and increased hassles), while controlling for sociotropic personality traits and baseline Eating Disorder symptoms.

Jennings, P. S.[a], ***Forbes, D.***[a], ***McDermott, B.***[ab], ***Juniper, S.***[a], & ***Hulse, G.***[a] (2005). Acculturation and eating disorders in Asian and Caucasian Australian adolescent girls. *Psychiatry and Clinical Neurosciences, 59*, 56-61.

[a] University of Western Australia, Perth, Western Australia
[b] Mater Misericordiae Hospital, Brisbane, Queensland

This study examined differences in Eating Disorder risk factors in relation to acculturation in two ethnic groups (Asian and Caucasian) comprising non-clinical adolescent females. Respondents (17 Asian and 25 Caucasian girls aged 14-17 years) were asked to complete self-report measures of Eating Disorder psychopathology, Eating Disorder attitudes, and acculturation. The Asian group reported significantly greater Eating Disorder symptoms, and those within this group who scored lower on acculturation reported higher Eating Disorder psychopathology and problematic attitudes.

Keane, H.[a] (2005). Diagnosing the male steroid user: Drug use, body image and disordered masculinity. *Health, 9*, 189-208.

[a] Australian National University, Canberra, Australian Capital Territory

This paper discusses the issue of steroid use in males. It reviews two discursive frameworks that have emerged in the public health literature to help combat the problem – seeing it as a variant of illicit drug use, or viewing it as a body image disorder. The review argues that both these approaches oversimplify the issue.

Kemps, E.[a], ***Tiggemann, M.***[a], & ***Hart, G.***[a] (2005). Chocolate cravings are susceptible to visuo-spatial interference. *Eating Behaviors, 6*, 101-107.

[a] Flinders University, Adelaide, South Australia

This research examined the utility of a visuo-spatial task in reducing cravings for chocolate in those who did and did not crave chocolate. A sample of 24 cravers and 24 non-cravers viewed and then imagined pictures of chocolate while performing either a visuo-spatial task or an auditory task. Of the two tasks, the visuo-spatial task decreased chocolate cravings more effectively in both groups.

Lewis, V.[ab], & ***Donaghue, N.***[a] (2005). The embeddedness of body image: A study of women with and without eating disorders. *Journal of Applied Biobehavioral Research, 10*, 199-208.

[a] Murdoch University, Perth, Western Australia
[b] University of Canberra, Canberra, Australian Capital Territory

This study examined the relationship between women's body image and well-being. Specifically, it tested the hypothesis that the strength of association between body dissatisfaction and well-being is related to the extent that women view body image as a primary goal and the degree to which body image is perceived as influencing goals in life generally (embeddedness). A non-clinical sample of 161 women completed surveys in a cross-sectional sample. The hypothesis was supported.

Markham, A.[a], ***Thompson, T.***[a], & ***Bowling, A.***[a] (2005). Determinants of body-image shame. *Personality and Individual Differences, 38*, 1529-1541.

[a] University of Tasmania, Hobart, Tasmania

Markham and colleagues examined associations between symptoms of Eating Disorders and shame regarding body image. A pool of 146 undergraduate females (aged 18-25 years) was administered self-report measures. Almost two thirds (62%) of the variability in body-image shame was accounted for by internalisation of a thin ideal, self-worth, body-image esteem, and appearance comparison.

McCabe, M. P.[a], ***Ricciardelli, L.***[a], ***Mellor, D.***[a], & ***Ball, K.***[a] (2005). Media influences on body image and disordered eating among indigenous adolescent Australians. *Adolescence, 40*(157), 115-127.

[a] Deakin University, Melbourne, Victoria

The present study compared Eating Disorder risk factors in Indigenous and non-Indigenous Australian adolescents. Samples comprising equal numbers of male and females were sampled from Indigenous ($n = 50$) and non-Indigenous ($n = 50$) adolescents. Compared with non-Indigenous adolescents, Indigenous adolescents perceived less weight-related health promotion messages, but instanced more body change behaviours (to change weight or muscle mass).

McCabe, M. P.[a], & ***Ricciardelli, L. A.***[a] (2005). A prospective study of pressures from parents, peers, and the media on extreme weight change behaviors among adolescent boys and girls. *Behaviour Research and Therapy, 43*, 653-668.

[a] Deakin University, Melbourne, Victoria

This longitudinal observational study examined the sociocultural predictors of body change strategies in adolescent males and females. Self-report data were collected at three time points across 16 months in a sample of 246 females and 344 males. Across the study's duration, males and females reported increases in extreme weight loss behaviours (to a significantly greater extent in females). Perceived messages from parents, friends, and the media predicted these body change behaviours.

McDermott, B. M.[ab], & Jaffa, T. (2005). Eating disorders in children and adolescents: An update. *Current Opinion in Psychiatry, 18*, 407-410.

[a] University of Queensland, Brisbane, Queensland
[b] Mater Community Services, South Brisbane, Queensland

This paper reviews the prior year's research examining Eating Disorders in children and adolescents. The authors indicate that the research published in 2004 has helped understand bingeing behaviour in adolescents, exercise behaviour in AN, and familial meal habits regarding disordered eating. A number of other topics are discussed, including a new diagnostic method for body composition.

Mond, J. M., ***Hay, P. J.***[a], ***Rodgers, B.***[b], ***Owen, C.***[c], & ***Beumont, P. J. V.***[d] (2005). Assessing quality of life in eating disorder patients. *Quality of Life Research, 14*, 171-178.

[a] James Cook University, Townsville, Queensland
[b] Australian National University, Canberra, Australian Capital Territory
[c] Canberra Hospital, Canberra, Australian Capital Territory
[d] The University of Sydney, Sydney, New South Wales

This survey compared quality of life between various Eating Disorder diagnostic groups. Self-reported health-related quality of life and subjective quality of life were assessed in a community sample of 495 young adult women, and 87 Eating Disorder patients (comprising the purging and restricting subtypes of AN, BED, and BN). In comparison with the control group, those with Eating Disorders reported significantly worse health-related quality of life and subjective quality of life. Differences were noted between Eating Disorder subgroups.

Mondraty, N.[a], Laird Birmingham, C., ***Touyz, S.***[b], ***Sundakov, V.***[c], ***Chapman, L.***[c], & ***Beumont, P.***[b] (2005). Randomized controlled trial of olanzapine in the treatment of cognitions in anorexia nervosa. *Australasian Psychiatry, 13*, 72-75.

[a] Peter Beaumont Eating Disorder Service, Ashfield, New South Wales
[b] The University of Sydney, Sydney, New South Wales
[c] Royal Prince Alfred Hospital, Sydney, New South Wales

This study examined the utility of pharmacotherapy for treating AN rumination in AN patients. Using a randomised controlled trial, this research compared an atypical antipsychotic (olanzapine; $n = 8$) with a comparison pharmacological treatment (chlorpromazine; $n = 7$). The olanzapine group, but not the chlorpromazine group, reported significant improvement in rumination.

O'Dea, J. A.[a] (2005). School-based health education strategies for the improvement of body image and prevention of eating problems: An overview of safe and successful interventions. *Health Education, 105*, 11-33.

[a] The University of Sydney, Sydney, New South Wales

This systematic review examined the research on preventative school-based interventions for body image concerns, Eating Disorders, and obesity. Research regarding 21 programs was evaluated. The authors comment that programs which were more effective included media literacy, self-esteem improvement, involved parents, and were interactive.

Prichard, I.[a], & ***Tiggemann, M.***[a] (2005). Objectification in fitness centers: Self-objectification, body dissatisfaction, and disordered eating in aerobic instructors and aerobic participants. *Sex Roles, 53*(1-2), 19-28.

[a] Flinders University, Adelaide, South Australia

This cross-sectional survey examined Eating Disorder risk factors in female aerobic instructors and female participants of aerobic classes. Self-report data were collected regarding Eating Disorder symptoms, body dissatisfaction, self-objectification, and reason for exercising from females aged 18 to 45 years who either taught aerobics classes ($n = 60$) or attended aerobics classes ($n = 97$). Eating Disorder risk factors (disordered eating, body dissatisfaction, and self-objectification) were significantly lower in aerobics instructors. Furthermore, for aerobics participants, higher self-objectification was related to exercise performed within fitness centres.

Rhodes, P.[ab], ***Baillie, A***.[b], ***Brown, J.***[b], & ***Madden, S.***[a] (2005). Parental efficacy in the family-based treatment of anorexia: Preliminary development of the Parents Versus Anorexia Scale (PVA). *European Eating Disorders Review, 13*, 399-405.

[a] Children's Hospital at Westmead, Sydney, New South Wales
[b] Macquarie University, Sydney, New South Wales

This paper reports the development and preliminary evaluation of a self-report scale that is designed to evaluate the efficacy of parents involved in the Maudsley family-based treatment program for AN - the Parents Versus Anorexia (PVA) Scale. A sample comprising 49 parents of AN patients was assessed. The PVA exhibited good reliability. The concurrent and predictive validity of the PVA was also assessed. Further evaluation is needed.

Rhodes, P.[ab], ***Gosbee, M.***[b], ***Madden, S.***[a], & ***Brown, J.***[c] (2005). 'Communities of concern' in the family-based treatment of anorexia nervosa: Towards a consensus in the Maudsley model. *European Eating Disorders Review, 13*, 392-398.

[a] Children's Hospital at Westmead, Sydney, New South Wales
[b] Westmead Hospital, Sydney, New South Wales
[c] Macquarie University, Sydney, New South Wales

This study describes the Maudsley family-based treatment model for AN and reviews the extant randomised controlled trials that have demonstrated the efficacy of this intervention. The paper recounts the development of a multiple family therapy format, and proposes that a useful approach may be a community-based strategy that combines principles from the Maudsley approach and narrative therapy.

Rhodes, P.[a], & ***Madden, S.***[b] (2005). Scientist-practitioner family therapists, postmodern medical practitioners and expert parents: Second-order change in the eating disorders program at the children's hospital at Westmead. *Journal of Family Therapy, 27*, 171-182.

[a] Macquarie University, Sydney, New South Wales
[b] Children's Hospital at Westmead, Sydney, New South Wales

This paper describes and examines the changes in clinical practice that occurred in Eating Disorders Program at The Children's Hospital at Westmead as a result of implementing the Maudsley family-based treatment model for AN. During the 18 months in which the program has been utilised, a marked improvement has occurred in readmission rates and clinical outcomes.

Rieger, E.[a], Wilfley, D.E., Stein, R.I., Marino, V., & Crow, S.J. (2005). A comparison of quality of life in obese individuals with and without binge eating disorder. *International Journal of Eating Disorders, 37*, 234-240.

[a] The University of Sydney, Sydney, New South Wales

This study aimed to determine if the presence of BED in people with obesity markedly impairs their quality of life in comparison to obese people without BED. The Impact of Weight on Quality of Life (IWQOL-Lite) survey was used to compare two groups (i.e., people with obesity who do or do not have BED). The findings suggest that the co-morbidity of BED is associated with worse psychosocial quality of life in addition to physical functioning.

Sheffield, J. K.[a], ***Tse, K. H.***[a], & ***Sofronoff, K.***[a] (2005). A comparison of body-image dissatisfaction and eating disturbance among Australian and Hong Kong women.
European Eating Disorders Review, 13, 112-124.

[a] University of Queensland, Brisbane, Queensland

Within a cross-cultural context, this study examined the role of body-image dissatisfaction as a mediator of the relationship between biopsychosocial variables and eating disturbance. Young adult females (aged 17 to 28) were sampled from two cultures, Hong Kong ($n = 48$) and Australia ($n = 100$). The specific biopsychosocial variables that contributed to this relationship differed between the two groups. However, mean levels of body-image dissatisfaction and eating disturbance did not differ.

Stanford, J. N.[a], & ***McCabe, M. P.***[a] (2005). Evaluation of a body image prevention programme for adolescent boys. *European Eating Disorders Review, 13*, 360-370.

[a] Deakin University, Melbourne, Victoria

This study evaluated the efficacy of a controlled trial for the prevention of body dissatisfaction and maladaptive behaviours in adolescent boys. A two-session program promoting acceptance of difference and self-esteem was administered to 52 boys in comparison to 69 boys in a control condition (participants were 12 to 13 years of age). Significant beneficial effects were observed for self-esteem, negative affect, and satisfaction with muscles.

Thornton, C.[ab], ***Touyz, S.***[ab], & Birmingham, C. L. (2005). Eating disorders: Management in general practice. *Medicine Today, 6*, 29-34.

[a] Wesley Private Hospital, Sydney, New South Wales
[b] The University of Sydney, Sydney, New South Wales

This discussion paper reviews Eating Disorder treatment for general practitioners. It highlights that knowledge of the refeeding syndrome is important. Treatment options are also evaluated, comprising psychological interventions and medical management.

Tiggemann, M.[a], Verri, A., & Scaravaggi, S. (2005). Body dissatisfaction, disordered eating, fashion magazines, and clothes: A cross-cultural comparison between Australian and Italian young women. *International Journal of Psychology, 40*, 293-302.

[a] Flinders University, Adelaide, South Australia

This paper compared the relationship between disordered eating and body dissatisfaction across two cultural groups, 95 Italian and 140 Australian female university students. The two groups did not differ in dieting behaviours or body dissatisfaction, however the Australian group reported greater levels of disordered eating.

Urwin, R. E.[ab], & ***Nunn, K. P.***[bcde] (2005). Epistatic interaction between the monoamine oxidase A and serotonin transporter genes in anorexia nervosa. *European Journal of Human Genetics, 13*, 370-375.

[a] ***Children's Hospital at Westmead, Sydney, New South Wales***
[b] ***The University of Sydney, Sydney, New South Wales***
[c] ***The John Hunter Hospital, Newcastle, New South Wales***
[d] ***University of Newcastle, Newcastle, New South Wales***
[e] ***CAMHSNET, Newcastle, New South Wales***

This research examined the role of specific genes in promoting susceptibility to AN. Findings are reviewed from genetic analysis of 114 patients with AN and their parents. Evidence is found for increased risk of AN when two genes interact, serotonin transporter (SERT) genes and monoamine oxidase A (MAOA) genes.

Wang, Z.[a], ***Byrne, N. M.***[b], ***Kenardy, J. A.***[b], & ***Hills, A. P.***[a] (2005). Influences of ethnicity and socioeconomic status on the body dissatisfaction and eating behaviour of Australian children and adolescents. *Eating Behaviors, 6*, 23-33.

[a] ***Queensland University of Technology, Brisbane, Queensland***
[b] ***University of Queensland, Brisbane, Queensland***

This study examined the relationship between (a) the incidence of body dissatisfaction and eating behaviour and (b) cultural group, age, gender, and socio-economic status. A cohort of 768 respondents aged 10 to 18 years comprised those from various cultural groups (Caucasian, Vietnamese, Chinese, Greek, and Italian) and socio-economic status classifications (high, middle, and low). Data from self-report measures indicated that age and gender, but not socio-economic status or cultural group, were associated with body dissatisfaction and eating behaviour.

Weiss, K.[a], & ***Wertheim, E. H.***[a] (2005). An evaluation of a prevention program for disordered eating in adolescent girls: Examining responses of high- and low-risk girls. *Eating Disorders, 13*, 143-156.

[a] ***La Trobe University, Melbourne, Victoria***

This research evaluated a program for prevention of Eating Disorder problems in adolescent females. One hundred and seventy three girls in grade 9 were assigned to either the prevention program ($n = 114$) or a control group ($n = 59$). Significant improvement was observed in a range of Eating Disorder risk factors for girls evaluated as high-risk, but not those considered to be low-risk. No significant effects were present at 3-month follow-up.

Yager, Z.[a], & ***O'Dea, J. A.***[a] (2005). The role of teachers and other educators in the prevention of eating disorders and child obesity: What are the issues? *Eating Disorders, 13*, 261-278.

[a] ***The University of Sydney, Sydney, New South Wales***

This discussion paper focuses on the influence of educators on Eating Disorders and obesity in children and adolescents. Topics covered include, *inter alia*, the importance of training for educators, especially regarding health and fitness educators because of the higher incidence of body image and Eating Disorder problems observed amongst health/fitness educators.

2004

Bagnara, S., ***Huon, G.***[a], & Donazzolo, S. (2004). Factorial structure of the sociocultural attitudes towards appearance questionnaire among Italian and Australian girls. *European Eating Disorders Review, 12*, 321-326.

[a] University of New South Wales, Sydney, New South Wales

This paper reports on the psychometric properties of the self-report Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ). Its performance was assessed in two samples of undergraduate females, 172 from Australia and 171 from Italy. For the latter sample, a back-translation procedure was used to check its accuracy in Italian. In the Australian group the original two-factor structure was replicated, while in the Italian sample a three factor structure emerged.

Beale, B.[a], ***Cole, R.***[b], ***Hillege, S.***[c], ***McMaster, R.***[d], & ***Nagy, S.***[e] (2004). Impact of in-depth interviews on the interviewer: Roller coaster ride. *Nursing and Health Sciences, 6*, 141-147.

[a] University of Western Sydney, Parramatta, New South Wales
[b] Penrith Streetwork Project Inc., Penrith, New South Wales
[c] Australian Catholic University, North Sydney, New South Wales
[d] The University of Sydney, Sydney, New South Wales
[e] University of Technology Sydney, Sydney, New South Wales

This paper reports the qualitative analysis of an interview with a research assistant who interviewed 22 parents of children being treated for an Eating Disorder. The following themes emerged: the research assistant's emotions; the egalitarian model of research; finding meaning in the inexplicable; self-reflections/comparisons.

Birmingham, C. L., Gutierrez, E., Jonat, L., & ***Beumont, P.***[a] (2004). Randomized controlled trial of warming in anorexia nervosa. *International Journal of Eating Disorders, 35*, 234-238.

[a] The University of Sydney, Sydney, New South Wales

This randomised controlled trial evaluated the efficacy of warming therapy in promoting increased weight in AN patients. A total of 21 female inpatients with AN was randomly assigned to either a treatment or a control condition. In the treatment condition, participants wore a heat vest 3 hours daily for 3 weeks. The method was the same in the control condition, except that the heat vest was not turned on. No significant differences were observed between conditions in weight gain.

Chua, J. L.[a], ***Touyz, S.***[a], & Hill, A. J. (2004). Negative mood-induced overeating in obese binge eaters: An experimental study. *International Journal of Obesity, 28*, 606-610.

[a] The University of Sydney, Sydney, New South Wales

This experiment examined the causal effect of negative mood on overeating in a sample of 40 obese people with binge eating behaviours. Participants were categorised as restrained or unrestrained eaters based on self-report assessment of eating behaviours. Negative mood was induced by watching a sad film; a control condition involved watching a neutral film. Food was then presented in a taste test. While a nonsignificant effect was observed ($p = .06$), the emotional film condition caused more food to be consumed in the taste test, and restrained eaters consumed more than unrestrained eaters.

Dawe, S.[a], & ***Loxton, N. J.***[a] (2004). The role of impulsivity in the development of substance use and eating disorders. *Neuroscience and Biobehavioral Reviews, 28*, 343-351.

[a] Griffith University, Brisbane, Queensland

This paper reviews the research regarding impulsivity and discusses it in relation to both binge eating and substance misuse. The extant research on impulsiveness indicates two factors that are commonly observed rash-spontaneous impulsiveness and reward sensitivity.

Humphry, T. A.[a], & ***Ricciardelli, L. A.***[a] (2004). The Development of Eating Pathology in Chinese-Australian Women: Acculturation Versus Culture Clash.
International Journal of Eating Disorders, 35, 579-588.

[a] Deakin University, Melbourne, Victoria

This study examines two proposed causes of Eating Disorder symptomatology in Chinese-Australian women – culture clash (regarding those remaining true to their traditional culture) and acculturation (regarding those adopting Western culture). Self- report measures of Eating Disorder symptoms, sociocultural influences and psychological factors were administered to a sample of 81 Chinese-Australian women. Differences were observed between both groups, including that acculturated women reported greater perceived pressure to lose weight from fathers and male friends.

Kane, T. A.[a], ***Loxton, N. J.***[b], ***Staiger, P. K.***[a], & ***Dawe, S.***[b] (2004). Does the tendency to act impulsively underlie binge eating and alcohol use problems? An empirical investigation. *Personality and Individual Differences, 36*, 83-94.

[a] Deakin University, Melbourne, Victoria
[b] Griffith University, Brisbane, Queensland

This study examined the relationship between two personality traits (impulsivity and reward responsiveness) and two problem behaviours (binge eating and problematic drinking). Three groups were compared on a self-report measure of impulsivity and a behavioural measure of reward responsivity, women with BN ($n = 22$), comorbid BN and alcohol problems ($n = 23$), and controls ($n = 21$). Compared with controls, those with BN (both groups) scored higher on impulsivity and reward responsiveness. Additionally, impulsivity was greater in the comorbid group than the BN group.

Kemps, E.[a], ***Tiggemann, M.***[a], ***Woods, D.***[a], & ***Soekov, B.***[a] (2004). Reduction of food cravings through concurrent visuospatial processing. *International Journal of Eating Disorders, 36*, 31-40.

[a] Flinders University, Adelaide, South Australia

This experiment evaluated the role of visual images in promoting food cravings in a sample of women who were either dieting or not dieting. Respondents were asked to view or imagine food or non-food objects while performing one of three tasks that utilise the visuospatial working memory. In both dieting and non-dieting women, performing a visuospatial task, decreased the capacity to process food related images and ameliorated food cravings.

Madden, S.[a] (2004). 'Anorexia nervosa' - Still relevant in the twenty-first century? A review of William Gull's anorexia nervosa. *Clinical Child Psychology and Psychiatry, 9*, 149-154.

[a] Children's Hospital at Westmead, Sydney, New South Wales

This paper discusses the origin of the diagnostic classification of AN – a publication in 1874 by William Gull. The author notes that Gull's recount of the condition is still relevant to modern day conceptualisations of the disorder.

Makino, M.[a], Tsuboi, K., & ***Dennerstein, L.***[a] (2004). Prevalence of eating disorders: A comparison of Western and non-Western countries. *MedGenMed Medscape General Medicine, 6*, 49.

[a] University of Melbourne, Melbourne, Victoria

This review compares the prevalence rates of Eating Disorders in Western and non-Western countries, as reported in published articles. The author notes that prevalence rates are greater in Western countries than non-Western countries, but reviews evidence to suggest they are increasing in non-Western countries.

Malson, H.[a], ***Finn, D. M.***[a], Treasure, J., ***Clarke, S.***[b], & ***Anderson, G.***[b] (2004). Constructing 'the eating disordered patient': A discourse analysis of accounts of treatment experiences. *Journal of Community and Applied Social Psychology, 14*, 473-489.

[a] University of Western Sydney, Bankstown, New South Wales
[b] Westmead Hospital, Sydney, New South Wales

This qualitative study examined the treatment experience as construed by patients being treated for Eating Disorders. Interviews were conducted with a sample of 39 former inpatients who were treated for AN or BN in Australia or Britain. Using a discourse analytic methodology, the paper describes participants' account of how they view 'the eating disordered patient', and their perceptions of how healthcare professionals view eating disordered patients.

McCabe, M. P.[a], & ***Ricciardelli, L. A.***[a] (2004). A longitudinal study of pubertal timing and extreme body change behaviors among adolescent boys and girls. *Adolescence, 39*(153), 145-166.

[a] Deakin University, Melbourne, Victoria

This longitudinal study examined the relationship between Eating Disorder behaviour and risk factors, pubertal timing, social variables, and exercise behaviours. Self-report measures were completed by 451 adolescent girls and 430 adolescent boys (mean age = 13 years). In girls, the incidence of health-risk behaviours was higher for those who matured either early or late. The relationship in boys was more varied and complex.

Mond, J., ***Rodgers, B.***[a], ***Hay, P.***[b], ***Korten, A.***[a], ***Owen, C.***[c], & ***Beumont, P.***[d] (2004). Disability associated with community cases of commonly occurring eating disorders.
Australian and New Zealand Journal of Public Health, 28, 246-251.

[a] Australian National University, Canberra, Australian Capital Territory
[b] James Cook University, Townsville, Queensland
[c] Canberra Hospital, Canberra, Australian Capital Territory
[d] The University of Sydney, Sydney, New South Wales

This study evaluated the degree of impairment in everyday functioning instanced in females with Eating Disorder symptoms. A community sample of 495 women aged 18 to 45 years was obtained from the Australian Capital Territory. Self-report surveys were used to measure Eating Disorder symptoms and impaired functioning. The incidence of Eating Disorders was 6.3%. Those participants with Eating Disorder symptoms exhibited similar levels of impairment to people with anxiety and mood disorders (as reported in the literature).

Mond, J. M.[a], ***Hay, P. J.***[b], ***Rodgers, B.***[c], ***Owen, C.***[a], & ***Beumont, P. J. V.***[d] (2004a). Beliefs of the public concerning the helpfulness of interventions for bulimia nervosa.
International Journal of Eating Disorders, 36, 62-68.

[a] Canberra Hospital, Canberra, Australian Capital Territory
[b] James Cook University, Townsville, Queensland
[c] Australian National University, Canberra, Australian Capital Territory
[d] The University of Sydney, Sydney, New South Wales

This qualitative study examined women's beliefs regarding the helpfulness of treatments for BN. A community sample of 208 women was interviewed. Participants were given a vignette that described a person with BN. They were asked to suggest treatment options and to indicate their opinions regarding the helpfulness of possible treatments. Respondents generally did not regard psychologists or psychiatrists as being most useful, preferring instead counsellors, dietitians and general practitioners. These findings suggest that using public health promotion approaches to alter public perceptions may be useful regarding effective treatment seeking for BN.

Mond, J. M., ***Hay, P. J.***[a], ***Rodgers, B.***[b], ***Owen, C.***[c], & ***Beumont, P. J. V.***[d] (2004b). Beliefs of women concerning causes and risk factors for bulimia nervosa.
Australian and New Zealand Journal of Psychiatry, 38, 463-469.

[a] James Cook University, Townsville, Queensland
[b] Australian National University, Canberra, Australian Capital Territory
[c] Canberra Hospital, Canberra, Australian Capital Territory
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This qualitative study examined women's attributions for the causes of treatments for BN. A community sample of 208 women was interviewed. Participants were given a vignette that described a person with BN. They were asked to rate the likelihood that number of factors caused the problems. Among other results, the most frequently endorsed reason that was rated as being highly likely to cause BN was 'having low self-esteem'. The authors comment that the respondents' perceptions were generally in agreement with empirical evidence, however the risk factor of pre-morbid anxiety and mood disorders was not frequently endorsed and could be featured in prevention programs.

Mond, J. M.[a], ***Hay, P. J.***[b], ***Rodgers, B.***[c], ***Owen, C***.[a], & ***Beumont, P. J. V.***[d] (2004c). Beliefs of women concerning the severity and prevalence of bulimia nervosa. *Social Psychiatry and Psychiatric Epidemiology, 39*, 299-304.

[a] Canberra Hospital, Canberra, Australian Capital Territory
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This qualitative study examined women's perceptions of the severity and prevalence of BN. A community sample of 208 women was interviewed. Participants were given a vignette that described a person with BN. They were asked questions about the severity and prevalence of the problem. *Inter alia*, respondents who had an Eating Disorder (6.3%) estimated the prevalence as being lower and viewed the symptoms as more acceptable than respondents who did not have an Eating Disorder.

Mond, J. M.[a], ***Hay, P. J.***[b], ***Rodgers, B.***[c], ***Owen, C.***[a], & ***Beumont, P. J. V.***[d] (2004d). Relationships between exercise behaviour, eating-disordered behaviour and quality of life in a community sample of women: When is exercise 'excessive'? *European Eating Disorders Review, 12*, 265-272.

[a] Canberra Hospital, Canberra, Australian Capital Territory
[b] James Cook University, Townsville, Queensland
[c] Australian National University, Canberra, Australian Capital Territory
[d] The University of Sydney, Sydney, New South Wales

This study examined the associations between exercise, Eating Disorder symptoms, and quality of life. The community sample comprised 169 women between the ages of 18 and 45 years. Those who experienced guilt regarding missed exercise were likely to also exhibit greater eating disordered behaviour and lower quality of life.

Mond, J. M.[a], ***Hay, P. J.***[b], ***Rodgers, B.***[c], ***Owen, C.***[a], & ***Beumont, P. J. V.***[d] (2004e). Temporal stability of the eating disorder examination questionnaire. *International Journal of Eating Disorders, 36*, 195-203.

[a] Canberra Hospital, Canberra, Australian Capital Territory
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[c] Australian National University, Canberra, Australian Capital Territory
[d] The University of Sydney, Sydney, New South Wales

This study evaluated the temporal reliability and internal consistency of the Eating Disorder Examination Questionnaire (EDE-Q). A community sample of adult women (18 – 45 years) was sampled twice, with a median temporal duration of 315 days. The internal consistency reliability of the EDE-Q was high. However the test-retest reliability was high for attitudes but low for behaviours. The authors suggest this may be due to actual variability in the Eating Disorder behaviours.

Mond, J. M.[a], ***Hay, P. J.***[b], ***Rodgers, B.***[c], ***Owen, C.***[a], & ***Beumont, P. J. V.***[d] (2004f). Validity of the Eating Disorder Examination Questionnaire (EDE-Q) in screening for eating disorders in community samples. *Behaviour Research and Therapy, 42*, 551-567.

[a] Canberra Hospital, Canberra, Australian Capital Territory
[b] University of Adelaide, Adelaide, South Australia
[c] Australian National University, Canberra, Australian Capital Territory
[d] The University of Sydney, Sydney, New South Wales

This research evaluated validity of the Eating Disorders Examination questionnaire (EDE-Q). The sample comprised 208 women from the community (aged 18 to 45). Respondents reported the frequency of Eating Disorder behaviours. The authors conclude that the concurrent validity of the EDE-Q is good and its criterion validity is acceptable.

Mond, J. M.[a], ***Rodgers, B***.[b], ***Hay, P. J***.[c], ***Owen, C.***[a], ***& Beumont, P. J. V.***[d] (2004). Nonresponse bias in a general population survey of eating-disordered behavior. *International Journal of Eating Disorders, 36*, 89-98.

[a] Canberra Hospital, Canberra, Australian Capital Territory
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[c] James Cook University, Townsville, Queensland
[d] The University of Sydney, Sydney, New South Wales

This paper reports on the possible bias of missing data observed in an epidemiological investigation of Eating Disorder behaviour. The study involved two phases, an initial mail-out survey and subsequent interviews on a subset. Regarding the self-report survey, this paper found no differences in the variables measured between those who responded at first request to those who responded after repeated requests. Similarly, the authors report finding no differences between those who did and did not agree to be interviewed.

O'Dea, J. A.[a] (2004). Evidence for a self-esteem approach in the prevention of body image and eating problems among children and adolescents. *Eating Disorders, 12*, 225-239.

[a] The University of Sydney, Sydney, New South Wales

This paper reviews evidence that supports the use of self-esteem and self-acceptance as the active agents in prevention programs for problems with body image and eating in children and adolescents. The results of a number of controlled studies indicate benefits have been observed in both behaviours (dietary restraint and body dissatisfaction) and psychological variables (an internalised thin idea and Eating Disorder attitudes).

Pritchard, B. J.a, ***Bergin, J. L.***a, & ***Wade, T. D.***a (2004). A case series evaluation of guided self-help for bulimia nervosa using a cognitive manual. *International Journal of Eating Disorders, 36*, 144-156.

[a] Flinders University, Adelaide, South Australia

This paper reports on the evaluation of a new guided self-help treatment for BN using an uncontrolled clinical trial. The treatment is cognitively oriented, manualised, and was administered in six sessions. A sample of 20 participants began the program, and data were obtained for 15 at post-test, and 13 at 3-month follow-up. Intent-to-treat analyses indicated significant pre-post-test improvement on measures of Eating Disorder behaviours and attitudes and self-esteem. At follow-up, most improvements remained significant.

Ricciardelli, L. A.[a], ***& McCabe, M. P.***[a] (2004). A biopsychosocial model of disordered eating and the pursuit of muscularity in adolescent boys. *Psychological Bulletin, 130*, 179-205.

[a] Deakin University, Melbourne, Victoria

This paper reviews the extant data regarding two body-control problems observed in adolescent boys – disordered eating and muscle gain activities. In comparing the risk factors and correlated variables, the authors conclude that similar processes are involved in both problem behaviours. The common factors include: self-esteem, perfectionism, negative affect, drug use, body mass index, sporting activities promoting leanness, and perceived parental pressure regarding weight loss. These findings are based on cross-sectional studies, and the authors call for prospective designs in future research.

Ross, M.[a], & ***Wade, T. D.***[a] (2004). Shape and weight concern and self-esteem as mediators of externalized self-perception, dietary restraint and uncontrolled eating. *European Eating Disorders Review, 12*, 129-136.

[a] Flinders University, Adelaide, South Australia

This study examined the mediational processes derived from a cognitive model of Eating Disorder behaviour (uncontrolled eating and dietary restraint). Self-report data was obtained from a sample of 111 young adult females (aged 18 to 25 years) who were university students. The results suggest that externalised self-perception is related to concern with weight/shape, and this relationship is partially mediated by self-esteem. In turn, both self-esteem and concern with weight/shape predicted disordered eating.

Surgenor, L. J., ***Maguire, S.***[ab], ***& Beaumont, P. J. V.***[ab] (2004). Drop-out from inpatient treatment for anorexia nervosa: Can risk factors be identified at point of admission? *European Eating Disorders Review, 12*, 94-100.

[a] The University of Sydney, Sydney, New South Wales
[b] Wesley Private Hospital, Sydney, New South Wales

This study aims to identify prospective predictors of patient drop-out in AN inpatients. Case history data from 213 treatment episodes were collected at a number of hospitals in Australia and New Zealand. Predictors of patients' unilateral decision to leave treatment were purging, lower body mass index, and restriction of fluid intake.

Tiggemann, M.[a], & ***Kuring, J. K.***[a] (2004). The role of body objectification in disordered eating and depressed mood. *British Journal of Clinical Psychology, 43*, 299-311.

[a] Flinders University, Adelaide, South Australia

This cross-sectional study examined the role of self-objectification as a predictor of disordered eating and depressed mood. A sample of 171 women and 115 men completed questionnaires measuring the aforementioned variables in addition to a number of proposed mediators, namely, appearance anxiety, body shame, self-awareness of internal states, and flow. For women, self-objectification predicted disordered eating and depressed mood. This relationship was mediated by the proposed variables. However in men, self-objectification functioned differently.

Tilgner, L.[a], ***Wertheim, E. H.***[a], ***& Paxton, S. J.***[b] (2004). Effect of social desirability on adolescent girls' responses to an eating disorders prevention program. *International Journal of Eating Disorders, 35*, 211-216.

[a] La Trobe University, Melbourne, Victoria
[b] University of Melbourne, Melbourne, Victoria

This research examined whether adolescent girls' responses to self-report measures of Eating Disorder attitudes and behaviours are biased by socially desirable responding. Female students ($N = 677$) in grades 7 and 8 were assigned to one of two experimental conditions, a control group or an Eating Disorder prevention group (who watched and discussed a psychoeducational video). Data were collected at pre-test, post-test, and 1-month follow-up on measures of social desirable responding, bulimic behaviours, body dissatisfaction, motivation to be thin, dieting intentions, and discrepancy between desired and actual size. While social desirability was significantly correlated with baseline measures on the aforementioned variables, it did not correlate with longitudinal change in these variables. The authors conclude that self-report data is not markedly influenced by socially desirable responding.

Wade, T. D.[a], Bulik, C. M., Prescott, C. A., ***&*** Kendler, K. S. (2004). Sex influences on shared risk factors for bulimia nervosa and other psychiatric disorders. *Archives of General Psychiatry, 61*, 251-256.

[a] Flinders University, Adelaide, South Australia

This study examined sex-specific relationships between BN and comorbid psychiatric conditions in twins. The sample comprised dizygotic twins (1192 opposite-sex pairs and 467 same-sex female pairs). The findings indicate that for BN there is sex-specific familial liability regarding (a) generalised anxiety disorder and (b) novelty seeking

Wells, J. C. K., ***Murphy, A. J.***[a], ***Buntain, H. M.***[ab], ***Greer, R. M.***[a], ***Cleghorn, G. J.***[a], & ***Davies, P. S. W.***[a] (2004). Adjusting body cell mass for size in women of differing nutritional status. *American Journal of Clinical Nutrition, 80*, 333-336.

[a] University of Queensland, Brisbane, Queensland
[b] Royal Children's Hospital, Brisbane, Queensland

This study examined the accuracy of a clinical measure of functional nutritional status, body cell mass (BCM) that is used in patients with AN. To accurately interpret BCM, one must adjust for height in children and adolescents. This research aimed to calibrate the appropriate mathematical adjustment. Participants comprised females from three populations: adolescents with ($n = 75$) or without ($n = 33$) AN and women without AN ($n = 58$). The authors report that for these groups, BCM data needed to be adjusted to the power of 1.73 (for the healthy women), 1.73 (for the healthy adolescents), and 2.07 (for the AN adolescents).

Withers, G. F.[a], & ***Wertheim, E. H.***[a] (2004). Applying the elaboration likelihood model of persuasion to a videotape-based eating disorders primary prevention program for adolescent girls. *Eating Disorders, 12*, 103-124.

[a] La Trobe University, Melbourne, Victoria

This study evaluated a disordered eating prevention program that was based on the Elaboration Likelihood Model of Persuasion. Young adolescent girls were assigned to one of three conditions: 187 watched a video presentation combined with discussion or written exercises; 114 watched the video without subsequent discussion or written exercises, and; 104 experienced no intervention. No differences were observed between the two intervention groups. However both of the intervention groups exhibited better outcomes than the control condition on measures of body image and knowledge.

2003

Abraham, S. F.[a] (2003). Dieting, body weight, body image and self-esteem in younger women: Doctor's dilemmas. *Medical Journal of Australia, 178*, 607-611.

[a] The University of Sydney, Sydney, New South Wales

This paper discusses information about Eating Disorders that can inform general practitioners during routine screening. The paper outlines symptoms that may serve as warning signs (e.g., wish to lose weight for self-esteem reasons or fear to gain weight), and suggests useful questions for assessing suspected Eating Disorders (e.g., questions regarding fear of losing control regarding eating and body weight or shape).

Ben-Tovim, D. I.[a] (2003). Eating disorders: Outcome, prevention and treatment of eating disorders. *Current Opinion in Psychiatry, 16*, 65-69.

[a] Flinders Medical Centre, Adelaide, South Australia

This review paper aimed to examine the extant empirical literature regarding treatment and prevention of Eating Disorders. The findings indicate that many interventions did not produce clinically significant change, particularly regarding AN. It was noted that primary prevention programs were yet to be found effective.

Beumont, P. J. V.[a], ***& Touyz, S. W.***[a] (2003). What kind of illness is anorexia nervosa? *European Child and Adolescent Psychiatry, 12*, S20-24.

[a] The University of Sydney, Sydney, New South Wales

The authors critique the dominant diagnostic conceptualisation of Eating Disorders. They argue that taxonomies such as the DSM-IV or ICD-10 do not fully describe the disorders. They question the validity of the assertion that AN and BN nervosa are two manifestations of one condition, and they present a staging model for AN.

Birmingham, C. L., ***Hodgson, D. M.***[a], Fung, J., ***Brown, R.***[a], ***Wakefield, A.***[b], ***Bartrop, R.***[c], ***& Beumont, P.***[c] (2003). Reduced febrile response to bacterial infection in anorexia nervosa patients. International *Journal of Eating Disorders, 34*, 269-272.

[a] University of Newcastle, Newcastle, New South Wales
[b] Royal Prince Alfred Hospital, Sydney, New South Wales
[c] The University of Sydney, Sydney, New South Wales

This paper examined the diagnostic implications of an impaired immune response of AN patients in cases of bacterial infections. Treatment data were reviewed for 5 patients with AN who suffered from bacterial infection. The temperature of all patients remained below 37 degrees Celsius. In the absence of a fever, diagnosis of bacterial infection may be delayed. This is important in light of the potentially fatal implications.

Chen, E., ***Touyz, S. W.***[a], ***Beumont, P. J. V.***[a], Fairburn, C. G., ***Griffiths, R.***[a], ***Butow, P.***[a], ***Russell, J.***[a], ***Schotte, D. E.***[a], ***Gertler, R.***[a], ***& Basten, C.***[a] (2003). Comparison of group and individual cognitive-behavioral therapy for patients with bulimia nervosa. *International Journal of Eating Disorders, 33*, 241-254.

[a] The University of Sydney, Sydney, New South Wales

Cognitive-behavioural therapy (CBT) for BN was evaluated in two modes of delivery – individual and group. Patients with BN ($n = 60$) were allocated to either group delivery or an individual format. Self-report data were assessed pre-intervention, post-intervention, and at 3 and 6-month follow-up. The 44 patients who completed the treatment (22 in each condition) did not have significantly different improvement across the study. One exception was that in comparison to group CBT, individual CBT resulted in significantly less bulimic behaviours at post-test, though not at follow-up. The authors comment that group CBT for BN may be an affordable yet clinically effective approach.

Golden, N. H., Katzman, D. K., Kreipe, R. E., Stevens, S. L., ***Sawyer, S. M.***[a], Rees, J., Nicholls, D., ***&*** Rome, E. S. (2003). Eating disorders in adolescents: Position paper of the society for adolescent medicine. *Journal of Adolescent Health, 33*, 496-503.

[a] Royal Children's Hospital, Melbourne, Victoria

This article discusses the diagnosis and treatment of Eating Disorders in adolescents. It presents the consensual guidelines of the Society for Adolescent Medicine that were developed by specialists from the United Kingdom, United States, Canada, and Australia, as informed by the extant empirical evidence. Specific topics covered include diagnosis, medical complications, nutritional disturbances, mental health and psychosocial factors, treatment guidelines, barriers to care, online medical information and pro-Eating Disorder internet sites, and recommendations for future research.

Hargraves, D. A.[a], & ***Tiggemann, M.***[a] (2003). Longer-term implications of responsiveness to 'thin-ideal' television: Support for a cumulative hypothesis of body image disturbance? *European Eating Disorders Review, 11*, 465-477.

[a] Flinders University, Adelaide, South Australia

This paper examined the hypothesis that there is a long-term effect of media images presenting a thin ideal on the body image and body dissatisfaction of adolescents. Two-year follow-up data were obtained from 80 adolescents who had previously viewed 20 television commercials that were either related to appearance or not related to appearance. The authors report a number of effects which indicate that media portrayals can have long term effects on body image – for instance, initial changes in body dissatisfaction upon viewing appearance-related commercials predicted body dissatisfaction 2 years later.

Hay, P.[ab] (2003). Quality of life and bulimic eating disorder behaviors: Findings from a community-based sample. *International Journal of Eating Disorders, 33*, 434-442.

[a] University of Adelaide, Adelaide, South Australia
[b] Royal Adelaide Hospital, Adelaide, South Australia

This study aimed to replicate prior findings regarding the association between bulimic behaviours and quality of life in a large representative Australian sample. Random selection of 4 400 households yielded data from 3 010 interviews. Higher frequency of Eating Disorder behaviours was correlated with poorer quality of life. The average length of time Eating Disorder behaviours were experienced since onset was 6.6 years.

Iyer, D. S., ***& Haslam, N.***[a] (2003). Body image and eating disturbance among South Asian-American women: The role of racial teasing. *International Journal of Eating Disorders, 34*, 142-147.

[a] University of Melbourne, Melbourne, Victoria

The role of racial teasing as a predictor of disordered eating was examined in this cross-sectional study. A sample of 122 US college students of South Asian heritage completed self-report measures. Disturbed eating was predicted by racial teasing. This association remained significant when controlling for body mass, self-esteem, and distress. Interestingly, ethnic disidentification and acculturation did not predict eating disturbances.

Kenardy, J.[a], ***Butler, A.***[a], ***Carter, C.***[a], & ***Moor, S.***[a] (2003). Eating, mood, and gender in a noneating disorder population. *Eating Behaviors, 4*, 149-158.

[a] University of Queensland, Brisbane, Queensland

The role of eating in response to negative emotions was examined in a non-clinical population. In a cross-sectional non-clinical sample, evidenced was found that males and females exhibit different emotional responses to eating. Males reported less negative affect after eating. Females reported more responsive emotions regarding eating.

McCabe, M. P.[a], & ***Vincent, M. A.***[a] (2003). The role of biodevelopmental and psychological factors in disordered eating among adolescent males and females. *European Eating Disorders Review, 11*, 315-328.

[a] Deakin University, Melbourne, Victoria

Disordered eating in young adolescents was examined in relation to physical maturation and psychological well-being. A cross-sectional sample of 297 male and 360 female adolescents (mean age = 13 years) gave self-report data on measures of disordered eating, physical maturation (age, puberty, and body mass index) and psychological well-being (perfectionism, ineffectiveness, self-esteem, anxiety, and depression). Extreme weight loss behaviours were more common in girls than boys. While males and females did not differ in bulimic eating disturbances, these behaviours had different predictors in each gender.

Patton, G. C.[a], ***Coffey, C.***[a], & ***Sawyer, S. M.***[a] (2003). The outcome of adolescent eating disorders: Findings from the Victorian Adolescent Health Cohort Study.
European Child and Adolescent Psychiatry, 12(Suppl. 1), 25-29.

[a] University of Melbourne, Melbourne, Victoria

This longitudinal epidemiological investigation examined the prevalence and course of Eating Disorders in a representative sample of Victorian female adolescents. Across 6 years and at 7 time points, data from 982 girls were examined. The prevalence of a partial Eating Disorder (reported in total across the 6 year study) was 8.8% (though the prevalence was 2.4% when respondents' ages ranged 15-18 years, and 3% when aged 20 years). Of those with a partial Eating Disorder, 50% had comorbid anxiety or depression. The authors comment that an alternative conceptualisation for partial BN is as an affective disorder that differs in expression according to developmental level.

Ricciardelli, L. A.[a], ***McCabe, M. P.***[a], ***Holt, K. E.***[a], & ***Finemore, J.***[a] (2003). A biopsychosocial model for understanding body image and body change strategies among children. *Journal of Applied Developmental Psychology, 24*, 475-495.

[a] Deakin University, Melbourne, Victoria

This cross-sectional study examined biopsychosocial predictors of body image concerns in pre-pubescent children. The sample comprised 270 girls and 237 boys aged 8-11 years. Body dissatisfaction was predicted by body mass index; body change behaviours (for losing weight and increasing muscles) were predicted by perceived social pressure attributed to the media, peers, and parents.

Tiggemann, M.[a] (2003). Media exposure, body dissatisfaction and disordered eating: Television and magazines are not the same! *European Eating Disorders Review, 11*, 418-430.

[a] Flinders University, Adelaide, South Australia

The relationship was examined between media viewing (television and magazine) and psychological variables associated with Eating Disorders. A cross-sectional sample of 104 undergraduate females completed self-report measures. Body dissatisfaction was correlated with media exposure. However different Eating Disorder risk factors were predicted by use of magazines and television: self-esteem was negatively correlated with television viewing, while internalisation of the thin ideal was positively correlated with magazine reading.

Urwin, R. E.[ab], ***Bennetts, B. H***.[ab], ***Wilcken, B.***[ab], ***Beumont, P. J. V***.[bc], ***Russell, J. D.***[b], ***& Nunn, K. P.***[ab] (2003). Investigation of epistasis between the serotonin transporter and norepinephrine transporter genes in anorexia nervosa. *Neuropsychopharmacology, 28*, 1351-1355.

[a] Children's Hospital at Westmead, Sydney, New South Wales
[b] The University of Sydney, Sydney, New South Wales
[c] Royal Prince Alfred Hospital, Sydney, New South Wales

This paper reports on data evaluating the interaction effects between two genes (serotonin and norepinephrine transporter genes) in patients with AN. In a sample of 106 family units, comprising an AN patient and their parents, the authors found no evidence of an interaction between serotonin transporter and norepinephrine transporter genes. These findings are relevant to understanding the effects of pharmacological treatments for AN.

Urwin, R. E.[ab], ***Bennetts, B. H***.[ab], ***Wilcken, B.***[ab], ***Lampropoulos, B***.[a], ***Beumont, P. J. V***.[bc], ***Russell, J. D.***[b], ***Tanner, S. L***.[d], ***& Nunn, K. P***.[ab] (2003). Gene-gene interaction between the monoamine oxidase A gene and solute carrier family 6 (neurotransmitter transporter, noradrenalin) member 2 gene in anorexia nervosa (restrictive subtype). *European Journal of Human Genetics, 11*, 945-950.

[a] Children's Hospital at Westmead, Sydney, New South Wales
[b] The University of Sydney, Sydney, New South Wales
[c] Royal Prince Alfred Hospital, Sydney, New South Wales
[d] Wesley Private Hospital, Sydney, New South Wales

This study investigated the role of the noradrenergic system in the restrictive subtype of AN. In a sample of 95 family units (trios or duos comprising the AN patient and one or both parents) the authors found an interaction between two genes – monoamine oxidase A (MAOA) and the SLC6A2 gene. They discuss the implications for the role of the noradrenergic system in the AN-restrictive subtype.

Wade, T. D.[a], ***Davidson, S.***[a], ***& O'Dea, J. A.***[b] (2003). A preliminary controlled evaluation of a school-based media literacy program and self-esteem program for reducing eating disorder risk factors. *International Journal of Eating Disorders, 33*, 371-383.

[a] Flinders University, Adelaide, South Australia
[b] The University of Sydney, Sydney, New South Wales

This randomised controlled trial evaluated the efficacy of two interventions for preventing Eating Disorders and their risk factors in adolescents – a self-esteem program and a ML program. Eighty six students in year 8 were randomly allocated to one of three conditions – the self-esteem program, the ML program, or a control condition. Longitudinal assessment comprised pre-test, post-test, and 3-month follow-up. A significant post-intervention effect was observed for weight concern in the ML group relative to the control group.

Warin, M.[a] (2003). Miasmatic calories and saturating fats: Fear of contamination in anorexia. *Culture, Medicine and Psychiatry, 27*, 77-93.

[a] University of Adelaide, Adelaide, South Australia

This paper challenges the notion that people with AN fear fat. The author instead argues that their fear regards contamination. It is argued that because fats have the capacity to permeate the body, they can be viewed as a contaminant. The treatment implications of this proposal are discussed.

Williams, R. J.[a], ***& Ricciardelli, L. A.***[b] (2003). Negative perceptions about self-control and identification with gender-role stereotypes related to binge eating, problem drinking, and to co-morbidity among adolescents. *Journal of Adolescent Health, 32*, 66-72.

[a] Charles Sturt University, Bathurst, New South Wales
[b] Deakin University, Melbourne, Victoria

This cross-sectional study examined the role of self-control and gender-role stereotypes in regard to two forms of maladaptive behavioural regulation (problem drinking and binge eating). A sample of adolescents (555 female and 428 male) were obtained from New South Wales schools. A range of associations were observed between self-control, gender-role and problematic behaviours. Notably, binge eating and problem drinking were associated with negative gender-role stereotypes, high levels of negative self-control, and low levels of positive self-control.

Yelland, C.[a], & ***Tiggemann, M.***[a] (2003). Muscularity and the gay ideal: Body dissatisfaction and disordered eating in homosexual men. *Eating Behaviors, 4*, 107-116.

[a] Flinders University, Adelaide, South Australia

This study examined the relationships between gender, sexual orientation, and Eating Disorder behaviours and concerns. Three groups sampled from the community were compared: 52 homosexual men, 51 heterosexual men, and 55 heterosexual women. Compared with heterosexual men, homosexual men reported significantly more disordered eating behaviours. Gay men and heterosexual women had similar levels of bulimic tendencies and drive for thinness.

2002

Ball, K.[a], Brown, W., & ***Crawford, D***.[a] (2002). Who does not gain weight? Prevalence and predictors of weight maintenance in young women. *International Journal of Obesity, 26*, 1570-1578.

[a] Deakin University, Melbourne, Victoria

This longitudinal study examined weight change and its predictors in a sample of young adult women. Data at two points 4 years apart regarding body mass index (BMI), physical/sedentary activity, substance use and demographic variables were obtained from sample of 8726 women between the ages of 18 and 23 years participating in the Australian Longitudinal Study of Women's Health. In total, 15% lost weight, 41% gained weight, and 44% maintained the same weight. Those who gained weight were likely to already be overweight. Compared to weight gainers, those who maintained weight were more likely to (*inter alia*) have lower consumption of fast food, remain sitting for less time, and be in a healthy weight range.

Ball, K.[a], ***& Kenardy, J***.[b] (2002). Body weight, body image, and eating behaviours: Relationships with ethnicity and acculturation in a community sample of young Australian women. *Eating Behaviors, 3*, 205-216.

[a] Deakin University, Melbourne, Victoria
[b] University of Queensland, Brisbane, Queensland

This cross-sectional survey examined the relationships between risk factors for Eating Disorders, acculturation and ethnicity. A sample of 14,779 Australian young adult women (aged 18 to 23 years) responded to a mail-out questionnaire. Eating disorder risk factors were reported in a variety of ethnic groups, and acculturation was predicted by the duration of residency in Australia. The increased risk of acculturation to Western values and behaviours is discussed.

Byrne, S.[a], & ***McLean, N.***[a] (2002). Elite athletes: Effects of the pressure to be thin. *Journal of Science and Medicine in Sport, 5*, 80-94.

[a] University of Western Australia, Perth, Western Australia

This survey compared the prevalence of Eating Disorders and symptoms thereof in elite athletes with non-athletes. In an Australian sample of 263 elite athletes and 263 non-athletes, those who competed in sports that promote low weight or lean shape were significantly more likely to have Eating Disorders or symptoms than either non-athletes or athletes from other sports.

Crafti, N. A.[a] (2002). Integrating cognitive-behavioural and interpersonal approaches in a group program for the eating disorders: Measuring effectiveness in a naturalistic setting. *Behaviour Change, 19*, 22-38.

[a] Swinburne University of Technology, Hawthorn, Victoria

This controlled trial evaluated the effectiveness of a 10-week group program for Eating Disorders that was implemented in two clinical practices (a university generalist clinic and a hospital specialist clinic). The program combined elements of cognitive behaviour therapy and interpersonal therapy. Compared to a wait-list group, 40 young women enrolled in the program reported improvement on a range of outcome variables comprising Eating Disorder behaviours and psychopathology, and general psychological health.

Faunce, G. J.[a] (2002). Eating disorders and attentional bias: A review. *Eating Disorders, 10*, 125-139.

[a] The University of Sydney, Sydney, New South Wales

This paper reviews the experimental studies examining the role of attentional processing in individuals with Eating Disorders. Empirical evidence consistently attests that sufferers of AN and BN selectively attend to stimuli regarding food, body weight and shape. The author reviews methodological limitations and areas requiring further study.

Hay, P. J.[a] (2002). Epidemiology of eating disorders: Current status and future developments. *Epidemiologia dos transtornos alimentares: Estado atual e desenvolvimentos futuros, 24* (Suppl. 3), 13-17.

[a] University of Adelaide, Adelaide, South Australia

This paper reviews the findings and methods in the epidemiological literature regarding Eating Disorders. Incidence and prevalence data is summarised and the role of epidemiological studies on Eating Disorder nosology is discussed. Important areas for further study include 'mental health literacy' and the economic and social impact of Eating Disorders.

Henderson, N. J.[a], & ***Huon, G. F.***[a] (2002). Negative affect and binge eating in overweight women. *British Journal of Health Psychology, 7*, 77-87.

[a] University of New South Wales, Sydney, New South Wales

This cross-sectional study examined coping style as a potential mediator of the relationship between negative affect and binge eating. The sample comprised 105 women who were overweight. Increased negative affect was associated with increased binge eating. This relationship was mediated by coping style whereby disengagement was positively related to severity of binge eating.

Holt, K.[a], & ***Ricciardelli, L. A***.[a] (2002). Social comparisons and negative affect as indicators of problem eating and muscle preoccupation among children. *Journal of Applied Developmental Psychology, 23*, 285-304.

[a] Deakin University, Melbourne, Victoria

The aim of this research was to investigate the predictive utility of social comparison and negative affect with regard to Eating Disorder symptoms and risk factors in young children. Cross-sectional self-report and body mass index (BMI) data were obtained from 236 children who were 8 to 10 years of age. Body dissatisfaction was predicted by BMI in both genders. Negative affect predicted different risk factors in boys (i.e., social pressure, preoccupation with food, and binging) and girls (i.e., preoccupation with muscle and dieting). Social comparison with adults predicted Eating Disorder concerns in boys.

Huon, G. F.[a], ***Gunewardene, A***.[a], ***Hayne, A***.[a], ***Sankey, M.***[a], ***Lim, J***.[a], ***Piira, T***.[a], & ***Walton, C***.[a] (2002). Empirical support for a model of dieting: Findings from structural equations modeling. *International Journal of Eating Disorders, 31*, 210-219.

[a] University of New South Wales, Sydney, New South Wales

This paper tested Huon and Strong's (1998) model of dieting in adolescent girls. Structural equation modelling was used on data from approximately 1,000 adolescent females. The model comprised indicators of dieting behavior, social influence, conformity, familial context, and social skills. Good fit was found for the model in this data, which explained 89% of the variability regarding dieting.

Huon, G. F.[a], Mingyi, Q., ***Oliver, K.***[a], & Xiao, G. (2002). A large-scale survey of eating disorder symptomatology among female adolescents in the People's Republic of China. *International Journal of Eating Disorders, 32*, 192-205.

[a] University of New South Wales, Sydney, New South Wales

This paper reports on epidemiological research regarding the prevalence of Eating Disorders and related symptoms in adolescent girls in the People's Republic of China. A representative sample of Chinese secondary school girls (aged 12 to 19 years) comprised 1,246 participants from six cities. The results indicate that while there was a low incidence of AN and BN, concerns about weight were very common.

Huon, G. F.[a], ***Piira, T.***[a], ***Hayne, A.***[a], & ***Strong, K. G.***[a] (2002). Assessing body and eating peer-focused comparisons: The Dieting Peer Competitiveness (DPC) scale. *European Eating Disorders Review, 10*, 428-446.

[a] University of New South Wales, Sydney, New South Wales

A new self-report measure was developed and evaluated for the assessment of competitiveness regarding dieting in adolescent girls – the Dieting Peer Competitiveness (DPC) scale. The authors report a 2-factor structure (regarding appearance comparison and food intake/avoidance comparison) with good reliability (for both test-retest and internal consistency) and good convergent, divergent, and discriminant validity with related scales.

Kenardy, J.[a], ***Mensch, M.***[b], ***Bowen, K.***[b], ***Green, B.***[a], & ***Walton, J.***[a] (2002). Group therapy for binge eating in Type 2 diabetes: *A randomized trial. Diabetic Medicine, 19*, 234-239.

[a] University of Queensland, Brisbane, Queensland
[b] Royal Newcastle Hospital, Newcastle, New South Wales

This study examined the effectiveness of cognitive behavioural therapy (CBT) group therapy for binge eating behaviours in individuals with Type 2 diabetes. A randomised controlled trial compared group CBT focusing on binge eating with a control treatment, nonprescriptive therapy (NPT). While NPT is conceptually unrelated to binge eating and has no empirical support for this application, it is interesting to note that both treatment conditions (CBT and NPT) evidenced significant improvement at post-intervention on weight, mood, and binge eating. However, by 3-month follow-up only the CBT group had maintained their gains.

Key, A., ***George, C. L.***[a], Beattie, D., ***Stammers, K.***[a], Lacey, H., & ***Waller, G.***[a] (2002). A preliminary controlled evaluation of an eating disturbance psychoeducational intervention for college students. *International Journal of Eating Disorders, 31*, 159-171.

[a] Wesley Private Hospital, Sydney, New South Wales

This study examined a newly developed psychoeducational intervention for reducing disordered eating symptoms. A sample of 66 young adult women (college students) were matched and assigned to either an intervention or a control condition. Outcomes were measured before and after the intervention, 4 months apart. The control condition increased in weight while the treatment condition reported significant reduction in disordered eating, dieting, body dissatisfaction, thin-ideal internalisation, and weight.

McDermott, B. M.[a], ***Batik, M.***[b], ***Roberts, L.***[b], & ***Gibbon, P.***[b] (2002). Parent and child report of family functioning in a clinical child and adolescent eating disorders sample. Australian and New Zealand *Journal of Psychiatry, 36*, 509-514.

[a] University of Western Australia, Perth, Western Australia
[b] Princess Margaret Hospital for Children, Perth, Western Australia

This study examined dysfunction in the families of young people with an Eating Disorder. Self-report data on family dysfunction were obtained from 100 children, and their parents, who presented for treatment of Eating Disorders at a clinic. The diagnoses of these children were: AN ($n = 42$), BN ($n = 12$), EDNOS ($n = 26$), and no Eating Disorder ($n = 20$). The authors found: a moderate positive correlation between the family dysfunction reported by children and their parents; elevated levels of family dysfunction compared to community norms, and; significant differences between some diagnostic groups.

McDermott, B. M.[ab], ***Harris, C.***[c], ***& Gibbon, P.***[ad] (2002). Individual psychotherapy for children and adolescents with an eating disorder: From historical precedent toward evidence-based practice. *Child and Adolescent Psychiatric Clinics of North America, 11*, 311-329.

[a] University of Western Australia, Perth, Western Australia
[b] Princess Margaret Hospital for Children, Perth, Western Australia
[c] Edith Cowan University, Perth, Western Australia
[d] Health Department of Western Australia, Perth, Western Australia

This paper discusses our knowledge of the etiology and treatment of Eating Disorders in children and adolescents. The desire for control in the midst of conflict and stress is emphasised as a common human trait that finds its expression in particular ways through Eating Disorders. The role of evidence-based practice is discussed.

O'Dea, J. A.[a], ***& Abraham, S.***[a] (2002). Eating and exercise disorders in young college men. *Journal of American College Health, 50*, 273-278.

[a] The University of Sydney, Sydney, New South Wales

In order to study the concerns men have about body shape and weight, a cross-sectional sample of 93 male college students was asked to complete a computerised survey. Relatively few met clinical criteria for Eating Disorders (e.g., 2% for BN, 3% for objective binge eating, and 8% for exercise disorders). In contrast, a larger proportion expressed concerns about body shape or weight (20%), or felt distress when unable to do as much exercise as desired (34%).

Paxton, S. J.[a], ***Wertheim, E. H.***[b], ***Pilawski, A.***[a], ***Durkin, S.***[a], ***& Holt, T.***[a] (2002). Evaluations of dieting prevention messages by adolescent girls. *Preventive Medicine, 35*, 474-491.

[a] University of Melbourne, Melbourne, Victoria
[b] La Trobe University, Melbourne, Victoria

With the aim to increase the efficacy of dieting prevention interventions, this research examined the persuasiveness of anti-dieting messages. A sample of young adolescent girls completed self-report measures of Eating Disorder symptoms and risk factors. After a interval of two weeks, this sample was presented with a series of 2-3 minute videotaped messages, seven dieting prevention messages and one control message. Subsequent to each message, participants rated its persuasiveness regarding believability, relevance, emotional response, and their dieting intentions. Perceptions of persuasiveness were negatively correlated with Eating Disorder risk factors such that those girls rating messages as less persuasive were more likely to have retrospectively reported greater dieting, negative affect, and body dissatisfaction. The authors interpret this finding as indicating that once dieting has begun, preventative messages may be less effective.

Placanica, J. L.[a], ***Faunce, G. J.***[a], ***& Job, R. F. S***.[a] (2002). Chewing and spitting out food among eating-disordered patients. *International Journal of Eating Disorders, 32*, 112-115.

[a] The University of Sydney, Sydney, New South Wales

This research examined the association between Eating Disorder diagnosis and a common symptom of Eating Disorders – chewing and spitting out food (CHSP). Using logistic regression the diagnoses of patients were compared between those who did and did not report CHSP. While CHSP occurred in all diagnostic groups (AN, BN, and EDNOS), its correlates differed, which suggests that CHSP may play a different role across disorders. For example, CHSP predicted more severe Eating Disorder symptoms in those with AN and EDNOS, but not BN.

Ricciardelli, L. A.[a], & ***McCabe, M. P.***[a] (2002). Psychometric evaluation of the Body Change Inventory: An assessment instrument for adolescent boys and girls. *Eating Behaviors, 3*, 45-59.

[a] Deakin University, Melbourne, Victoria

The development and validation is reported of a self-report measure that assesses body change strategies in adolescents. The newly developed Body Change Inventory (BCI) comprised three scales that assess strategies to decrease body size, increase body size, and increase muscle size. A series of four studies were conducted using independent samples of adolescents aged 11 to 17 years, comprising 1732 participants in total. The authors report evidence that the BCI has good internal consistency, and demonstrated good validity (including content, construct, concurrent and discriminant validities).

Rieger, E.[a], ***Touyz, S. W.***[a], ***& Beumont, P. J. V.***[a] (2002). Medical and psychiatric morbidity in obese women with and without binge eating. *International Journal of Eating Disorders, 32*, 72-78.

[a] The University of Sydney, Sydney, New South Wales

This longitudinal epidemiological study of female twins examined the prevalence of obesity and binge eating. The role of binge eating as a potential risk factor for medical and mental health problems was assessed. Data were analysed from 2,163 women. Among women who were obese, those reporting binge eating also reported more major medical disorders and higher dissatisfaction with their health than those who did not report binge eating symptoms. A range of psychological health problems were also higher in those with binge eating, including (*inter alia*) major depression and panic disorder.

Sainsbury, A.[a], ***Cooney, G. J.***[a], ***& Herzog, H.***[a] (2002). Hypothalamic regulation of energy homeostasis. *Best Practice and Research: Clinical Endocrinology and Metabolism, 16*, 623-637.

[a] Garvan Institute of Medical Research, Sydney, New South Wales

This paper discusses the regulation of hunger by the hypothalamus in relation to weight loss and weight gain. Hypothalamic neuropeptides can be classified in two main functional categories – orexigenic (relating to increased appetite) and anorexic (relating to decreased appetite). The role of these neuropeptides in balancing energy input (mediated via hunger) and energy expenditure is discussed.

Seibel, M. J.[a] (2002). Nutrition and molecular markers of bone remodelling. *Current Opinion in Clinical Nutrition and Metabolic Care, 5*, 525-531.

[a] Concord The University of Sydney, Sydney, New South Wales

This paper highlights the problem of detrimental changes in bone structure in Eating Disorders such as AN and during weight loss in obese people. In people with AN, bone is resorbed, which can result in fractures. Molecular markers are presented as non-invasive methods for assessing bone resorption and bone renewal. The causal effects of both nutrition and lifestyle are discussed.

Thornton, C.[a], ***Beumont, P.***[ab], ***& Touyz, S.***[ab] (2002). Pattern of birth in anorexia nervosa II: A comparison of early-onset cases in the southern and northern hemispheres. *International Journal of Eating Disorders, 32*, 18-23.

[a] Wesley Private Hospital, Sydney, New South Wales
[b] The University of Sydney, Sydney, New South Wales

This study examines the hypothesis that early-onset AN is related to the season of conception. Specifically, the study sought to replicate in the Southern Hemisphere the observation that in the Northern Hemisphere more people with early-onset AN are born at times of the year (i.e., spring and early in summer) which indicate they were likely conceived during warmer months. The sample comprised 199 Australian patients with early-onset AN. While the frequency of birth did not vary by season, support was found for an association between diagnostic subtype and the temperature at the estimated time of conception.

Urwin, R. E.[a], ***Bennetts, B.***[a], ***Wilcken, B.***[a], ***Lampropoulos, B.***[a], ***Beumont, P.***[a], ***Clarke, S.***[a], ***Russell, J.***[a], ***Tanner, S.***[a], & ***Nunn, K. P.***[a] (2002). AN (restrictive subtype) is associated with a polymorphism in the novel norepinephrine transporter gene promoter polymorphic region. *Molecular Psychiatry, 7*, 652-657.

[a] Children's Hospital at Westmead, Westmead, New South Wales

This study tested the hypothesis that the norepinephrine transporter (NET) gene comprises one part of the genetic profile of AN. The transmission disequilibrium test was employed in a sample of 87 family units (comprising the child patient and both parents) of patients with the restrictive type of AN. The analysis found a particular NET gene that increased the risk of AN-restrictive subtype by a factor of two.

Van Den Berg, P., ***Wertheim, E. H.***[a], Thompson, J. K., ***& Paxton, S. J.***[b] (2002). Screening Chinese patients with eating disorders using the eating attitudes test in Hong Kong. *International Journal of Eating Disorders, 32*, 91-97.

[a] La Trobe University, Melbourne, Victoria
[b] University of Melbourne, Melbourne, Victoria

This study evaluated the utility of using the Chinese Eating Attitudes Test (EAT-26) as a screening instrument for AN and BN in China. EAT-26 scores for a clinical and non-clinical sample were compared: clinical participants comprised 67 BN patients and 44 AN patients; the non-clinical sample consisted of 646 female university undergraduates. While the Eating Disorder group scored higher than the control group, those with AN reported lower than expected scores. EAT-26 cut-off scores were compared against diagnostic classification and the authors concluded that the extant cut-offs are not useful for epidemiological screening.

Wade, T. D.[a], ***& Lowes, J.***[a] (2002). The effect of fasting on attentional biases for food and body shape/ weight words in high and low eating disorder inventory scorers.
International Journal of Eating Disorders, 32, 79-90.

[a] Flinders University, Adelaide, South Australia

This experiment examined how fasting affected attentional bias regarding food and body weight or shape. This effect was examined in those who scored either high or low in risk factors for Eating Disorders (i.e., body dissatisfaction and drive for thinness). A sample of 56 undergraduate females (aged 17-24 years) completed an attentional task (a modification of the dot probe task). This task was completed in two conditions – fasted and nonfasted. The results indicate that attentional bias towards high-calorie food words was greater when fasting. Furthermore, those scoring high on Eating Disorder risk factors exhibited an attentional bias towards low calorie food words when they were nonfasted, but not while fasted. This indicates that for those high in Eating Disorder risk factors, their preference for low calorie foods shifted to high calorie foods while hungry.

Wertheim, E. H.[a], ***Martin, G.***[a], ***Prior, M.***[b], ***Sanson, A.***[b], ***& Smart, D.***[b] (2002). Parent influences in the transmission of eating and weight related values and behaviors. *Eating Disorders, 10*, 321-334.

[a] La Trobe University, Melbourne, Victoria
[b] University of Melbourne, Melbourne, Victoria

This research examined the associations between children's eating behaviours and values with those of their parents. Data were collected from young adolescents and one parent each for 619 girls and 587 boys. For postmenstrual but not premenstrual girls, increased bulimic symptoms and drive for thinness were predicted by mother dieting.

Withers, G. F.[a], ***Twigg, K.***[a], ***Wertheim, E. H.***[a], ***& Paxton, S. J.***[b] (2002). A controlled evaluation of an eating disorders primary prevention videotape using the Elaboration Likelihood Model of Persuasion. *Journal of Psychosomatic Research, 53*, 1021-1027.

[a] La Trobe University, Melbourne, Victoria
[b] University of Melbourne, Melbourne, Victoria

This randomised controlled trial examined the efficacy of a prevention program for Eating Disorders in young adolescent girls. A sample of 104 girls viewed a video regarding dieting and body image, while 114 girls did not receive an intervention. Compared to the control group, the intervention group reported improvements in knowledge at post-test and one-month follow-up as well as attitudes at post-test but not follow-up.

Zipfel, S., ***Reas, D. L.***[a], Thornton, C., Olmsted, M. P., Williamson, D. A., Gerlinghoff, M., ***Herzog, W.***[a], ***&*** Beumont, P. J. (2002). Day hospitalization programs for eating disorders: A systematic review of the literature. *International Journal of Eating Disorders, 31*, 105-117.

[a] The University of Sydney, Sydney, New South Wales

This paper systematically reviews the literature evaluating day hospitalisation treatments for Eating Disorders. The reviewers evaluate the characteristics and outcomes of the various interventions. Common approaches used internationally include group treatment and multidisciplinary staff.

2001

Abraham, S.[a] (2001). Obstetricians and maternal body weight and eating disorders during pregnancy.
Journal of Psychosomatic Obstetrics and Gynecology, 22, 159-163.

[a] The University of Sydney, Sydney, New South Wales

This survey examined Obstetricians' self-reported knowledge and practice regarding screening for maternal behaviours that may cause intrauterine growth restriction (IUGR). Eating disorders, problem eating behaviour and smoking while pregnant are associated with IUGR. Sixty seven obstetricians were surveyed. Most obstetricians in this sample asked about smoking and alcohol use. Less than half of this sample asked patients about disordered eating, weight control practices or depression.

Abraham, S.[a], ***& O'Dea, J. A.***[a] (2001). Accuracy of self-reported weight in patients with binge eating disorder. *International Journal of Eating Disorders, 29*, 29-36.

[a] The University of Sydney, Sydney, New South Wales

This research assessed the extent to which those being treated for BED reported their weight accurately. Adult outpatients diagnosed with BED ($N = 108$) were asked to report their weight and complete measures of Eating Disorder psychopathology. Their weight was also measured. By comparing reported and measured weights, participants were classified as accurate reporters (to within a 5 lb difference) or underreports. Accurate reporters comprised 73% of the sample. Body mass index and Eating Disorder psychopathology did not significantly differ between accurate reporters and underreporters.

Abraham, S.[ab], ***Taylor, A.***[a], ***& Conti, J.***[b] (2001). Postnatal depression, eating, exercise, and vomiting before and during pregnancy. *International Journal of Eating Disorders, 29*, 482-487.

[a] The University of Sydney, Sydney, New South Wales
[b] Macquarie University, Sydney, New South Wales

This cross-sectional study of women who had recently given birth investigated the relationships between postnatal distress and concern or problems with eating, weight loss behaviour, and exercise. A sample of 181 women was interviewed one week after giving birth. Using multiple regression, distress was significantly predicted by four variables: being afraid of gaining weight; experiencing distracting thoughts about food; being afraid that weight gained would be more than explainable by pregnancy, and; more frequent vomiting during the first trimester. Furthermore, those with an Eating Disorder experienced significantly higher distress.

Ben-Tovim, D. I.[ab], ***Walker, K.***[b], ***Gilchrist, P.***[b], ***Freeman, R.***[b], ***Kalucy, R.***[b], ***& Esterman, A.***[a] (2001). Outcome in patients with eating disorders: A 5-year study. *Lancet, 357*, 1254-1257.

[a] Clinical Epidemiology and Health Outcomes Unit, Adelaide, South Australia
[b] Flinders Medical Centre, Adelaide, South Australia

This prospective study aimed to examine predictors of outcomes in those being treated for Eating Disorders. A representative sample of Eating Disorder patients from South Australia was followed across 5 years. Diagnostic groups identified at baseline were AN ($n = 95$), BN ($n = 88$), and EDNOS ($n = 37$). After 5 years, the majority of patients no longer met diagnostic criteria (i.e., 78% of EDNOS, 74% of BN, and 56% of AN). Five patients died (3 had AN, 2 had an EDNOS). Outcome measures assessed were clinical symptomatology, attitudes relating to the body, and psychosocial functioning. Interestingly, these outcomes were not predicted by treatment. Predictors of outcomes differed by disorder. Outcomes for: those with AN were predicted by severity of symptoms at baseline; those with BN were predicted by poorer psychosocial functioning and body-related attitudes.

Bond, M. J.[a], ***McDowell, A. J.***[a], ***& Wilkinson, J. Y.***[a] (2001). The measurement of dietary restraint, disinhibition and hunger: An examination of the factor structure of the Three Factor Eating Questionnaire (TFEQ). *International Journal of Obesity, 25*, 900-906.

[a] Flinders University, Adelaide, South Australia

This study examined the factor structure of the Three Factor Eating Questionnaire (TFEQ) which comprises subscales relating to restraint (TFEQ-R), disinhibition (TFEQ-D), and hunger (TFEQ-H). Data were obtained from 553 female university students, 64 of whom provided data again 12 months later. Evidence was found for factors existing within each subscale, indicating that disordered eating behaviour is more detailed than originally thought.

Bryan, J.[a], ***& Tiggemann, M.***[b] (2001). The effect of weight-loss dieting on cognitive performance and psychological well-being in overweight women. *Appetite, 36*, 147-156.

[a] CSIRO, Health Sciences and Nutrition, Adelaide, South Australia
[b] Flinders University, Adelaide, South Australia

This experiment examined the effect of dieting on psychological well-being and cognitive functioning in women who are overweight. Across a 12 week period, 42 overweight women dieted for weight reduction and 21 overweight women did not change their food consumption and exercise routine. Data comprised self-report measures of psychological well-being (self-esteem, mood, dieting beliefs, dysfunctional attitudes, and weight locus of control) and performance tests of cognitive functioning (e.g., working memory, executive functioning, and information processing speed). In comparison to the control condition, the dieting condition experienced improvement on some psychological outcomes (depression, dysfunctional attitudes, emotional eating) and minimal decrement in cognitive functioning.

Byrne, S.[a], & ***McLean, N.***[a] (2001). Eating disorders in athletes: A review of the literature. *Journal of Science and Medicine in Sport, 4*, 145-159.

[a] University of Western Australia, Perth, Western Australia

This paper reviews the research on Eating Disorders in athletes. The literature is covered in methodological categories comprising studies that: are uncontrolled; are controlled, and; compare the requirements of different body types. The authors highlight methodological limitations and note that increased research output has not clarified the role of athleticism in disordered eating.

Gunewardene, A.[a], ***Huon, G. F.***[a], ***&*** Zheng, R. (2001). Exposure to westernization and dieting: A cross-cultural study. *International Journal of Eating Disorders, 29*, 289-293.

[a] University of New South Wales, Sydney, New South Wales

This cross-cultural study examined dieting practices in adolescents by comparing two cultural backgrounds (Chinese and non-Chinese heritage) across two countries (China and Australia) and by assessing the incremental validity of Westernisation in predicting dieting behaviour. Three groups of female adolescents were sampled, 100 of Chinese heritage living in Beijing, 60 of Chinese heritage living in Sydney, and 100 of non-Chinese heritage living in Sydney. Of the three samples, the least dieting was reported by the Chinese Australian group. After controlling for body mass index and social influences, Westernisation had a significant relationship with dieting status.

Heaven, P. C. L.[a], ***Mulligan, K.***[a], ***Merrilees, R.***[a], ***Woods, T.***[a], ***& Fairooz, Y.***[a] (2001). Neuroticism and conscientiousness as predictors of emotional, external, and restrained eating behaviors. *International Journal of Eating Disorders, 30*, 161-166.

[a] University of Wollongong, Wollongong, New South Wales

Heaven and colleagues used a cross-sectional study to examine the relationship between personality factors and eating behaviours in young adults. University students (41 male, 126 female) completed self-report measures of the Big Five personality traits, eating behaviours, height and weight. Eating behaviours were related to gender, body mass index, neuroticism and conscientiousness.

Kenardy, J.[a], ***Brown, W. J.***[a], ***& Vogt, E.***[a] (2001). Dieting and health in young Australian women. *European Eating Disorders Review, 9*, 242-254.

[a] University of Queensland, Brisbane, Queensland

The prevalence of dieting behaviours in young Australian Women was assessed. Self-report data from mail-out questionnaires were obtained from 14,686 young adult women (18-23 years of age). There appeared to be a discrepancy between women's weight (66.5% were in the healthy BMI range), their concerns about their weight (21.6% were happy with their weight), and their weight loss behaviours (in the preceding year 46% had dieted for weight-loss).

Kenardy, J.[a], ***Mensch, M.***[b], ***Bowen, K.***[b], ***Green, B.***[b], ***Walton, J.***[b], ***& Dalton, M.***[a] (2001). Disordered eating behaviours in women with Type 2 diabetes mellitus. *Eating Behaviors, 2*, 183-192.

[a] University of Queensland, Brisbane, Queensland
[b] Royal Newcastle Hospital, Newcastle, New South Wales

The frequency and correlates of binge eating in women with type 2 diabetes were studied. In a sample of 215 women with type 2 diabetes, disordered eating was assessed using a structured clinical interview, and psychological functioning, body mass index (BMI), and glycosylated haemoglobin A1c were measured via self report. Regular binge eating was instanced in one fifth (20.9%) of the sample. Correlates of binge eating were higher BMI, early diagnosis with diabetes, reduced well-being, and low self-efficacy to manage diet and exercise.

Kohn, M.[a], & Golden, N. H. (2001). Eating disorders in children and adolescents: Epidemiology, diagnosis and treatment. *Paediatric Drugs, 3*, 91-99.

[a] New Children's Hospital, Westmead, New South Wales

This paper discusses the clinical symptoms, course, and treatment of Eating Disorders in children and adolescents. AN commonly develops by early or mid-adolescence and has protein calorie malnutrition as a defining symptom. BN often develops in late or post-adolescence and is associated with purging. The authors suggest that a multidisciplinary approach is best for managing Eating Disorders in young people because the wide range of biopsychosocial systems that are impacted are beyond the expertise of one professional.

Loxton, N. J.[a], & ***Dawe, S.***[a] (2001). Alcohol abuse and dysfunctional eating in adolescent girls: The influence of individual differences in sensitivity to reward and punishment. *International Journal of Eating Disorders, 29*, 455-462.

[a] Griffith University, Brisbane, Queensland

This research examines the correlates of disordered eating and problem drinking in adolescent females. A sample of 232 female secondary school students completed self-report measures. Dysfunctional eating was associated with sensitivity to punishment and reward. In contrast, problem drinking was associated with reward sensitivity.

McCabe, M. P.[a], & ***Ricciardelli, L. A***.[a] (2001). Body image and body change techniques among young adolescent boys. *European Eating Disorders Review, 9*, 335-347.

[a] Deakin University, Melbourne, Victoria

This research examined the relationships between disturbed body image and body change techniques in adolescent males. Boys in grade 7 ($n = 20$) and grade 9 ($n = 20$) were interviewed. One half of these boys desired to change their body by either losing or gaining weight. Exercise was used more frequently than dieting. Grade 9 boys were less satisfied with their body weight than grade 7 boys.

McDermott, B.[a], ***Gullick, K.***[a], & ***Forbes, D.***[a] (2001). The financial and service provision implications of a new eating disorders service in a paediatric hospital. *Australasian Psychiatry, 9*, 151-155.

[a] Princess Margaret Hospital for Children, Perth, Western Australia

This paper reviews the clinical and fiscal benefits of implementing an Eating Disorders team within a paediatric teaching hospital. Medical and financial records from before and after the implementation of an Eating Disorders team were reviewed across 39 months. Admissions rose significantly, as did total cost. However cost per inpatient decreased by almost half (48%).

Moulding, N.[a], & Hepworth, J. (2001). Understanding body image disturbance in the promotion of mental health: A discourse analytic study.
Journal of Community and Applied Social Psychology, 11, 305-317.

[a] University of Adelaide, Adelaide, South Australia

This qualitative study examined the field preventing body image and eating problems via health promotion. Interviewees comprised a sample of 10 health professionals who had designed and implemented a health promotion program to combat problems with body image and disordered eating. In these health professionals' construction of body image problems, three themes emerged that related to gender, cognitive-behavioural factors, and socio-cultural factors.

Nunn, K.[a] (2001). 'In search of new wineskins': The phenomenology of anorexia nervosa not covered in DSM or ICD. *Clinical Child Psychology and Psychiatry, 6*, 489-503.

[a] Alexandra Hospital for Children, Parramatta, New South Wales

This article discusses and critiques the clinical health professions' view of AN. The author addresses the question of whether a new approach is needed for understanding the clinical phenomena comprising AN. Topics discussed include the problems of diagnostic megataxonomies such as the DSM and ICD, the value of our own experience and of diversity, and alternative points of view from which to understand symptoms of AN.

O'Dea, J. A.[a], & ***Abraham, S.***[a] (2001). Knowledge, beliefs, attitudes, and behaviors related to weight control, eating disorders, and body image in Australian trainee home economics and physical education teachers. *Journal of Nutrition Education and Behavior, 33*, 332-340.

[a] The University of Sydney, Sydney, New South Wales

This investigation examined risk factors for Eating Disorders in final-year teacher trainees in the fields of physical education and home economics. Self-report surveys were administered to 216 teacher trainees regarding their attitudes, beliefs, and knowledge of Eating Disorders and body image, and to measure their own weight control practices and body image. *Inter alia*, up to 72% of respondents held inaccurate knowledge about Eating Disorders and 19% of females used laxatives. The importance of including Eating Disorder risk prevention education in teacher trainee courses is discussed.

Oliver, K. G.[a], ***& Huon, G. F.***[a] (2001). Eating-related thought suppression in high and low disinhibitors. *International Journal of Eating Disorders, 30*, 329-337.

[a] University of New South Wales, Sydney, New South Wales

This experiment examined the effect of thought suppression on thoughts about eating in females who were either high or low in disinhibition. In a laboratory experiment, a sample of 77 females was given the task of being aware of their food-related and eating-related thoughts. They were asked to either suppress or not suppress these thoughts, and the frequency of thoughts was monitored. The results differed for those high and low in disinhibition. More success was obtained at suppressing food-related thoughts by high disinhibitors. However, they also instanced greater distress and anxiety.

Pendleton, V. R.[a], ***Willems, E.***[a], ***Swank, P.***[a], ***Poston, W. S. C.***[a], ***Goodrick, G.K.***[a], ***Reeves, R.S.***[a], ***& Foreyt, J. P.***[a] (2001). Negative stress and the outcome of treatment for binge eating. *Eating Disorders, 9*, 351-360.

[a] University of Queensland, Brisbane, Queensland

In a sample of 62 obese women with BED, this study examined the association between stress and frequency of binge eating. Two types of stress were examined, that perceived positively and negatively. The negative stress had a stronger association with binge eating outcomes. Compared to those reporting low negative stress, the frequency of binge eating was three times higher in those reporting high negative stress.

Ricciardelli, L. A.[a], ***& McCabe, M. P.***[a] (2001). Children's body image concerns and eating disturbance: A review of the literature. *Clinical Psychology Review, 21*, 325-344.

[a] Deakin University, Melbourne, Victoria

This paper reviews the empirical literature examining children's concerns about body image, attitudes towards eating, and eating disturbance. While being modelled on adult or adolescent instruments, there is evidence to suggest that the measures used in this body of research are reliable and valid for children aged 6 through 11 years. Similarly, the predictors of eating disturbance and body image concerns in children reflect those found in older individuals (i.e., age, gender, race, body mass index, self-concept, and sociocultural factors). A limitation of this literature is that most research is cross-sectional.

Ricciardelli, L. A.[a], ***Williams, R. J.***[a], & ***Finemore, J.***[a] (2001). Restraint as misregulation in drinking and eating. *Addictive Behaviors, 26*, 665-675.

[a] Deakin University, Melbourne, Victoria

The purpose of this study was to investigate the nature of the relationship between concomitant problems with eating and drinking. Binge eating, problem drinking, and behavioural restraint were assessed in 1072 adolescents aged 14 to 17 (414 females and 658 males). In males and females separately, two elements of restraint were associated with problematic eating and drinking – poor general self-control, and cognitive and emotional preoccupation regarding control over these problematic behaviours.

Rieger, E.[a], ***Touyz, S. W.***[a], ***Swain, T.***[a], ***& Beumont, P. J. V.***[a] (2001). Cross-cultural research on anorexia nervosa: Assumptions regarding the role of body weight.
International Journal of Eating Disorders, 29, 205-215.

[a] The University of Sydney, Sydney, New South Wales

This paper investigated cross-cultural aspects of AN. Two hypotheses were examined. The first being that concerns regarding weight in people with AN are specific to Western culture. The second being that AN instanced in non-Western countries is the result of acculturation to Western values idealising thinness. This study both reviewed theoretical and empirical cross-cultural literature and examined clinical case history data of 14 Eating Disorder patients of Asian descent being treated in Sydney. Regarding the first hypothesis, the authors argue that weight concerns that value thinness are not limited to Western culture. Regarding the second hypothesis, they argue that values indigenous to non-Western countries contribute to AN in addition to any influence of Western values.

Segal, R.[a] (2001). Hypnosis in the treatment of an eating disorder.
Australian Journal of Clinical and Experimental Hypnosis, 29, 26-36.

[a] 13 Mercer Place, Noranda, Western Australia

This case study examines the treatment of a young adult male for disordered eating and problematic exercise using hypnosis. The hypnosis was incorporated into standard treatment approaches, and is reported to have been an effective element of treatment.

Tiggemann, M.[a] (2001a). Effect of gender composition of school on body concerns in adolescent women. *International Journal of Eating Disorders, 29*, 239-243.

[a] Flinders University, Adelaide, South Australia

The purpose of this investigation was to examine the effect of school gender composition (single-gender vs. co-educational) on role concern and Eating Disorder risk factors (disordered eating and body ideals). Respondents comprised 261 adolescent females from four Australian private schools (two single-sex and two co-educational). Those from single-sex schools rated achievement more highly than co-educational schools. However the schools did not differ on Eating Disorder symptoms or body ideals. Furthermore, the interaction of body ideals and professional/academic success differed between single-sex and co-educational schools. For those valuing professional/academic success, a larger body ideal was chosen at co-educational schools, while a thinner body ideal was chosen as single-sex schools.

Tiggemann, M.[a] (2001b). The impact of adolescent girls' life concerns and leisure activities on body dissatisfaction, disordered eating, and self-esteem. *Journal of Genetic Psychology, 162*, 133-142.

[a] Flinders University, Adelaide, South Australia

This research examined the role of the leisure activities and life concerns of adolescent girls in problems with disordered eating, body dissatisfaction, and self-esteem. A group of 306 adolescent females completed self-report questionnaires. While slimness was not valued as highly as intelligence or academic success, slimness was related to problems with disordered eating, body dissatisfaction, and self-esteem.

Tiggemann, M.[a], & ***Rüütel, E.***[a] (2001). A cross-cultural comparison of body dissatisfaction in Estonian and Australian young adults and its relationship with media exposure. *Journal of Cross-Cultural Psychology, 32*, 736-742.

[a] Flinders University, Adelaide, South Australia

This cross-sectional study surveyed body dissatisfaction in university students from two countries, Australia (*N* = 394) and Estonia (*N* = 415). The authors hypothesised that body dissatisfaction would differ because of the differing role of media in each country. Contrary to expectations, they found that body concerns were similar in both countries.

Tiggemann, M.[a], & ***Slater, A.***[a] (2001). A test of objectification theory in former dancers and non-dancers. *Psychology of Women Quarterly, 25*, 57-64.

[a] Flinders University, Adelaide, South Australia

Objectification theory was applied to disordered eating in examining differences between Eating Disorder risk factors in female dancers and non-dancers. A sample of 50 former ballet dancers reported greater levels of disordered eating, self-surveillance, and self-objectification than a sample of 51 university students.

Turner, J. M.[a], ***Bulsara, M. K.***[b], ***McDermott, B. M***.[a], ***Byrne, G. C.***[a], ***Prince, R. L.***[b], ***& Forbes, D. A.***[a] (2001). Predictors of low bone density in young adolescent females with anorexia nervosa and other dieting disorders. *International Journal of Eating Disorders, 30*, 245-251.

[a] Princess Margaret Hospital for Children, Perth, Western Australia
[b] University of Western Australia, Perth, Western Australia

This study examined differences in bone density in 69 female adolescent patients with Eating Disorders. Bone density was examined via X-ray absorptiometry and case history data were collected. When patients with AN were compared to all other patients, those with AN did not have lower bone density despite being more malnourished. For all patients considered together, risk factors (predictors) of low bone density were length of time dieting, less lean body mass, not achieving menarche, lower oestrogen levels, and greater duration of secondary amenorrhea.

Wade, T. D.[a], Bulik, C. M., ***&*** Kendler, K. S. (2001). Investigation of quality of the parental relationship as a risk factor for subclinical bulimia nervosa. *International Journal of Eating Disorders, 30*, 389-400.

[a] Flinders University, Adelaide, South Australia

This study examined the incidence of BN symptoms in relation to parental relationship quality in a large community sample. Using a twin registry, data were collected from 766 family units comprising both twins and both parents. Support was found for the hypothesis that marital relationship problems are a risk factor for symptoms of BN in offspring.

Williams, R. J.[a], ***& Ricciardelli, L. A.***[b] (2001). Sex-role traits and the comorbidity of symptoms of disordered eating and problem drinking. *Eating Behaviors, 2*, 67-77.

[a] Charles Sturt University, Bathurst, New South Wales
[b] Deakin University, Melbourne, Victoria

This study investigated disordered eating and problem drinking in relation to sex-role traits and co-morbidity of eating and drinking problems. In total 217 adult female students were sampled. Sex-role traits of negative and positive femininity were associated with symptoms of Eating Disorders. Those high in both disordered eating and problem drinking behaviours also scored high on sex-role measures of negative femininity and negative masculinity.

Wong, J. C. H.[a], ***Lewindon, P.***[bc], ***Mortimer, R.***[ac], ***& Shepherd, R.***[bc] (2001). Internal and external antecedents of binge eating episodes in a group of women with bulimia nervosa. International *Journal of Eating Disorders, 29*, 17-22.

[a] Royal Brisbane Hospital, Brisbane, Queensland
[b] Royal Children's Hospital, Brisbane, Queensland
[c] University of Queensland, Brisbane, Queensland

This investigation assessed the antecedents of binge eating episodes using a diary of binge eating, food cravings, internal state, and external triggers. For one week 15 women with BN kept a daily diary. Analyses indicated that binge eating was preceded by both internal cues (food craving, and having just eaten a craved food) and external triggers (morning and being alone).

Zipfel, S., Seibel, M. J., Löwe, B., ***Beumont, P. J.***[a], Kasperk, C., ***&*** Herzog, W. (2001). Osteoporosis in eating disorders: A follow-up study of patients with anorexia and bulimia nervosa. *Journal of Clinical Endocrinology and Metabolism, 86*, 5227-5233.

[a] The University of Sydney, Sydney, New South Wales

In this prospective study, the risk of osteoporosis was assessed by monitoring changes in bone mineral density (BMD) in Eating Disorder patients at a 3.6 year follow-up. Respondents comprised female Eating Disorder patients with AN or BN: 47 began the study but only 38 were sampled at follow-up. Greater loss of BMD was associated with the binge eating/purging type of AN.

2000

Bacaltchuk, J., Trefiglio, R. P., Oliveira, I. R., ***Hay, P.***[a], Lima, M. S., & Mari, J. J. (2000). Combination of antidepressants and psychological treatments for bulimia nervosa: A systematic review. *Acta Psychiatrica Scandinavica, 101*, 256-264.

[a] University of Adelaide, Adelaide, South Australia

This meta-analytic review compares the efficacy of treating BN with psychotherapeutic interventions, antidepressants, or both combined. Meta-analysis was conducted on two sets of empirical studies, those that compared antidepressants with a combined treatment ($n = 5$), and those that compared psychotherapeutic interventions with a combined treatment ($n = 7$). They concluded that the combination of antidepressants and psychotherapeutic approaches is more effective that either alone.

Burney, J.[a], & ***Irwin, H. J.***[a] (2000). Shame and guilt in women with eating-disorder symptomatology. *Journal of Clinical Psychology, 56*, 51-61.

[a] University of New England, Armidale, New South Wales

This study assessed the utility of predicting Eating Disorder symptoms with measures of shame and guilt. A cross-sectional sample of 97 women completed self-report measures of shame and guilt regarding three contexts – the body, eating, and globally. Eating disorder symptoms: were most strongly predicted by shame regarding eating behaviours; were predicted by body shame and guilt regarding eating behaviour, and; were not related to global measures of shame and guilt.

Griffiths, J. A.[a], ***& McCabe, M. P.***[a] (2000). The influence of significant others on disordered eating and body dissatisfaction among early adolescent girls. *European Eating Disorders Review, 8*, 301-314.

[a] Deakin University, Melbourne, Victoria

This cross-sectional study examined predictors of disordered eating and body dissatisfaction in a sample of 111 young adolescent girls. Respondents reported a moderate degree of disordered eating and body dissatisfaction. Disordered eating and body dissatisfaction were positively correlated and were predicted by a range of physical, psychological and social variables.

Griffiths, R. A.[a], ***Mallia-Blanco, R.***[b], ***Boesenberg, E.***[b], ***Ellis, C.***[b], ***Fischer, K.***[b], ***Taylor, M.***[b], & ***Wyndham, J.***[b] (2000). Restrained eating and sociocultural attitudes to appearance and general dissatisfaction. *European Eating Disorders Review, 8*, 394-402.

[a] 1/58 St. Georges Crescent, Drummoyne, New South Wales
[b] The University of Sydney, Sydney, New South Wales

The sociocultural correlates of disordered eating were examined in a sample of 82 female university students who completed self-report measures. Restrained eating was correlated with dissatisfaction regarding self and life, internalised appearance-based sociocultural attitudes, and abnormal attitudes regarding eating.

Huon, G.[a], & ***Lim, J.***[a] (2000). The emergence of dieting among female adolescents: Age, body mass index, and seasonal effects. *International Journal of Eating Disorders, 28*, 221-225.

[a] ***University of New South Wales, Sydney, New South Wales***

This longitudinal observational study aimed to prospectively predict the commencement of dieting behaviours in young adolescent girls. A sample of 478 girls was monitored across 2 years. Of these, 273 (57.1%) were not already dieting at the start of the research, 20% of whom subsequently started dieting. Dieting commenced most frequently in 13-14 year olds. Body mass index was not a significant predictor of dieting commencement – girls of all weights started dieting, including those who were underweight.

Huon, G. F.[a], ***Lim, J.***[a], ***Walton, C. J.***[a], ***Hayne, A. M.***[a], & ***Gunewardene, A. I.***[a] (2000). Pathways to serious dieting: Significant insights from discontinuity. *International Journal of Eating Disorders, 28*, 356-363.

[a] ***University of New South Wales, Sydney, New South Wales***

This prospective observational study examined the psychosocial influences of dieting behaviour in adolescent females. A sample of 823 secondary school girls completed self-report data on two time points that were separated by 10 months. Dieting status was predicted by body dissatisfaction, drive for thinness, and body mass index, but not age.

Huon, G. F.[a], & ***Walton, C. J.***[a] (2000). Initiation of dieting among adolescent females. International *Journal of Eating Disorders, 28*, 226-230.

[a] ***University of New South Wales, Sydney, New South Wales***

This study examined factors that might promote adolescent girls to start dieting. It compared adolescent girls who had begun dieting ($n = 62$) or had never dieted ($n = 62$) who were matched on age, grade, school, country of birth, and language spoken at home. The two groups differed in relation to the influence of parents and peers. The dieting group were more competitive with peers and reported more conformity and compliance with their parents.

King, N.[a], ***Touyz, S.***[a], & ***Charles, M.***[a] (2000). The effect of body dissatisfaction on women's perceptions of female celebrities. *International Journal of Eating Disorders, 27*, 341-347.

[a] ***The University of Sydney, Sydney, New South Wales***

This experiment examined how women's perceptions of their own bodies effects the way they view female celebrities. One hundred and sixteen female undergraduate students were asked to complete a self-report measure of body shape concerns. They were also shown pictures of female celebrities that were heavy or thin in body weight. For each celebrity another photo was presented that was altered to make heavier celebrities look heavier, and vice versa. Participants' task was to select the true photo. All women perceived heavy celebrities to be heavier than in reality. Only women who were concerned about their own shape perceived thin celebrities to be thinner than they really are. These findings can inform prevention strategies by incorporating consideration of body dissatisfaction.

Lake, A. J.[a], ***Staiger, P. K.***[a], & ***Glowinski, H.***[a] (2000). Effect of Western culture on women's attitudes to eating and perceptions of body shape. *International Journal of Eating Disorders, 27*, 83-89.

[a] Deakin University, Melbourne, Victoria

This research examined the role of culture on Eating Disorder risk factors. Two risk factors (body shape dissatisfaction and negative attitudes towards eating) were assessed via self-report in women living in Australia who were born in either Hong Kong or Australia. While eating attitudes did not differ between the two groups, the Australian born group had higher body dissatisfaction.

Lunner, K., ***Werthem, E. H.***[a], Thompson, J. K., ***Paxton, S. J.***[b], McDonald, F., ***&*** Halvaarson, K. S. (2000). A cross-cultural examination of weight-related teasing, body image, and eating disturbance in Swedish and Australian samples. *International Journal of Eating Disorders, 28*, 430-435.

[a] La Trobe University, Melbourne, Victoria
[b] University of Melbourne, Melbourne, Victoria

This study tested the cross-cultural validity of a model describing risk factors for Eating Disorder symptoms. The sample comprised three groups of young adolescent females from Sweden ($N = 260$) and Australia ($N = 159$; $N = 210$). In each sample, path analyses found support for the model whereby restrained eating was predicted by body dissatisfaction, and both body dissatisfaction and teasing were predicted by body mass index.

Mansfield, J. L.a, & ***Wade, T.***b (2000). Assessing the relevance of the hopelessness theory of depression to women with disordered eating. *International Journal of Eating Disorders, 28*, 113-119.

[a] University of Adelaide, Adelaide, South Australia
[b] Flinders University, Adelaide, South Australia

This study was designed to explore whether women with Eating Disorders have a particular attributional style. Eating disorder symptoms, attributional style, and depression were compared in women from three groups, those diagnosed with EDNOS, those diagnosed with major depression, or a control group. The EDNOS group were more likely than the other groups to attribute external causes to positive events.

Martin, G. C.[a], ***Wertheim, E. H.***[a], ***Prior, M.***[b], ***Smart, D.***[b], ***Sanson, A.***[b], ***& Oberklaid, F.***[c] (2000). A longitudinal study of the role of childhood temperament in the later development of eating concerns. *International Journal of Eating Disorders, 27,* 150-162.

[a] La Trobe University, Melbourne, Victoria
[b] University of Melbourne, Melbourne, Victoria
[c] Royal Children's Hospital, Melbourne, Victoria

This longitudinal study aimed to determine whether children's temperament predicts the development of disordered eating and body image concerns in early adolescence. A sample of young people from the Australian Temperament Project was considered in this research (631 boys and 597 girls). Temperament measured during infancy and childhood was used to predict Eating Disorder risk factors measured at ages 12-13 years. The strongest temperamental predictors of Eating Disorder risk factors were (low) persistence and (high) negative emotionality.

Moulds, M. L.[a], ***Touyz, S. W.***[a], ***Schotte, D.***[a], ***Beumont, P. J. V.***[a], ***Griffiths, R.***[a], ***Russell, J.***[a], & ***Charles, M.***[a] (2000). Perceived expressed emotion in the siblings and parents of hospitalized patients with anorexia nervosa. *International Journal of Eating Disorders, 27*, 288-296.

[a] The University of Sydney, Sydney, New South Wales

This study examined the association between treatment outcomes of patients with AN and the perceived expressed emotion of their parents and siblings. A sample of 19 inpatients with AN completed self-report measures that assessed (a) their perceptions of the expressed emotion of their father, mother, and a sibling, and (b) Eating Disorder symptomatology. After an interval of 6 weeks, patients' body mass index (BMI) was measured and their self-report Eating Disorder symptomatology was assessed again. Perceived emotional expression was not significantly related to change in BMI, but did predict change in some aspects of Eating Disorder symptomatology (i.e., perfectionism, maturity fears, and interpersonal distrust).

O'Dea, J.[a], & ***Maloney, D.***[a] (2000). Preventing eating and body image problems in children and adolescents using the Health Promoting Schools Framework. *Journal of School Health, 70*, 18-21.

[a] Central Sydney Area Health Service, Camperdown, New South Wales

This publication describes a prevention program for body image concerns and disordered eating behaviours in school-aged children and adolescents, the Health Promoting Schools Framework. The main elements of the program are overviewed, these being intervention within (a) the teaching and learning process, (b) the school social and organisational system, and (c) school-community interactions. A case study describes its application.

O'Dea, J. A.[a], & ***Abraham, S.***[a] (2000). Improving the body image, eating attitudes, and behaviors of young male and female adolescents: A new educational approach that focuses on self- esteem. *International Journal of Eating Disorders, 28*, 43-57.

[a] The University of Sydney, Sydney, New South Wales

This controlled trial evaluated the effect of a school-based Eating Disorders prevention program on body image concerns and eating behaviours and attitudes at post-intervention and 12-month follow-up. Children and adolescents aged 11 to 14 years participated in either a prevention program or a regular health education class. The results indicate that the prevention program significantly benefited the intervention group at both post-test and follow-up on measures of body satisfaction and weight-loss behaviours.

Sands, R.[a] (2000). Reconceptualization of body image and drive for thinness. *International Journal of Eating Disorders, 28*, 397-407.

[a] Australian Catholic University, Melbourne, Victoria

This study examined the conceptual relatedness or independence of two Eating Disorder risk factor constructs – drive for thinness and body image. Self-report surveys were administered to 111 young adolescent females (11-13 years old) that assessed drive for thinness, body image, and a range of related variables comprising behavioural, attitudinal, affective, and perceptual aspects. The authors conclude that due to their differential relationships with Eating Disorder behaviours (dieting and activity) drive for thinness and body image are related yet distinct constructs.

Steel, Z.[ab], ***Jones, J.***[a], ***Adcock, S.***[a], ***Clancy, R.***[a], ***Bridgford-West, L.***[a], & ***Austin, J.***[a] (2000). Why the high rate of dropout from individualized cognitive-behavior therapy for bulimia nervosa? *International Journal of Eating Disorders, 28*, 209-214.

[a] Macarthur Mental Health Service, Campbelltown, New South Wales
[b] University of New South Wales, Sydney, New South Wales

This study aimed to determine explanations for the high drop-out rate of people with BN being treated with individual cognitive-behaviour therapy (CBT). In the context of a study assessing the efficacy of individual CBT for BN, the 43% who dropped out were compared to those who completed the trial. Those who dropped out were predicted by significantly elevated pre-treatment depression, hopelessness, and external locus of control, but not BN symptomatology.

Taylor, S.[a], ***Dossetor, D. R.***[a], ***Kilham, H.***[a], ***& Bernard, E.***[b] (2000). The youngest case of pervasive refusal syndrome? *Clinical Child Psychology and Psychiatry, 5*, 23-29.

[a] Royal Alexandra Hospital for Children, Sydney, New South Wales
[b] Royal North Shore Hospital, Sydney, New South Wales

This paper describes the clinical case report of a young child (aged 4 years) presenting with persistent food refusal and selective mutism. Other symptoms included imaginal obsession with food, refusal to cooperate or interact socially, and inappropriate toileting. The child was hospitalised for 67 days. After considering a wide range of differential diagnoses, the child was diagnosed with Pervasive Refusal Syndrome. The authors note that the child's brain functioning measured by single photon emission computerised tomography (SPECT) was markedly similar to that observed in AN. They hypothesise a common neurobiological vulnerability.

Timperio, A.[a], ***Cameron-Smith, D.***[a], ***Burns, C.***[a], & ***Crawford, D.***[a] (2000). The public's response to the obesity epidemic in Australia: Weight concerns and weight control practices of men and women. *Public Health Nutrition, 3*, 417-424.

[a] Deakin University, Melbourne, Victoria

This epidemiological study examined the eating and exercise behaviours of a representative sample of adults in Victoria. Using a cross-sectional design, self-report mail-out surveys were sent to 2500 people, 900 of whom returned data which could be used. Approximately half the respondents (47.9%) were not engaging in weight changing behaviour, 22.9 were actively attempting to lose weight, 26.6% were attempting to not gain weight, and 2.7% were attempting to gain weight. Only a small proportion reported detrimental weight-loss strategies such as smoking or vomiting.

Turner, J.[ab], ***Batik, M.***[a], ***Palmer, L. J.***[ac], ***Forbes, D.***[ab], ***& McDermott, B. M.***[ab] (2000). Detection and importance of laxative use in adolescents with anorexia nervosa. *Journal of the American Academy of Child and Adolescent Psychiatry, 39*, 378-385.

[a] Princess Margaret Hospital for Children, Perth, Western Australia
[b] University of Western Australia, Perth, Western Australia
[c] West Australian Institute for Child Health Research, Perth, Western Australia

This study examined the use of laxatives by adolescent AN patients ($N = 43$). Self-reported laxative use at intake (12%) was discrepant with laxative use detected by random urine analysis (19%). The authors noted that medical complications are associated with laxative use, and increase with duration of use.

Vincent, M. A.[a], & ***McCabe, M. P.***[ab] (2000). Gender differences among adolescents in family, and peer influences on body dissatisfaction, weight loss, and binge eating behaviors.
Journal of Youth and Adolescence, 29, 205-221.

[a] Deakin University, Melbourne, Victoria
[b] Macquarie University, Sydney, New South Wales

The familial and social predictors of Eating Disorder risk factors and behaviours were examined in adolescents. A sample of 297 males (aged 11-18 years) and 306 females (aged 11-17 years) completed self-report surveys of relationship quality with family and peers, disordered eating, and body dissatisfaction. In both males and females disordered eating and body dissatisfaction were predicted by the familial and peer direct influences. A number of relationships differed between boys and girls.

Wade, T.[a], ***Martin, N. G.***[b], ***Tiggemann, M.***[a], ***Abraham, S.***[c], ***Treloar, S. A.***[b], ***&*** Heath, A. C. (2000). Genetic and environmental risk factors shared between disordered eating, psychological and family variables.
Personality and Individual Differences, 28, 729-740.

[a] Flinders University, Adelaide, South Australia
[b] Queensland Insititute of Medical Research, Brisbane, Queensland
[c] The University of Sydney, Sydney, New South Wales

This study examined the genetic and environmental contributions to the association between disordered eating and a number of measures of personality and family functioning. Self-report data were obtained from female twins aged 30-45 years (344 dizygotic and 537 monozygotic pairs). Via analysis with multivariate biometrical genetic modelling, disordered eating risk factors were attributable to the unique environment (perceptions of parental care and neuroticism), and to shared genetic factors (emotional reliance on others, self-esteem, and neuroticism).

Wade, T. D.[a], Bulik, C. M., Sullivan, P. F., Neale, M. C., ***&*** Kendler, K. S. (2000). The relation between risk factors for binge eating and bulimia nervosa: A population-based female twin study.
Health Psychology, 19, 115-123.

[a] Flinders University, Adelaide, South Australia

In a cross-sectional analysis this research examined risk factors for the development of binge eating, and for BN. A sample of 850 pairs of female twins completed self-report data. A range of genetic factors were identified for both binge eating and its exacerbation into BN.

Appendix D

Systematic Reviews on Prevention Meeting Inclusion Criteria for the Evidence Review

First Author	Publication Year/Search Year	Inclusion/Exclusion Criteria	Intervention/s Reviewed	Number of RCTS Included	Quality Appraisal of Included Studies
Pratt	2002 (2004; updated)	*Inclusion criteria:* ■ Randomised, controlled trial ■ Study had a major focus on the prevention of Eating Disorders ■ Child or adolescent study sample where there is no known diagnosis of an Eating Disorder ■ Inclusion of at least one standardised measure used with the intervention and control condition, administered at pre- and post-intervention ■ At least one objective measure (e.g., a biomarker) or a standardised psychological measure ■ Data are reported in a useable form or data can be obtained from study authors	From the included studies, the authors categorised four intervention types: ■ Eating Disorder awareness e.g., didactic psychoeducation programs, which among other content, included information about Eating Disorders ■ Promotion of healthy eating attitudes and behaviours, with Eating Disorder information, and content on adolescent coping ■ Media literacy ■ Self-esteem enhancement	12 ■ 2 Eating Disorder awareness ■ 6 Promotion of health eating attitudes ■ 3 Media literacy ■ 2 Self-esteem enhancement	++Assessment of risk of bias reported, all studies included

Note: *One RCT contained two intervention arms.

Appendix E

Randomised Controlled Trials on Prevention (Universal, Selective, or Indicated) Meeting Inclusion Criteria for the Evidence Review

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Abascal, 2004 **Country:** United States of America **Setting:** Secondary school **Px approach:** Selective/indicated **Population:** Female high school sophomores **Number randomised:** 78 (1 school) **Total number of sessions:** 6 (over 6 wks) **Analysis:** ITT **Inclusion criteria:** Female high school sophomores **Exclusion criteria:** None **Format:** Computer-delivered **Funding:** Yes	***Student Bodies*** **program delivered to whole class (SBwc)** (psychoeducational/cognitive behavioural program) ***n*:** 23 **Age:** *M* = 15.3 yrs (*SD* = 0.6)* **% female:** 100%	**Post-tx:** 0% (0/23)	Outcomes measured were weight concern, shape concern, eating concern, restraint, knowledge of program content, drive for thinness, and bulimic attitudes. From pre-to-post, SBhrhm showed significant improvement on weight concern, shape concern, and knowledge. SBother showed significant improvement on weight concern and knowledge only. The authors presented SBwc results by segregating students into categories of 'hrhm' or 'other'. The SBwc 'hrhm' students showed significant pre-post improvement on shape concern, restraint, drive for thinness, and knowledge. The SBwc 'other' group showed significant improvement on knowledge only. The 'hrhm' students showed similar improvement in eating disorder outcomes irrespective of delivery format (i.e. selective or indicated).
	Student Bodies **program delivered to higher-risk and higher motivated ('hrhm') students only (SBhrhm)** (psychoeducational/cognitive behavioural program) ***n*:** 22 **Age:** *M* = 15.3 yrs (*SD* = 0.6)* **% female:** 100%	**Post-tx:** 0% (0/22)	
	Student Bodies **program delivered to lower-risk/higher-motivated or lower-risk/lower-motivated or higher-risk/lower-motivated ('other') students only (SBother)** (psychoeducational/cognitive behavioural program) ***n*:** 30 **Age:** *M* = 15.3 yrs (*SD* = 0.6)* **% female:** 100%	**Post-tx:** 0% (0/30)	
First author, yr: Austin, 2007 **Country:** United States of America **Setting:** Middle school **Px approach:** Universal **Population:** Schoolchildren **Number Randomised:** 1839 (16 schools originally; then 3 dropped out prior to commencement). Of these, 1664 completed the follow-up Ax and formed the longitudinal cohort. Of these, cases with missing baseline data on specific measures were excluded (*n* = 156). Next, those who reported disordered weight-control behaviours at baseline were excluded (*n* = 57). Final sample = 1451. **Analysis:** Completer (those with available pre/post data) **Inclusion criteria :** Middle schoolchildren (grade 6 and 7) **Exclusion criteria:** Students with missing baseline data on specific variables; presence of disordered weight-control behaviours (post-randomisation) **Total number of sessions:** Multiple[ŧ] (implemented during 2 school yrs) **Format:** School-based intervention (classroom-based activities and school-based review and modification of policies and procedures) **Funding:** Yes	***Planet Health*** **program + *School Health Index*** **(middle/high school version) program (PH + SHI)** (Promotion of healthy eating attitudes and behaviours and reduction of overweight) ***n*:** 614 (6 schools) **Age:** n.s. **% female:** 53%	**Post-tx:** n.s.	Children were assessed 19 mths after commencement of the study programs. At study endpoint, 3.6% and 1.3% of girls in control and intervention schools, respectively, reported onset of new disordered eating behaviour (self-induced vomiting or laxative use or diet pills use). Among boys, 2.7% in control schools and 2.4% in intervention schools developed new disordered eating behaviours.
	Control (CON) (worked with one module of SHI only related to school policies and environment) ***n*:** 837 (7 schools) **Age:** n.s **% female:** 50%	**Post-tx:** n.s.	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Austin, 2005 **Country:** United States of America **Setting:** Middle school **Px approach:** Selective **Population:** Female middle school students **Number randomised:** 1560 in original trial (this study reported on *n* = 480 girls i.e. those with complete data at baseline and 21 mth follow-up; and excluded those with compensatory behaviours at baseline; not true randomisation of the sample reported on) **Analysis:** Completer **Inclusion criteria:** Middle school students **Exclusion criteria:** Individuals with missing baseline data on dieting, or use of purging or diet pills; use of diet pills or purging in past 30 days to control weight **Total number of sessions:** Multiple† **Format:** Classroom-delivered **Funding:** Yes	***Planet Health* program (PH)** (Promotion of healthy eating attitudes and behaviours) ***n*:** 254 **Age:** *M* = 11.5 yrs (*SD* = 0.7) **% female:** 100% **Control (CON)** ***n*:** 226 **Age:** *M* = 11.5 yrs (*SD* = 0.7) **% female:** 100%	**Post-tx:** n.s. **Post-tx:** n.s.	After the intervention (21 mths) 6.2% of girls in control schools and 2.8% of girls in the intervention school reported purging or use of diet pills to control weight, a statistically significant difference. The same outcome was investigated by segregating analyses according to baseline dieting behaviour; of those who were 'dieters' at baseline, 7.7% in control schools and 8.8% in intervention schools reported onset of purging or diet pill use (non-significant difference), and of 'non-dieters', 5.6% in control schools and .5% in intervention schools reported onset of purging and diet pill use (a significant difference). Based on an odds ratio analysis, it was estimated that 59% of new cases of eating-disordered behaviour in the control condition could have been prevented had they received the prevention program.
First author, yr: Becker, 2008 **Country:** United States of Australia **Setting:** College **Px approach:** Selective/indicated **Population:** Female college sorority members **Number Randomised:** 188 **Analysis:** ITT **Inclusion criteria:** Female; college sorority member **Exclusion criteria:** None **Total number of sessions:** 2 (interval duration not reported) **Follow-up:** 7 wk, 8 mth **Format:** Face-to-face (group); delivered by unpaid trained sorority peer leaders **Funding:** n.s.	**Cognitive dissonance (CD)** ***n*:** 94 **Age:** *M* = 18.64 yrs (*SD* = .63)* **% female:** 100% **Media literacy (ML)** ***n*:** 94 **Age:** *M* = 18.64 yrs (*SD* = .63)* **% female:** 100%	**Post-tx:** 9.5% (9/94) **7- wk follow- up:** 3.1% (3/94) **8-mth follow-up:** 12.7% (12/94) **Post-tx:** 8.5% (8/94) **7-wk follow-up:** 4.2% (4/94) **8-mth follow-up:** 15.9% (15/94)	Analyses included risk status (low versus high on the basis of a median split on body dissatisfaction) as a between-subjects factor. All groups (intervention by risk status) experienced significant improvement in thin-ideal internalisation over time, with no significant interactions. On restraint, body dissatisfaction, and bulimic pathology, low- and high-risk participants responded similarly to CD, and high-risk participants responded significantly better to ML (though at the final follow-up low-risk participants in ML had higher restraint, body dissatisfaction, and bulimic pathology mean scores relative to baseline scores). At the follow-ups, effect sizes on outcomes were generally small to moderate when considering low- and high-risk participants combined, and were slightly larger for CD. In terms of onset of new Eating Disorder cases, one in CD and one in ML met criteria for EDNOS at 8-mth follow-up.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Becker, 2006 **Country:** United States of America **Setting:** College **Px approach:** Selective **Population:** Female college sorority members **Number Randomised:** 90 (but excluded 10 women from the data analysis because they met probable criteria for an Eating Disorder) **Analysis:** ITT **Inclusion criteria:** Female sorority members **Exclusion criteria:** Current probable Eating Disorder Dx (excluded after randomisation) **Total number of sessions:** 2 (2 wks) **Follow-up:** 7 wks, 8 mths **Format:** Face-to-face (group); delivered by unpaid trained sorority peer facilitators **Funding:** n.s.	**Cognitive dissonance (CD)** ***n*:** 38 **Age:** *M* = 18.7 yrs (*SD* = .62)* **% female:** 100%	**Post-tx:** 0% (0/38) **7-wk follow-up:** 10.5% (4/38) **8-mth follow-up:** 26.3% (10/38)	Analyses were conducted on time, condition, and time x condition interactions. There were significant interactions on dietary restraint, thin-ideal internalisation, and body dissatisfaction, but not the remaining outcome of eating pathology. No post hoc analyses were conducted to examine where the significant differences manifested. Inspection of the mean scores showed that restraint improved in both CD and MA from baseline to post-intervention, and continued to decline over the follow-ups for CD but reverted to the baseline level for ML. Eating pathology declined in both CD and ML over baseline to follow-up, with some variation in rate of change between assessment points. Thin-ideal internalisation reduced from baseline to post-intervention in CD and ML; CD appeared to maintain gains better and ML worsened. Overall, body dissatisfaction declined in CD and ML but rate of change between measurement points varied between conditions. Significant time effects, indicating improvement in CD and ML, were shown an all four outcome measures (except inspection of mean scores showed that the 8-mth follow-up mean score on restraint was higher than baseline for the MA condition). No group effects emerged on any outcome measure.
	Media literacy (ML) ***n*:** 42 **Age:** *M* = 18.7 yrs (*SD* = .62)* **% female:** 100%	**Post-tx:** 0% (0/42) **7-wk follow-up:** 11.9% (5/42) **8-mth follow-up:** 30.9% (13/42)	
First author, yr: Becker, 2005 **Country:** United States of America **Setting:** College **Px approach:** Selective/indicated **Population:** Female college sorority members **Number Randomised:** 161 (but excluded 12 women from the data analysis because they met probable criteria for an Eating Disorder) **Analysis:** ITT **Inclusion criteria:** Female sorority members **Exclusion criteria:** Current probable Eating Disorder Dx (excluded after randomisation) **Total number of sessions:** 2 (2 wks) **Follow-up:** 1 mth **Format:** Face-to-face (group); delivered by licenced clinical psychologist and two undergraduate co-leaders **Funding:** n.s.	**Cognitive dissonance (CD)** (structured cognitive dissonance activities to reduce internalisation of the thin-ideal) ***n*:** 57 **Age:** *M* = 19.95 yrs (*SD* = 0.90)* **% female:** 100%	**Post-tx:** 12.2% (7/57)	Over time (pre-tx, post-tx, and follow-up) there were no significant differences between CD and MP on eating pathology, restraint, and body dissatisfaction, and both conditions improved significantly relative to CON. There was no significant differences between CD and MP over time on thin-ideal internalisation, but only the CD group showed significantly greater change relative to CON.
	Media psychoeducation (MP) (contained only the psychoeducation content of CD) ***n*:** 56 **Age:** *M* = 19.9 yrs (*SD* = 0.90)* **% female:** 100%	**Post-tx:** 14.3% (8/56)	
	Wait-list control (CON) ***n*:** 36 **Age:** *M* = 19.9 yrs (*SD* = 0.90)* **% female:** 100%	**Post-tx:** 11.1% (4/36)	
	Media advocacy (MA) ***n*:** 94 **Age:** *M* = 18.6 yrs (*SD* = 0.63)* **% female:** 100%	**Post-tx:** 0% (8/94)	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Boivin, 2008 **Country:** Canada **Setting:** College **Px approach:** Selective **Population:** Female undergraduates **Number Randomised:** 63 **Analysis:** Completer **Inclusion criteria:** Female **Exclusion criteria:** None **Total number of sessions:** 1 **Follow-up:** 4 wk **Format:** Face-to-face (group); delivered by doctoral psychologist **Funding:** n.s.	**Cognitive dissonance - negative thinness expectancy (CDn)** (intervention targeted expectancies about rewards from thinness through elucidation of thinness costs) ***n*:** 63* **Age:** *M* = 19.9 yrs (*SD* = 3.10)* **% female:** 100%	**Post-tx:** 0% (0/63)* **4-wk follow-up px:** 17% (11/63)*	At post-tx and follow-up, CDn < CDp on expectancies of rewards for thinness, though there were no differences between the intervention conditions and the control condition. At post-tx and follow-up, there were no significant differences between conditions on body dissatisfaction or drive for thinness. Significantly more individuals identified as restrained eaters at baseline were classified as unrestrained eaters at post-tx and follow-up if they participated in CDn relative to either CDp or CON. After the intervention, individuals in the CDn condition were more likely to rate photos of thin women as less attractive and were likely to have a more realistic definition of overweight relative to those in CDp, but neither group differed significantly from CON.
	Cognitive dissonance - positive thinness expectancy (CDp) (intervention targeted expectancies about rewards from rewards from thinness through elucidation of benefits of thinness and costs of overweight) ***n*:** 63* **Age:** *M* = 19.9 yrs (*SD* = 3.10)* **% female:** 100%	**Post-tx:** 0% (0/63)* **4-wk follow-up px:** 17% (11/63)*	
	Control (CON) (assessment only condition) ***n*:** 63* **Age:** *M* = 19.9 yrs (*SD* = 3.10)* **% female:** 100%	**Post-tx:** 0% (0/63)* **4-wk follow-up px:** 17% (11/63)*	
First author, yr: Buchholz, 2008 **Country:** Canada **Setting:** Gymnastics clubs **Px approach:** Selective **Population:** Female gymnasts **Number randomised:** 62 gymnasts (7 clubs were block randomised) **Analysis:** One-shot participants **Inclusion criteria:** Gymnasts (and parents and coaches) **Exclusion criteria:** none **Total number of sessions:** 2 (one-shot intervention to gymnasts; one-shot intervention to parents/ coaches) **Format:** Face-to-face (group); facilitator status not specified **Funding:** Yes	***BodySense: A Positive Body Image Initiative for Female Athletes* program (BOD)** (Multicomponent; psychoeducation, CBT; other) ***n(ITT):*** 69 gymnasts (with 69 mothers, 69 fathers, 24 coaches) ***n(completer):*** 31 gymnasts (24 mothers, 8 fathers, 14 coaches, 4 clubs) **Age:** *M* = 13.4 yrs (*SD* = 1.45)* **% female:** 100%	**Post-tx:** Athletes: 55% (38/69) Mothers: 65% (45/69) Fathers: 88% (61/69) Coaches: 42% (10/24)	There was a significant difference between BOD and CON on one outcome only at post-tx; self-reported pressure to be thin. There were no significant differences between BOD and CON at post-tx on self-reported outcomes of; self-efficacy over dieting pressures, body-esteem in relation to weight, shape, and attributions, thin-ideal internalisation, awareness of a societal emphasis on appearance, and eating attitudes and behaviours. There were no significant differesnces between BOD and CON at post-tx or parent/coach-reported measures of: perceived pressure for athletes to be thin, beliefs surrounding thinness and success, child self-efficacy over dieting pressures, societal emphasis on appearance, and thin-ideal internalisation.
	Wait-list control (CON) ***n(ITT):*** 49 gymnasts (with 49 mothers, 49 fathers, 24 coaches); ***n(completer):*** 31 gymnasts (with 8 mothers, 3 fathers, 4 coaches, 3 clubs) **Age:** *M* = 13.4 yrs (*SD* = 1.45)* **% female:** 100%	**Post-tx:** Athletes: 37% (18/49) Mothers: 84% (41/49) Fathers: 94% (46/49) Coaches: 93% (20/24)	
First author, yr: Cousineau, 2007 **Country:** United States of America **Setting:** Middle school **Px approach:** Universal **Population:** School students **Number randomised:** 261 **Analysis:** Completer **Inclusion criteria:** Grade 6 middle school student **Exclusion criteria:** No parental consent and non-completion of baseline assessment **Total number of sessions:** 3 **Format:** Web-based program **Funding:** Yes	**Multicomponent intervention *Trouble on the Tightrope: In Search of Skateboard Sam* (MULT)** ***n*:** 261* **Age:** *M* = 11.7 yrs* **% female:** 57%*	**Post-tx:** n.s. **3-mth follow-up:** 6.7% (26/261)*	There was a superior difference at post-tx favouring MULT on puberty knowledge and internalisation of the media body ideal, however only the superior improvement on puberty knowledge was maintained to follow-up. There were no differences between MULT and CON on self-esteem at post-treatment or follow-up.
	Attention control (CON) ***n*:** 261* **Age:** *M* = 11.7 yrs* **% female:** 57%*	**Post-tx:** n.s. **3-mth follow-up:** 6.7% (26/261)*	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Delinsky, 2006 **Country:** United States of America Setting: College **Px approach:** Indicated **Population:** Female college students with extreme shape and weight concerns **Number randomised:** 45 **Analysis:** Completer **Inclusion criteria:** Female college students; presence of extreme shape and weight concerns **Exclusion criteria:** Objective bulimic episodes once per mth or more frequently; BMI < 18.5 kg/m^2; BMI > 27 kg/m^2 **Total number of sessions:** 3 (3 wks) **Follow-up:** 4 wk **Format:** Face-to-face (individual); delivered by doctoral clinical psychology students **Funding:** n.s.	**Mirror exposure treatment (ME) (in vivo exposure with mindfulness)** ***n***: 24 Age: M = 20.5 yrs (SD = 2.7)* % female: 100% **Attention control (CON)** (science-based websites) ***n:*** 21 **Age:** *M* = 20.5 yrs (*SD* = 2.7)* **% female:** 100%	**Post-tx:** 6.7% (3/45)* **Post-tx:** 6.7% (3/45)*	There were significant time x group interactions on body checking and dissatisfaction with body parts, favouring a faster rate of improvement among ME versus CON, There were no significant interactions on body image avoidance, weight/shape concerns, dieting, depression, and self-esteem. There were significant between-group differences across termination/follow-up on body checking (ME < CON), body image avoidance (ME < CON), shape/weight concern (ME < CON), depression (ME < CON), and self-esteem (ME > CON), but not on dissatisfaction with body parts and dieting.
First author, yr: Dohnt, 2008 **Country:** Australia **Setting:** Primary school **Prevention approach:** Universal **Population:** Female primary school students **Number Randomised:** 84 (4 schools) **Analysis:** ITT **Inclusion criteria:** Female; Grade 1 or 2 school students **Exclusion criteria:** none **Total number of sessions:** 1 **Follow-up:** 6 wk **Format:** Classroom-delivered **Funding:** n.s.	***Shapesville*** **program (SHP)** (storybook designed by eating disorder specialists with content on body image, healthy eating, broad-based self-esteem, media literacy, with classroom-based discussion) ***n*** = 42 **Age:** *M* = 6.6 yrs (*SD* = .77)* **% female** = 100% **Attention control (CON)** (control storybook with classroom-based discussion, "Stop, Elephant, Stop") ***Grade 1 participants*** ***n*** = 42 **Age:** *M* = 6.6 yrs (*SD* = .77)* **% female** = 100%	**Post-tx:** 0% (0/42) **Post-tx:** 0% (0/42)	Girls in SHP demonstrated a significantly greater degree of improvement in appearance satisfaction at post-tx compared to CON, however this was not maintained to follow-up. Girls in the SHP but not the CON condition showed improvement in underweight stereotyping at post-tx, through the intervention effect was not maintained to follow-up. Neither SHP nor CON showed changes in overweight stereotyping over the course of the study, which was present to a high degree at pre-intervention. SHP but not CON affected media-related outcomes. Girls in both groups showed a high desire to look like TV or pop stars pre-intervention, and girls in the SHP were significantly less likely to endorse this desire at post-tx and follow-up. Girls in the SHP but not the CON condition were significantly better able to identify special talents in themselves from pre- to post-intervention, which was maintained to follow-up. Girls in the SHP but not the CON condition demonstrated a significant increase in knowledge of the five food groups at post-treatment and follow-up relative to baseline.
First author, yr: Doyle, 2008 **Country:** United States of America **Setting:** Online **Px approach:** Selective **Population:** Overweight adolescent high school students **Number randomised:** 80 **Analysis:** ITT **Inclusion criteria:** aged 12 to 18 yrs; overweight or at risk of overweight (≥ 85th percentile); had internet access **Exclusion criteria:** Medical conditions or use of prescription medication resulting in significant weight changes; Complications of overweight that contraindicated moderate physical activity; past or present Dx of an Eating Disorder **Total number of sessions:** 16 (16 wks) **Follow-up:** 4 mth **Format:** Computer-based **Funding:** Yes	***Student Bodies 2*** **program (SB2)** (psychoeducational/cognitive behavioural program) ***n*:** 40 **Age:** *M* = 14.9 yrs (*SD* = 1.7) **% female:** 65% **Attention control (CON)** (basic information provided on nutrition and physical activity with no behaviour modification components) ***n*:** 40 **Age:** *M* = 14.1 yrs (*SD* = 1.6) **% female:** 60%	**Post-tx:** 17.5% (7/40) **Post-tx:** 17.5% (7/40)	Those receiving SB2 had a significantly greater reduction in BMI kg/m^2 from pre-tx to post-tx compared to CON, but this was not maintained to follow-up. Both groups had a significant reduction in shape concern from post-tx to follow-up, which was significantly larger for CON. There was a significant increase in dietary restraint for SB2 from pre-tx to post-tx but not CON. There were no other significant differences between groups at post-tx or follow-up or in terms of rate of change on other measured outcomes such as eating concern, weight concern, and frequency of binge eating and vomiting.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Elliot, 2006 **Country:** United States of America **Setting:** Secondary school **Px approach:** Selective **Population:** Female secondary school athletes **Number randomised:** 928 **Analysis:** n.s **Inclusion criteria:** Female; middle or secondary school students; participation in school-sponsored sports **Exclusion criteria:** None **Total number of sessions:** 8 (n.s.) **Format:** Face-to-face (group); facilitated by coaches and squad (peer) leaders **Funding:** Yes	***The Athletes Targeting Healthy Exercise and Nutrition Alternatives (ATHENA)* program (ATHENA)** ***n*: 20 teams (*n* = 457)** **Age:** *M* = 15.4 yrs (*SD* = 1.2) **% female:** 100%	**Post-tx:** 26% (120/457)	There were significant post-tx differences favouring ATHENA on diet pill use in the previous 3 mths, tracking of protein intake, eating more protein in the past 2 mths, know how to lift weights to improve strength, intent toward future diet pill use, intent toward future vomiting to lose weight, intent toward future tobacco use, knowledge of anabolic steroids, knowledge that alcohol is a toxin that damages muscles, knowledge of 'the basics of a good diet for an athlete', knowledge of calcium needs, belief that person mood is better after doing fun things, knowledge to control mood, knowledge of how to turn down unhealthy weight-loss behaviours, beliefs that advertisements are true, belief that thin women are most attractive to men, closest friends are against me using drugs, closest friends use body-shaping drugs, There were no significant between-group differences at post-tx on knowledge of effects of disordered eating, 'feeling depressed in the past wk', 'self-esteem', pressure from teammates to lose weight, percent female athletes at other schools with disordered eating or body-shaping drug use.
	Treatment as usual (CON) ***n*: 20 teams (471)** **Age:** *M* = 15.3 yrs (*SD* = 1.2) **% female:** 100	**Post-tx:** 30% (140/471)	
First author, yr: Escoto Ponce de Leon, 2008 **Country:** Mexico **Setting:** Primary school **Px approach:** Universal **Population:** Primary school students **Number randomised:** 120 (9 classes, 3 schools) **Analysis:** ITT **Inclusion criteria:** Grade 5 students **Exclusion Criteria:** None **Total number of sessions:** 8 (8 wks) **Follow-up:** 6 mth **Format:** Classroom-delivered; facilitated by study first author **Funding:** Yes	**CBT (social-cognitive orientation) in an interactive format (CBTi)** ***n*:** 41 **Age:** *M* = 9.9 yrs (*SD* = 0.44)* **% female:** 51%	**Post-tx:** 0% (0/41) **Follow-up:** 0% (0/41)	Data were analysed separately for boys and girls. There was significant within-group improvement over time (pre-tx, post-tx, follow-up) for the CBTi on body dissatisfaction (for boys and girls), overeating (boys only), and self esteem (boys only). No significant improvements were observed for any condition on the outcomes of influence of body aesthetic models or eating disorders Sxs, and there were no significant within-group changes within the CBTd or CON conditions.
	CBT (social-cognitive orientation) in a didactic format (CBTd) ***n*: 40** **Age:** *M* = 9.9 yrs (*SD* = 0.44)* **% female:** 47%	**Post-tx:** 0% (0/40) **Follow-up:** 0% (0/40)	
	Control (CON) (control type not specified) ***n*:** 39 **Age:** *M* = 9.9 yrs (*SD* = 0.44)* **% female:** 54%	**Post-tx:** 0% (0/39) **Follow-up:** 0% (0/39)	
First author, yr: Favaro, 2005 **Country:** Italy **Setting:** Vocational training school **Px approach:** Selective **Population:** Female students in vocational training **Number Randomised:** 141 (9 classes) **Analysis:** Completer **Inclusion criteria:** Female; aged 16 to 18 yrs; Secondary school student **Exclusion criteria:** None **Total number of sessions:** 8 (7 with students, 1 with parents) (8 wks) **Format:** Classroom-delivered; facilitated by trained teachers **Funding:** n.s.	**Multicomponent program (MULT)** (Psychoeducation; media literacy) ***n*:** 38 **Age:** *M* = 16.7 yrs (*SD* = 1.1) **% female:** 100%	**Post-tx:** 8.5% (12/141)*	Students were assessed at baseline and 1 yr from baseline, and data on incidence of eating disorders was collected, with additional outcomes of BMI kg/m^2 and indices of eating pathology. There were no significant differences in rate of onset of AN, sub-threshold AN, or sub-threshold BN, between MULT and CON, but significantly fewer participants in MULT developed BN (0% versus 3%). Of those with no dietary restriction at baseline, 3% in MULT and 12% in CON had developed food restraint at 1 yr. There were no significant differences in rate of onset of other disordered eating behaviours, such as fasting, self-induced vomiting, and laxative/diuretic abuse. Significantly fewer women in MULT rated their body shape and weight as important for their self-esteem (a key eating disorder "marker") relative to CON (0% versus 15%). There were no significant differences in change in BMI kg/m^2 or psychometric measures of total eating pathology, oral control, and dieting, however, MULT showed a significant improvement on bulimia Sxs whereas CON did not.
	Control (CON) (control type not specified) ***n*:** 91 **Age:** *M* = 17.1 yrs (*SD* = 1.0) **% female:** 100%	**Post-tx:** 8.5% (12/141)*	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Franko, 2005 **Country:** United States of America **Setting:** College **Prevention approach:** Selective/indicated **Population:** Female college students **Number randomised:** 240 **Analysis:** Completer **Inclusion criteria:** Female; first semester of university; aged 18 to 22 yrs; willing to sign informed consent and undergo initial and follow-up assessments; identification by the screening measure as being at high-risk or of low risk for developing an Eating Disorder **Exclusion criteria:** Current tx for an Eating Disorder diagnosis; identification as meeting criteria for an Eating Disorder Dx **Total number of sessions:** 2 (1-2 wks) **Follow-up:** 3 mth **Format:** Computer-based **Funding:** Yes	***Food, Mood, and Attitude*** **program (FMA)** Multicomponent program (theoretically oriented in the dual-pathway model; cognitive behavioural theory, interpersonal theory, harm reduction theory) ***n*:** 120 **Age:** *M* = 18.2 yrs (*SD* = 0.4) **% female:** 100 **Attention control (CON)** ***n*:** 120 **Age:** *M* = 18.2 yrs (*SD* = 0.4) **% female:** 100	**Post-tx:** 3.3% (4/120) **Post-tx:** 4.2% (5/120)	Subjects were stratified prior to randomisation by eating disorder risk status (high- versus low-risk) on the basis of an eating disorder screening measure. There were significant time x group x risk status interactions on shape concern, weight concern, global eating disorder psychopathology, and internalisation of the thin idea, indicating that the FMA group improved significantly more than CON. Analyses conducted separately on the high-risk and low-risk groups in FMA suggested significant reductions for high-risk participants on internalisation of the thin ideal, shape concern, weight concern, and global eating disorder psychopathology, and no such changes for low-risk participants. Women in FMA were significantly more likely to reduce overeating and use of compensatory methods (self-induced vomiting, laxative use, diuretic use).
First author, yr: Ghaderi, 2005 **Country:** Sweden **Setting:** Primary school **Px approach:** Universal **Population:** Preadolescent school students **Number randomised:** 164 **Analysis:** Completer **Inclusion criteria:** Fifth grade school student **Exclusion criteria:** No parental permission to participate **Total number of sessions:** 9 (9 wks) **Format:** Classroom-delivered **Funding:** Yes	***Everybody's Different*** **program** (Self-esteem enhancement program) **(SE)** ***n*:** n.s. **Age:** *M* = Approximately 11 yrs* **% female:** 53%* **Control (CON)** ***n*:** n.s. **Age:** *M* = Approximately 11 yrs* **% female:** 53%*	**Post-tx:** 4.3% (7/164)* **Post-tx:** 4.3% (7/164)*	No significant time by condition, or main effects of condition, were apparent over the course of the study. There was a main effect of time on dieting, restricting and purging, food preoccupation, eating attitudes and behaviours, and depression, indicating significant improvement for both SE and CON. Anxiety, self-concept, oral concern, weight concern, and actual-ideal weight discrepancy remained stable over the study in both conditions.
First author, yr: Gollings, 2006 **Country:** Australia **Setting:** Community **Px approach:** Indicated **Population:** Women with body shape concerns **Number randomised:** 40 **Analysis:** ITT **Inclusion criteria:** Female; aged 18 to 30 yrs; access and ability to use Internet; body shape concern above the norm **Exclusion criteria:** Dx of severe major depression, substance dependence, or psychotic disorder; current receipt of specialist tx for an Eating Disorder or weight loss program; medical Dx known to influence eating behaviours **Total number of sessions:** 8 (8 wks) **Follow-up:** 2 mths **Format:** Face-to-face (group) facilitated by a 'therapist' vs computer-delivered **Funding:** Yes	***Set Your Body Free*** **program with face-to-face delivery format (SYBFf)** (Psychoeducation/CBT) ***n*:** 19 **Age:** *M* = 22.1 yrs (*SD* = 2.8) **% female:** 100% ***Set Your Body Free*** **program with computer-based delivery format (SYBFc)** (Psychoeducation/CBT) ***n*:** 21 **Age:** *M* = 22.1 yrs (*SD* = 2.9) **% female:** 100%	**Post-tx:** 21.0% (4/19) **Post-tx:** 14.3% (3/21)	SYBFf and SYBFc showed significant improvement between pre-tx and post-tx on all outcome variables, including body shape concern, body image avoidance, restraint, extreme weight loss behaviours, bulimic Sxs, binge eating frequency, global eating disorder psychopathology, depression, anxiety, and self-esteem. Between post-tx to follow-up, SYBFf and SYBFc maintained improvements on all variables, except for dietary restraint, which improved further. There were no significant group by time interactions, suggesting that both delivery modalities were associated with similar outcomes. Inspection of the effect sizes indicated that on the measures of dietary restraint and extreme weight loss behaviours, SYBFf had a somewhat greater advantage.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Green, 2005 **Country:** United States of America **Setting:** College **Px approach:** Selective **Population:** Female college students **Number randomised:** 155 **Analysis:** Completer **Inclusion criteria:** Female **Exclusion criteria:** Current Eating Disorder Dx **Total number of sessions:** 2 (2 wks) **Follow-up:** 4 wk **Format:** Face-to-face (individual); facilitator status not specified **Funding:** n.s.	**Cognitive dissonance (low-level) (CDl)** ***n:*** 155* **Age:** *M* = 18.9 yrs (*SD* = 1.0)* **% female:** 100%	**Post-tx:** n.s.	The researchers analysed data by dividing the groups by symptomatic status (symptomatic versus asymptomatic based on baseline scores on an eating psychopathology measure). There was no significant condition x symptomatic status interaction on global eating disorder psychopathology. Those who were symptomatic had higher global eating disorder psychopathology at post-tx. There were differences in global eating disorder psychopathology between CDl and CDh at post-tx, favouring CDl. There were no significant differences in global eating disorder psychopathology at post-tx between those who participated in CDh, CDL, or CON. Consistent with these findings, there was no intervention effect at 4-wk follow-up.
	Cognitive dissonance (high-level) (CDh) ***n:*** 155* **Age:** *M* = 18.9 yrs (*SD* = 1.01)* **% female:** 100%*	**Post-tx:** n.s.	
	No treatment control (CON) ***n:*** 155* **Age:** *M* = 18.9 yrs (*SD* = 1.0)* **% female:** 100%	**Post-tx:** n.s.	
First author, yr: Hay, 2007 **Country:** Australia **Setting:** Community **Px approach:** Indicated **Population:** Adult females **Number randomised:** 122 **Analysis:** ITT + Completer **Inclusion criteria:** Female; aged 18 to 42 yrs; met screening criteria for Eating Disorder symptoms (shape or weight concerns of moderate importance on a standardised measure, or at least one regular Eating Disorder behaviour such as objective or subjective binge episodes or extreme weight control behaviours **Exclusion criteria:** Met DSM-IV full criteria for AN; had a BMI kg/m^2 < 18 **Total number of sessions:** NA **Follow-up: 6 mths, 1**2 mths **Format:** Written information materials **Funding:** Yes	**Eating Disorder mental health literacy (ED-MHL)** ***n:*** 61 **Age:** *M* = 28.8 yrs (*SD* = 6.5) **% female:** 100%	**6-mth follow-up:** 26.2%* **12-mth follow-up:** 16.4%	At 6-mth follow-up, there was a significant between-group difference favouring ED-MHL on global eating disorder psychopathology for ITT but not Completers, and no difference between groups on health-related quality of life (mental health component) or mental health literacy variables assessed in the context of a woman depicted in a clinical vignette (i.e., 'problem identified as low-self esteem,' 'problem identified as bulimia or another Eating Disorder,' 'most helpful therapy: IPT or CBT,' 'most helpful medicine: antidepressants,' 'treatment very or extremely difficult,' 'positive regard for the ability to lose weight') (ITT and Completer). At 6- and 12-mth follow-up, there were significant between-group differences favouring ED-MHL on global eating disorder psychopathology for ITT but not Completers, and no significant differences between groups on health-related quality of life (mental health component) or the mental health literacy variables identified above except for 'treatment very or extremely difficult' – ED-MHL were less likely to perceive treatment as difficult (ITT and Completer). There were no significant between-group differences in the proportion who sought help for an eating problem from baseline to 12 months, and no significant differences in the choice of person that participants sought help from (ITT). For both groups, there was a significant reduction from baseline to 6- and 12-mths on global eating disorder psychopathology (ITT). There were no significant improvements in health-related quality of life (mental health component) for ITT analyses, but there were for Completer analyses.
	Control (CON) (received information about local mental health services only) ***n:*** 61 **Age:** *M* = 28.2 yrs (*SD* = 6.2) **% female:** 100%	**6-mth follow-up:** 26.2%* **12-mth follow-up:** 16.4%	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Heinicke, 2007 **Country:** Australia **Setting:** Secondary School **Px approach:** Indicated **Population:** Female adolescents who self-identified as having body image or eating problems **Number randomised:** 73 **Analysis:** ITT + Completer **Inclusion criteria:** Female; aged 12 to 18 yrs; self-identification as having body image or eating problems; Internet access **Exclusion criteria:** BMI kg/m^2 < 5th percentile for age and gender; Dx of AN; receiving specialist tx (antidepressant medication excepted) for an Eating Disorder Dx or any psychological Dx. **Total number of sessions:** 6 + 1 follow-up session 2 mths after program completion (6 initial sessions over 6 wks) **Follow-up:** 2 mths, 6 mths **Format:** Computer-based **Funding:** Yes	***My Body My Life*** **program (MBML)** (Psychoeducation/CBT) ***n:*** 36 **Age:** *M* = 14.4 yrs (*SD* = 1.53)* **% female:** 100% **Wait-list control (CON)** ***n:*** 37 **Age:** *M* = 14.4 yrs (*SD* = 1.53)* **% female:** 100%	**Post-tx:** 22.2% (8/36) **Post-tx:** 8.1% (3/37)	MBML had superior improvement over time relative to CON on body shape concern, restraint, extreme weight loss behaviours, bulimia Sxs, peer body comparison tendencies, internalisation of the media ideal, perceived media pressures, media as an information source, and depression. There was no significant difference on BMI kg/m^2 (Completer). Time by group interactions at post-tx showed significant interactions favouring superior improvement for MBML relative to CON on body shape concern, peer body comparison tendencies, restraint, bulimia Sxs, perceived media pressures, and media as an information source. There were no significant differences on BMI kg/m^2, extreme weight loss behaviours, and internalisation of the media ideal (ITT). From post-tx to 2-mth follow-up in the intervention condition, there were no significant differences between outcome measures, indicating that all gains made were maintained, with the exception of body shape, extreme weight loss behaviours, and peer body comparison tendencies, which continued to improve. From 2-mth follow-up to 6-mth follow-up in the intervention condition, there were no significant differences across outcomes, with the exception of the perceived media pressures, which continued to improve.
First author, yr: Huang, 2007 **Country:** United States of America **Setting:** Community **Px approach:** Universal **Population:** Adolescents, **Number randomised:** 819 **Analysis:** Completer **Inclusion criteria:** Adolescents **Exclusion criteria:** None **Total number of sessions:** Multiple[†] **Format:** Computer-based; face-to-face (individual; facilitated by physician) and telephone counselling (facilitated by a trained health counsellour) **Funding:** Yes	***PACE (Patient-Centered Assessment and Counseling for Exercise Plus Nutrition Project)*** **program (PACE)** ***n:*** 424 **Age:** median = 13 yrs* **% female:** 53%* **Control (CON)** ***n:*** 395 **Age:** median = 13 yrs * **% female:** 53%*	**Post-tx:** 25.2% (221/878)* **Post-tx:** 25.2% (221/878)*	Analyses conducted separately for boys and girls revealed no significant group, time, or group x time interaction effects on body image or self-esteem for girls, or body image for boys. There was a significant time effect on self-esteem for boys, in that self-esteem increased over the duration of the study irrespective of participating in PACE or CON. Boys and girls in the PACE condition were grouped according to whether they maintained or lost weight, or gained weight, over the course of the study. There were no group, time, or group x time interactions for girls on self-esteem. There was a significant group x time interaction on body image for girls, reflecting an improvement in body image among those who lost or maintained weight, and maintenance of body image satisfaction among those who gained weight. There was a significant group effect for boys on body image,, reflecting a baseline difference only. There was a significant time effect for boys on self-esteem, indicating that boys in both CON and PACE achieved gains in self-esteem.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Jacobi, 2007 **Country:** Germany **Setting:** College **Px approach:** Indicated **Population:** Female college students who wanted to improve their body image **Number randomised:** 100 **Analysis:** Completer **Inclusion criteria:** Female; aged 18 to 29 yrs; "who wanted to improve their body image" **Exclusion criteria:** Eating Disorder Dx in previous yr; binge eating or purging > 3 times per wk within previous 3 mths; BMI < 18 or > 30 kg/m^2; received tx for Eating Disorder within previous yr; other severe psychopathology; use of psychotropic medication within previous 2 mths; Hx of suicidal actions. **Total number of sessions:** 8 (8 wks) **Follow-up:** 3 mth **Format:** Computer-based **Funding:** Yes	***Student Bodies*** **program – German adaptation (SB-G)** ***n:*** 50 **Age:** ***M*** = 22.5 yrs (*SD* = 2.7) **% female:** 100 **Wait-list control (CON)** ***n:*** 50 **Age:** *M* = 22.1 yrs (*SD* = 2.6) **% female:** 100	**Post-tx:** 3.0% (3/100)* **Post-tx:** 3.0% (3/100)*	At post-tx, there were significant between-group differences on restraint, drive for thinness, and weight concern, favouring SB-G. There were no significant between-group differences on BMI kg/m^2, body dissatisfaction, general psychological Sxs, or knowledge about the program content. At follow-up, there were significant between-group differences favouring SB-G on drive for thinness and knowledge about the program content. The effect sizes associated with the intervention on outcomes from pre- to follow-up was low. They ranged from .06 to .44 on Eating Disorder-related outcomes.
First author, yr: Jones, 2008 **Country:** United States of America **Setting:** Secondary School **Px approach:** Indicated **Population:** Adolescent secondary school students at risk for overweight **Number randomised:** 105 **Analysis:** ITT + Completer **Inclusion criteria:** BMI kg/m^2 ≥ age-adjusted 85th percentile; binge eating or overeating behaviours ≥ once a wk for previous 3 mths; access to a computer and the Internet; not currently enrolled in a formal binge eating or weight loss program; absence of any medical condition or tx that affects weight/appetite; absence of AN or BN Dx **Exclusion criteria**: None **Total Number of sessions:** 16 (NA wks) **Follow-up:** 5 mths **Format:** Computer-based **Funding:** Yes	***StudentBodies2-BED*** **program (SB2-BED)** (Psychoeducation/CBT) ***n:*** 52 **Age:** *M* = 15.0 yrs (*SD* = 1.0) **% female:** 73% **Wait-list control (CON)** ***n:*** 53 **Age**: *M* = 15.2 yrs (*SD* = 1.1) **% female:** 66%	**Post-tx:** 11.5% (6/52) **Follow-up:** 17.4% (8/46) **Post-tx:** 9.4% (5/53) **Follow-up:** 17.0% (8/47)	From pre-tx to post-tx, change in BMI kg/m^2 was superior in SBT-BED compared to CON (ITT + Completer). Those in SBT-BED had significant reductions in objective binge episodes and subjective binge episodes from baseline to post-tx which were maintained to follow-up (ITT + Completer), and significant reductions in weight concern and shape concern from baseline to follow-up (Completer only). No significant changes were observed in objective overeating episodes, dietary fat and sugar intake, or depressive Sxs. At 5-mth follow-up, 27% of those in SB2-BED and 12% in CON had a BMI kg/m^2 < 85th percentile, a significant difference.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Low, 2006 **Country:** United States of America **Setting:** College **Px approach:** Selective **Population:** Female college students **Number randomised:** 72 **Analysis:** ITT + Completer **Inclusion criteria:** First and second yr female students, **Exclusion criteria:** Previous Eating Disorder Dx; currently purging **Total Number of sessions:** 9 (8 sessions + 1 follow up session) (8 wks) **Follow-up:** 8-9 mths **Format:** Computer-based **Funding:** Yes	***Student Bodies*** **program (with a clinically moderated discussion group)(SBwM)** (Psychoeducation/CBT) ***n:*** ITT not specified, 14 completers **Age**: n.s **% female:** 100%	**Follow-up:** 18.0% (11/61)*	No condition changed significantly on drive for thinness over the duration of the study. CON experienced a significant increase in bulimic concerns, while the other groups remained the same (SBother) or decreased (SBwM; SBwoM). Body dissatisfaction reduced significantly in all groups over the duration of the study, with post hoc testing revealing that SBwoM had significantly lower body dissatisfaction relative to CON. Controlling for baseline weight and shape concern, there was a significant main effect of group, with post hoc analysis indicating that CON had significantly higher shape and weight concern than SBwoM.
	Student Bodies **program (with an unmoderated discussion group)(SBwoM)** (Psychoeducation/CBT) ***n:*** ITT not specified, 19 completers **Age**: n.s **% female:** 100%	**Follow-up:** 18.0% (11/61)*	
	Student Bodies **program (with no discussion group)(SBother)** (Psychoeducation/CBT) ***n:*** ITT not specified, 14 completers **Age**: n.s **% female:** 100%	**Follow-up:** 18.0% (11/61)*	
	Control (CON) (type of control not specified) ***n:*** ITT not specified, 14 completers **Age**: n.s **% female:** 100%	**Follow-up:** 18.0% (11/61)*	
First author, yr: Matusek, 2004 **Country:** United States of America **Setting:** College **Px approach:** Indicated **Population:** Female college students with body image concerns **Number randomised:** 89 **Analysis:** Completer **Inclusion criteria:** Female; aged 18 to 23 yrs; body image concerns **Exclusion criteria:** None **Total number of sessions:** 1 **Follow-up:** 8-9 mths **Format:** Face-to-face (group); facilitator status not specified **Funding:** Yes	**Cognitive dissonance (CD)** ***n:*** 27 **Age:** *M* = 19.86 *(SD* = 1.5)* **% female:** 100%	**Post-tx:** 7.4% (2/27)	There was a significant group × time interaction on drive for thinness, thin-ideal internalisation, and global eating disorder psychopathology, but not body dissatisfaction, body size drawings, influence of body image on quality of life, or self-esteem. Post hoc testing revealed that CD and HW experienced significant pre-post improvement on drive for thinness, thin-ideal internalisation, and global eating disorder psychopathology, and that CON did not. CON did not significantly change on outcomes, except for thin-ideal internalisation which worsened from baseline to follow-up. There were no significant differences between the intervention groups on any outcomes.
	Healthy Weight adapted to one-session format (HW) ***n:*** 25 **Age:** *M* = 19.9 yrs *(SD* = 1.5)* **% female:** 100%	**Post-tx:** 12.0% (3/25)	
	Wait list control (CON) ***n:*** 34 **Age:** *M* = 19.9 yrs *(SD* = 1.5)* **% female:** 100%	**Post-tx:** 0% (0/34)	
First author, yr: McVey, 2009 **Country:** Canada **Setting:** Primary school **Px approach:** Universal **Population:** Teachers and public health practitioners **Number randomised:** 167 (*n* = 78 school teachers, *n* = 89 public health practitioners) **Analysis:** Completer **Inclusion criteria:** Teachers and public health practitioners **Exclusion criteria:** None **Total number of sessions:** NA (8 wks) **Format:** Computer-based **Funding:** Yes	***The Student Body: Promoting Health at Any Size*** **program (SB)** ***n:*** 95 (*n* = 45 school teachers; *n* = 50 practitioners) **% female:** 88%*	**Post-tx:** Teachers: 66.7% (52/78); Practitioners: 33.3% (30/89)*	Teachers: Significant group x time interactions occurred on knowledge that 'dieting may cause weight gain' (SB > CON), 'girls who have friends who diet are more likely to diet themselves' (SB > CON), and knowledge of media influence (SB > CON). There was a significant time effect on the item 'if I diet to lose weight, my students may start to diet as well'. No other significant differences emerged on other knowledge domains, such as those related to knowledge about the physical changes associated with puberty, and other knowledge relevant to peer or adult influences. Health practitioners: There was a significant group x time interactions on efficacy to fight weight bias only (CB > CON). There was a main effect of time on knowledge about the physical changes associated with puberty, and the item 'boys who are teased about their size or shape might become more dissatisfied with their body shape'.
	Wait-list control (CON) ***n:*** 72 (*n* = 33 school teachers; *n* = 39 practitioners) **% female:** 88%*	**Post-tx:** Teachers: 66.7% (52/78); Practitioners: 33.3% (30/89)*	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: McVey, 2007 **Country:** Canada **Setting:** Middle school **Px approach:** Universal **Population:** Middle school students, parents, teachers, school administrators and local public health professionals. **Number randomised**: 687 students, 91 teachers, 4 schools **Analysis:** Completer **Inclusion criteria:** Active parental consent (and verbally assented) **Exclusion criteria:** None **Total number of sessions:** Multiple† (8 mth) **Follow-up:** 6 mth (students only, not teachers) **Format:** Classroom-delivered **Funding:** Yes	***Healthy Schools-Healthy Kids*** **program (HS)** (Multicomponent; **Students** ***n:*** 318 **Age:** *M* = 11.3 yrs (*SD* = 0.7)* **% female:** 52%* **Teachers** ***n:*** 59 **% female:** 71%* **Control (CON)** **Students** ***n:*** 369 **Age:** *M* = 11. yrs 3 (*SD* = 0.7)* **% female:** 52%* **Teachers** ***n:*** 32 **% female:** 71%*	**Post-tx:** **Students** 16% (157/982)* **Teachers** 52.5% (31/59) **Follow-up:** **Students** 30% (295/982)* **Teachers** 52.5% (31/59) **Post-tx:** **Students** 16% (157/982)* **Teachers** 65.6% (21/32) **Follow-up:** **Students** 30% (295/982)* **Teachers** Not collected	Group x sex x time analyses were conducted, with no significant interactions occurring on any outcome variable. There was a significant condition x time interaction on internalisation of media ideals and disordered eating, and not on body satisfaction, body size acceptance, or perceptions of weight-based teasing. Internalisation of medial ideals decreased significantly between pre-tx and post-tx for HW and CON, and between post-tx and mth follow-up for HW only, though there were no significant differences between groups at follow-up. Disordered eating (measured in females only) decreased significantly in HW from pre-tx to post-tx, and increased significantly in CON across this period. Those in HW had lower disordered eating relative to CON at post-tx, but there were no significant differences at follow-up. Significantly fewer students in HW reported trying to lose weight at post-tx compared to CON (20% versus 27%), though there were no significant differences at follow-up. There were no between-group differences in the proportion that reported they were currently trying to gain muscle at any time point. Analyses (within HW only) stratified by BMI kg/m2 percentile category of underweight, average weight, or overweight indicated no significant risk x time interactions on body dissatisfaction, internalisation of the media ideal, body size acceptance, perceptions of weight-based teasing, or disordered eating. Analyses (within HW only) stratified by whether students reported currently trying to lose weight (high-risk) or not (low-risk) at baseline showed that high-risk students had significantly lowered internalisation of the media ideal between baseline and post-tx, and post-tx and follow-up. Body satisfaction improved significantly among high-risk students between pre-tx and post-tx, and was maintained to follow-up, and improved between pre-tx and follow-up only among low-risk students. Analyses (within HW only) stratified by whether students were trying to gain muscle showed a significant risk x time interaction on internalisation of media ideals and disordered eating. Students in the high-risk group had lowered internalisation and disordered eating between pre-tx and post-tx, improvements that were maintained to follow-up. Internalisation reduced significantly in low-risk students, but only between pre-tx and follow-up, and not pre-tx and post-tx, and disordered eating did not change in low-risk students over time. In terms of teacher outcomes, there were no significant time x condition interactions on body satisfaction, internalisation of media ideals, disordered eating, or school climate, and no main effects of time.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: McVey, 2004 **Country:** Canada **Setting:** Primary School **Px approach:** Selective **Population:** Female primary school students **Number randomised:** 258 (4 schools) **Analysis:** Completer **Inclusion criteria:** Female; Grade 6 **Exclusion criteria:** None **Total number of sessions:** 6 (6 wks) **Follow-up:** 6 mth, 12 mth **Format:** Classroom-delivered; facilitated by doctoral level psychologist **Funding:** Yes	***Every BODY is a Somebody*** **program (MULT)** (Multicomponent program with media literacy, self-esteem enhancement, social-problem solving, communication training, psychoeducation on healthy eating, weight, shape, and physical activity) ***n*:** 182 **Age:** *M* = 11.2 yrs (*SD* = 0.4)* **% female** = 100 % **Control (CON) (**Usual school curriculum) ***n*:** 76 **Age:** *M* = 11.2 yrs (*SD* = 0.4)* **% female** = 100 %	**Post-tx:** n.s. **Post-tx:** n.s.	There were significant group x time interactions on body image satisfaction, global self-esteem, and dieting. Overall, MULT showed greater improvement on these outcome measures relative to CON. There were no group x time interactions on bulimia Sxs, oral control, self-oriented perfectionism, or socially prescribed perfectionism. There was a main effect of time on both perfectionism measures and the bulimia Sxs measure, indicating that both MULT and CON improvement significantly over time.
First author, yr: Mitchell, 2007 **Country:** United States of America **Setting:** College **Px approach:** Indicated **Population:** Female college students with high body dissatisfaction **Number randomised:** 113 **Analysis:** ITT and Completer **Inclusion criteria:** Female; self-identified as being body dissatisfied **Exclusion criteria:** None **Total number of sessions:** 6 (6 wks) **Format:** Face-to-face (group); CD facilitated by graduate psychology student, YOG facilitated by certified yoga instructor **Funding:** Yes	**Cognitive dissonance (CD)** (adapted version of Stice et al) ***n*:** 33 **Age:** *M* = 19.6 yrs (*SD* = 4.1)* **% female:** 100% **Yoga and meditation (YOG)** ***n*:** 50 **Age:** *M* = 19.6 yrs (*SD* = 4.1)* **% female:** 100% **Control (CON)** (control type not specified) ***n*:** 30 **Age:** *M* = 19.6 yrs (*SD* = 4.1)* **% female:** 100%	**Post-tx:** 9.1% (3/33) **Post-tx:** 34.0% (17/50) **Post-tx:** 0% (0/30)	At post-tx, the following significant differences ($p < .05$) were observed; CD < CON on eating disorder Sxs; CD < CON on body dissatisfaction. There were no significant between-group differences on binge eating severity, drive for thinness, body image preoccupation, eating concern (disinhibition, restraint, and hunger), subscription to the ideal female body type, depression, alexithymia, state anxiety, and trait anxiety.(Completer). At post-tx, the following significant differences were observed; CD < CON on body dissatisfaction; CD < CON on alexithymia. (ITT).
First author, yr: O'Brien, 2007 **Country:** Canada **Setting:** College **Px approach:** Indicated **Population:** Female 1st or 2nd yr college students with sub-clinical eating pathology **Number randomised:** 24 **Analysis:** ITT **Inclusion criteria:** Female; 1st or 2nd yr college student; use of food avoidance as a means of weight control; skipping more than two meals per wk; ability to exercise (no self-reported health problems limiting exercise) **Exclusion criteria:** current or Hx of Eating Disorder, substance abuse/dependence, current suicidal ideation; presently in mental health tx **Total number of sessions:** 8 (8 wks) **Follow-up:** 3mth, 6mth **Format:** Face-to-face (group); facilitated by study author **Funding:** n.s.	**Psychoeducation (PSY)** ***n*:** 13 **Age:** *M* = 22.2 yrs* **% female:** 100% **Wait-list control (CON)** ***n*:** 11 **Age:** *M* = 22.2 yrs* **% female:** 100%	**Post-tx:** 15.4% (2/13) **Post-tx:** 9.1% (1/11)	Outcomes measured included BMI kg/m^2, depression, bulimia Sxs, general eating psychopathology, restraint, number of days per wk a 'forbidden food' was consumed (i.e., food the individual is trying to avoid for shape/weight related reasons), forbidden food attitudes, number of self-reported meals eaten per wk, self-reported minutes of exercise per wk, body shape concern, and number of self-reported binge episodes per wk. Bulimia Sxs and body shape concern significantly decreased from pre-to-post in PSY. There were no other significant within- or between-group changes across pre-tx and post-tx. At 3-mth follow-up, eating psychopathology had increased in CON and bulimia Sxs had decreased in PSY as compared to post-tx. No other outcomes were significant at 3- or 6-mth follow-up.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Paxton, 2007 **Country:** Australia **Setting:** Community **Px approach:** Indicated **Population:** Female community members with high body dissatisfaction **Number randomised:** 116 **Analysis:** ITT + Completer **Inclusion criteria:** Female; aged 18 to 35 yrs; access to and ability to use the Internet; with significant body image disturbance and/or bulimia attitudes and behaviours **Exclusion criteria:** BMI < 17.5 kg/m^2; Dx of severe major depression, substance dependence, or psychotic disorder; current receipt of specialist tx for an Eating Disorder or weight loss program; medical Dx known to influence eating behaviours; Pregnancy **Total number of sessions:** 8 (8 wks) **Follow-up:** 6 mth **Format**: Face-to-face (group; facilitated by a 'therapist'), computer-based **Funding:** n.s.	***Set Your Body Free*** **program with face-to-face delivery format (SYBFf)** (Psychoeducation/CBT) ***n:*** 42 **Age:** *M* = 27.2 yrs (range = 25 - 29)* **% female:** 100%	**Post-tx:** 23.8% (10/42) **Follow-up:** 15.6% (5/32)	In comparison to CON, both SYBFf and SYBFc showed significantly greater pre-post change on body shape concern, bulimia Sxs, tendency to compare one's body with others, internalisation of the thin ideal, and dietary restraint; and in addition only SYBFc had significantly greater change on body image avoidance, depression, and self-esteem (Completer). There were no significant advantages of SYBFf or SYBFc relative to control on BMI kg/m^2 (Completer). SYBFf had significantly greater pre-post improvement on body shape concern, body image avoidance, dietary restraint, depression, and self esteem compared to SYBFc, with no significant advantages of SYBFc emerging over SYBFf. There were no significant differences in change between groups on BMI kg/m^2, internalisation of the thin ideal, tendency to compare one's body to others, or bulimia Sxs. Effect size improvements in the intervention conditions were large for all outcomes for SYBFf, and either moderate or large on all outcomes for SYBFc, with the exception of BMI kg/m^2 which was associated with a negligible intervention effect for both groups (Completer). Compared to CON, there was significant pre-post change favouring both SYBFf and SYBFc on body shape concern, internalisation of the thin ideal, bulimia Sxs, and dietary restraint. In addition, SYBFf was superior to CON in pre-post change on body image avoidance, tendency to compare one's body to others, depression, and self-esteem. There were no differences between intereventions and control on BMI kg/m^2 (ITT). SYBFf had significantly greater pre-post change compared to SYBFc on body shape concern, body image avoidance, bulimia Sxs, dietary restraint, depression, and self-esteem. There were no differences in change between SYBFf and SYBFc on BMI kg/m^2, internalisation of the thin ideal, or tendency to compare one's body to others (ITT). At 6-mth follow-up, there were no significant group differences between SYBFf and SYBFc in change from post-to-follow-up on any outcome (ITT + Completer), with the exception of body shape concern which improved significantly more in SYBFc. Effect size differences from post-tx to follow-up for the intervention groups were generally negligible to small (in the direction of continued improvement), indicating maintenance of gains (ITT + Completer).
	Set Your Body Free **program with computer-based delivery format (SYBFc)** (Psychoeducation/CBT) ***n:*** 37 **Age:** *M* = 24.6 yrs (range = 22 – 26) **% female:** 100%	**Post-tx:** 35.1% (13/37) **Follow-up:** 16.7% (4/24)	
	Wait-list control (CON) ***n:*** 37 **Age:** *M* = 24.8 yrs (range = 23 – 27) **% female:** 100%	**Post-tx:** 18.9% (7/37) **Follow-up:** NA	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Ridolfi, 2008 **Country:** United States of America **Setting:** College **Px approach:** Selective **Population:** Female college students **Number Randomised:** 81 **Analysis:** ITT **Inclusion criteria:** Female **Exclusion criteria:** none **Total number of sessions:** 1 **Follow-up:** 4 wk **Format:** Face-to-face (group); facilitated by college faculty and a graduate psychology student **Funding:** n.s.	**Body image and eating disorders information session (BI)** (Multicomponent; psychoeducation/ media literacy) ***n:*** 42 **Age:** *M* = 19.2 yrs (*SD* = 1.5)* **% female:** 100% **Attention control (CON)** (Stress management information session) ***n:*** 39 **Age:** *M* = 19.2 yrs (*SD* = 1.5)* **% female:** 100%	**Post-tx:** 0% (0/42) **Post-tx:** 0% (0/39)	Individuals were assessed pre-intervention, post-intervention, and at 4-wk follow-up. Analyses over time showed significant differences between BI and CON on body shape concern only. There were no significant differences between groups over time on investment in physical appearance, extent to which one self-evaluates in terms of physical appearance, reasons for investment in physical appearance, degree to which body image affects quality of life, internalisation of the thin ideal, use of the media as an information source about physical attractiveness, perceived media pressures, and internalisation of athletic figures. Excluding body shape concern, effect sizes ranged from very small to small.
First author, yr: Roehrig**,** 2006 **Country:** United States of America **Setting:** College **Px approach:** Indicated **Population:** Female college students with body dissatisfaction and thin-ideal internalisation above the norm **Number Randomised:** 78 **Analysis:** Completer **Inclusion criteria:** Female; aged 18 to 30 yrs; thin-ideal internalisation and body dissatisfaction above the norm **Exclusion criteria:** screened positive for an eating disorder on the Eating Disorder Diagnostic Scale **Total number of sessions:** 3 **Follow-up:** 1 mth **Format:** Face-to-face (group); facilitated by a clinical psychology graduate student and an undergraduate research assistant **Funding:** n.s.	**Cognitive dissonance (full package) (CD-f)** ***n:*** 78* **Age:** *M* = 21.2 yrs (*SD* = 2.1)* **% female:** 100 **Cognitive dissonance (dismantled to remove non cognitive-dissonance elements, such as psychoeducation and behavioural exposure) (CD-d)** ***n:*** 78* **Age:** *M* = 21.2 yrs (*SD* = 2.1)* **% female:** 100%	**Post-tx:** 6.4% (5/78)* **Post-tx:** 6.4% (5/78)*	At post-tx, there was a significant main effect of time on thin-ideal internalisation, body dissatisfaction, dieting behaviour, global eating disorder psychopathology, and negative affect. Overall, CD-f and CD-d improved on these eating disorder risk factors over the course of the study. There was a significant time by group interaction on thin-ideal internalisation and negative affect (both favouring CD-f). Results tended to favour a better course of improvement among those in CD-f. A significant loss of improvement on negative affect was noted between post-intervention and follow-up for those in CD-d. There was one significant main effect of group only and this was on one of the three body dissatisfaction measures. Those in CD-d had significantly lower body dissatisfaction on this measure across the duration of the study compared to CD-f.
First author, yr: Roehrig, 2008 **Country:** United States of America **Setting:** College **Px approach:** Selective **Population:** Female college students **Number Randomised:** 139 **Analysis:** Completer **Inclusion criteria:** Female; college students; aged 18 to 30 yrs **Exclusion criteria:** Hx of or current Eating Disorder or current purging behaviours **Total number of sessions:** 1 **Follow-up:** 2 wks **Format: P**articipants read the experimental stimuli **Funding:** n.s.	**Obesity prevention "prodieting" messaging (PRO)** ***n:*** ITT not reported, 46 completers **Age:** *M* = 20.6 yrs (*SD* = 2.5)* **% female:** 100% **Eating disorder prevention "antidieting" messaging (ANTI)** ***n:*** ITT not reported, 37 completers **Age:** *M* = 20.6 yrs (*SD* = 2.5)* **% female:** 100% **Nonspecific control (CON) (**Flu prevention messaging) ***n:*** ITT not reported, 40 completers **Age:** *M* = 20.6 yrs (*SD* = 2.5)* **% female:** 100%	**Post-tx:** 11.5% (16/139)* **Post-tx:** 11.5% (16/139)* **Post-tx:** 11.5% (16/139)*	At follow-up, there were significant differences across all conditions on perceived pressure to lose weight (PRO > ANTI > CON), dieting intentions (PRO > CON > ANTI) and intentions to internalise the thin-ideal (PRO > ANTI > CON). The ANTI condition had significantly lower bulimic intentions relative to CON, with no difference between CON and PRO. There were no differences between any of the conditions on healthy eating intentions, exercise intentions, state body dissatisfaction, and state negative affect. From baseline to follow-up, there were significant within groups changes; decreased perceived pressure for ANTI and CON, but not PRO; improvement on thin-ideal internalisation (athlete) for CON but not ANTI or PRO; improvement in drive for thinness and negative affect within all groups; an increase in healthy eating for PRO but not ANTI or CON; and reduced dieting behaviours within all groups. No changes across time were observed on outcomes of body dissatisfaction, thin-ideal internalisation (general), bulimic Sxs, and exercise intent.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Shafran, 2009 **Country:** United Kingdom **Setting:** Community **Px approach:** Indicated **Population:** Female community members with a high level of shape concern **Number Randomised:** 50 **Analysis:** ITT **Inclusion criteria: F**emale; aged 18 to 45 ys; BMI 17.5 ≥ 35 kg/m^2; shape concern or dissatisfaction > norm **Exclusion criteria:** Severe depressive Sxs; suicidal ideation; current Eating Disorder Dx **Total number of sessions:** 1 **Follow-up:** 4 wk, 12 wk **Format:** Face-to-face (individual); facilitated by a 'therapist' **Funding:** Yes	**Cognitive behavioural therapy (CBT)** ***n*:** 16 **Age:** *M* = 28.5 yrs (*SD* = 8.2) **% female:** 100%	**Post-tx:** 12.5% (2/16)	Shape concern reduced to 4 wk follow-up in those receiving "active" treatment (analyses grouped CBT and CON together) but not those in DT1 or DT2. Additional testing showed that CBT improved significantly more than CON on shape concern at 4 wk and 12 wk follow-up. CBT showed significantly greater change than CON on a visual analogue scale designed to measure body image affect, and DT1 and DT2 showed no change. There was no change within any condition on depression Sxs.
	Applied relaxation (CON) ***n*:** 15 **Age:** *M* = 29.3 yrs (*SD* = 9.5) **% female:** 100%	**Post-tx:** 13.3% (2/15)	
	Delayed treatment control I (DT1) ***n*:** 8 **Age:** *M* = 27.9 yrs (*SD* = 6.1) **% female:** 100%	**Post-tx:** 0% (0/8)	
	Delayed treatment control II (DT2) (Applied Relaxation) ***n*:** 9 **Age:** *M* = 26.4 yrs (*SD* = 8.0) **% female:** 100%	**Post-tx:** 11.1% (1/9)	
First author, yr: Smith, 2008 **Country:** United States of America **Setting:** College **Px approach:** Indicated **Population:** Female college athletes with body dissatisfaction **Number Randomised:** 29 **Analysis:** ITT **Inclusion criteria:** 'At-risk' on body dissatisfaction **Exclusion criteria:** Previous tx or Dx of Eating Disorder; schedule precluded full participation; previous consultations with the intervention facilitators **Total number of sessions:** 3 (3 wks) **Format:** Face-to-face (group); facilitated by doctoral psychology students **Funding:** n.s.	**Cognitive dissonance (CD)** ***n*:** 12 **Age:** *M* = 19.5 yrs (*SD* = 1.0) **% female:** 100%*	**Post-tx:** 0% (0/12)	There were no significant time x group interactions on bulimic Sxs, sadness/depression, anxiety, shame/guilt, stress, importance of being thin and attractive, importance of being physically fit and in shape, or overall body dissatisfaction. Within-group improvement occurred on; sadness/depression for CD only, anxiety for CON only, importance of being thin and attractive for CD and HW (the CON group significantly deteriorated); importance of being physically fit and in shape for CON only, body dissatisfaction for CD and CON only. No within-group changes occurred on bulimic Sxs, stress, or guilt/shame. Measures of dieting and body shape concern were collected at post-tx only; there were no significant between-group differences. Some moderate to large effect size differences characterised some observed changes over time, and suggested limited positive effects of CD.
	Healthy weight (HW) (Psychoeducation/CBT) ***n*:** 7 **Age:** *M* = 18.6 yrs (*SD* = 0.55) **% female:** 100%*	**Post-tx:** 0% (0/7)	
	Wait-list control (CON) ***n*:** 10 **Age:** *M* = 19.6 yrs (*SD* = 0.84) **% female:** 100%*	**Post-tx:** 0% (0/10)	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Stice, 2006 (Study 1) & Stice, 2008 (Study 2; follow-up study) **Country:** United States of America **Setting:** Secondary school and college **Px approach:** Indicated **Population:** Adolescent females with body image concerns **Number Randomised**: 481 **Analysis:** ITT **Inclusion criteria:** Female; aged 14 to 19 yrs; self-reported body image concerns **Exclusion criteria:** current Dx Eating Disorder **Total number of sessions:** 3 (3 wks) **Follow-up:** 6 mth & 1 yr (Study 1), 2 yr and 3 yr (Study 2) **Format:** Face-to-face (group); facilitated by Professor Stice or supervised graduate psychology students **Funding:** Yes	**Cognitive dissonance (CD)** ***n*:** 115 **Age:** *M* = 17 yrs (*SD* = 1.4)* **% female:** 100%	**Post-tx:** 0% (0/115) **6-mth follow-up:** 6% (7/115) **1-yr follow-up:** 4.3% (5/115) **2-yr follow-up:** 3.5% (4/115) **3-yr follow-up:** 5% (n.s)*	For both CD and HW, significant within-group improvement on thin-ideal internalisation, body dissatisfaction, dieting behaviours, negative affect, and bulimia Sxs, was observed between pre-tx compared to all other Study 1 time points. For CONa, significant within-group improvement occurred between pre-tx and post-tx on thin-ideal internalisation, dieting behaviours, and negative affect, which was maintained across Study 1 follow-up points. Significant improvement in bulimic Sxs occurred between pre-tx and 6-mth follow-up only, which was maintained to the 1-yr follow-up. There was no significant change in body dissatisfaction over time in Study 1. For CONb, there was a significant within-group change on thin-ideal internalisation (pre-tx to post-tx only), dieting behaviours (pre-tx to post-tx and pre-tx to 12-mth follow-up only), and negative affect (pre-tx versus all other time points in Study 1). There was no significant within-group change on body dissatisfaction or bulimic Sxs. Testing of between-group differences revealed significant differences from pre-tx to post-tx on thin-ideal internalisation (CD < CONa; CD < CONb; CD < HW; HW < CONa; HW < CONb); body dissatisfaction (CD < CONa; CD < CONb; CD < HW; HW < CONa; HW < CONb); dieting (CD < CONa; CD < CONb; CD < HW); negative affect (CD < CONa; CD < CONb; CD < HW; HW < CONa; HW < CONb); and bulimic Sxs (CD < CONa; CD < CONb; CD < HW; HW < CONa). Testing of between-group differences revealed significant differences from pre-tx to 6-mth follow-up on thin-ideal internalisation (CD < CONa; HW < CONb; CONa < CONb); body dissatisfaction (CD < CONa; CD < CONb; HW < CONa; HW < CONb); dieting (CD < CONa; CD < CONb; HW < CONb); negative affect (CD < CONa; CD < CONb; CD < HW) and bulimic Sxs (CD < CONa; CD < CONb; HW < CONa; HW < CONb). Testing of between-group differences revealed significant differences from pre-tx to 12-mth follow-up on thin-ideal internalisation (CD < CONb; HW < CONa; HW < CONb); dieting (CD < CONa; CD < CONb; HW < CONb); negative affect (CD < HW); and bulimic Sxs (CD < CONb; HW < CONb); and no significant differences on body dissatisfaction. Rates of obesity onset were significantly different across conditions (CD = HW < CONa = CONb) in Study 1. Overall, 25 study participants showed onset of obesity. There were no significant differences between groups in BMI kg/m^2 change over time in Study 1. CD had significantly better outcomes at 2-yr follow-up compared to control on thin-ideal internalisation CD < CONa; CD < CONb), body dissatisfaction (CD < CONa; CD < CONb), negative affect (CD < CONb), bulimic Sxs (CD < CONb), and psychosocial impairment (CD < CONb), and there were no significant differences between these conditions on BMI kg/m^2. **Cont. ...**
	Healthy weight (HW) ***n*:** 117 **Age:** *M* = 17 yrs (*SD* = 1.4)* **% female:** 100%	**Post-tx:** 0% (0/117) **6-mth follow-up:** 4.2% (5/117) **1-yr follow-up:** 5.9% (7/117) **2-yr follow-up:** 5.1% (6/117) **3-yr follow-up:** 5% (n.s)*	
	Attention control (CONa) (Expressive writing control program) ***n*:** 123 **Age:** *M* = 17 yrs (*SD* = 1.4)* **% female:** 100%	**Post-tx:** 0% (0/123) **6-mth follow-up:** 1.6% (2/123) **1-yr follow-up:** 2.4% (3/123) **2-yr follow-up:** <..1% (1/123) **3-yr follow-up:** 5% (n.s)*	
	Assessment-only control (CONb) ***n*:** 126 **Age:** *M* = 17 yrs (*SD* = 1.4)* **% female:** 100%		

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Cont. ...			HW had significantly better outcomes at 2-yr follow-up compared to control on thin-ideal internalisation (HW < CONa; HW < CONb), body dissatisfaction (HW < CONb), and negative affect (HW < CONb), and there were no differences between these conditions on bulimic Sxs, BMI kg/m^2, or psychosocial impairment. There were no significantdifferences between CD and HW at 2-yr follow-up. CD had significantly better outcomes at 3-yr follow-up compared to control on body dissatisfaction (CD < CONa; CD < CONb), negative affect (CD < CONb), and psychosocial impairment (CD < CONa; CD < CONb) only. HW had significantly better outcomes at 3-yr follow-up compared to control on thin-ideal internalisation (HW <CONa; HW < CONb), body dissatisfaction (HW < CONb), negative affect (HW < CONb), bulimic Sxs (HW < CONb), and BMI kg/m^2 (HW < CONb) only. At 3-yr follow CD had significantly less psychosocial impairment than HW and a significantly higher BMI kg/m2 than HW.
First author, yr: Taylor, 2006 **Country:** United States of America **Setting:** College **Px approach:** Indicated **Population:** Female, college students with elevated weight concern **Number Randomised:** 480 **Analysis:** Completer **Inclusion criteria:** Aged 18 to 30 yrs; BMI ≥ 18 and < 32 kg/m^2; high degree of weight concern; **Exclusion criteria:** Current Dx of subclinical or clinical Eating Disorder or tx for an Eating Disorder within the past 6 mths; acute suicidal ideation; evidence of drug or alcohol abuse or dependence; unstable psychoactive medication dosage **Total number of sessions:** 8 (8 wks) **Format:** Computer-based; facilitated by a clinical psychologist or clinical psychology graduate supervised by a clinical psychologist **Funding:** Yes	***Student Bodies*** **program (SB)** ***n*:** 244 **Age:** *M* = 20.8 yrs (SD = 2.6)* **% female:** 100% **Wait-list control (CON)** ***n*:** 236 **Age:** *M* = 20.8 yrs (*SD* = 2.6)* **% female:** 100%	**Post-tx:** 15.5% (38/244) **Post-tx:** 8.8% (21/236)	At post-tx, there were significant differences favouring SB on weight concern, global Eating Disorder psychopathology, bulimic concerns, and drive for thinness. There were no significant between-group differences on BMI kg/m^2 or depressive Sxs. At 12-mth follow-up, there were significant differences favouring SB on weight concern, global Eating Disorder psychopathology, and drive for thinness. There were no significant between-group differences on BMI kg/m^2, depressive Sxs, or bulimic concerns. There were no significant differences over the duration of follow-up in terms of onset of new Eating Disorder cases.
First author, yr: Wilksch, 2009 **Country:** Australia **Setting:** Secondary school **Px approach:** Universal **Population:** Secondary school students **Number randomised:** 540 (24 classes, 4 schools) **Analysis:** ITT **Inclusion criteria:** Grade 8 student **Exclusion criteria:** None **Total number of sessions:** 8 (4 wk) **Follow-up:** 6 mth, 30 mth **Format:** Classroom-delivered; facilitated by a doctoral level psychologist **Funding:** Yes	***Media Smart*** **program (ML) (**Media literacy) ***n*:** 233 **Age:** *M* = 13.6 yrs (*SD* = 0.4)* **% female:** 50.5%* **Attention control (CON)** (classes as usual) ***n*:** 307 **Age:** *M* = 13.6 yrs (*SD* = 0.4)* **% female:** 50.5%*	**Post-tx:** 45.9% (107/233) **Post-tx:** 47.2% (145/307)	Analyses investigated effects by time, group, and sex. No significant time x group interactions were observed. There were significant group main effects on shape and weight concern, dieting, body dissatisfaction, ineffectiveness, and depression, favouring ML.. Post hoc testing showed that girls in ML had higher self-esteem at post-tx and lower shape and weight concern at 30mths, than girls in CON. Boys in ML had lower shape and weight concern at 6 mths, lower dieting at post-tx and 6 mths, higher body satisfaction at post-tx and 6 mths, and higher self-esteem at post-tx, relative to boys in CON.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Wilksch, 2008 **Country:** Australia **Setting:** Secondary school **Px approach:** Selective/indicated **Population:** Female secondary school students **Number randomised:** 127 (6 classes, 2 schools) **Analysis:** ITT **Inclusion criteria:** Female; grade 10 **Exclusion criteria:** None **Total number of sessions:** 8 (8 wks or 4 wks) **Follow-up:** 3 mth **Format:** Classroom-delivered; facilitated by a Master of Clinical Psychology student, doctoral Psychology student, or research assistant **Funding:** Yes	**Perfectionism (PER)** ***n*:** 51 **Age:** *M* = 15.0 yrs (*SD* = 0.4)* **% female:** 100%	**Post-tx:** 19.6% (10/51) **3-mth follow-up:** 37.2% (19/51)	Outcomes were analysed according to baseline low-risk and high-risk status (defined according to degree of shape and weight concern). At post-tx, there were significant between-group differences on personal standards (high-risk: PER < CON). There were no other differences between conditions among low- or high-risk participations on the other outcomes of shape and weight concern, concern over mistakes, media internalisation, perceived pressure, dieting, or self-esteem. At 3-mth follow-up, there were significant between-group differences on concern over mistakes (high-risk: PER < ML = CON; low-risk: PER < CON), personal standards (high-risk: PER < ML). There were no significant between-group differences.
	Media literacy (ML) ***n*:** 43 **Age:** *M* = 15.0 yrs (*SD* = 0.4)* **% female:** 100%	**Post-tx:** 39.5% (17/43) **3-mth follow-up:** 14.0% (6/43)	
	Attention control (CON) (Classes as usual) ***n*:** 44 **Age:** *M* = 15.0 yrs (*SD* = 0.4)* **% female:** 100%	**Post-tx:** 38.6% (17/44) **3-mth follow-up:** 34.1% (15/44)	
First author, yr: Wiseman, 2004 **Country:** United States of America **Setting:** Secondary School **Px approach:** Selective **Population:** Female secondary school students **Number randomised**: 188 (50 = USA, 138 = Italy) **Analysis:** n.s. **Inclusion criteria:** Female **Exclusion criteria:** None **Total number of sessions:** 5 (6 wks) **Format:** Classroom-delivered **Funding:** n.s.	**Cognitive dissonance (CD)** ***n*:** 188* **Age:** *M* = 18.9 yrs (*SD* = 2.4)* **% female:** 100%	**Post-tx:** n.s	Drive for thinness reduced significantly more for Italian students in CD relative to CON, and no significant differences were observed on this outcome between conditions for United States students. There were no significant intervention or time by interaction effects on the other outcomes of hunger, restraint, disinhibited eating, self esteem, perfectionism, body dissatisfaction, interpersonal distrust, interoceptive awareness, or maturity fears.
	Attention control (CON) (received lectures on regular health class topics) ***n*:** 188* **Age:** *M* = 18.9 yrs (*SD* = 2.4)* **% female:** 100%	**Post-tx:** n.s	
First author, yr: Zabinski, 2004 **Country:** United States of America **Setting:** College **Px approach:** Indicated **Population:** Female college students at high-risk for developing an Eating Disorder **Number Randomised:** 60 **Analysis:** ITT **Inclusion criteria:** Female; college student; high degree of weight concern; available to participate and had access to the Internet **Exclusion criteria:** Current Eating Disorder Dx; current or previous Eating Disorder tx; current use of psychotic medication; thoughts of harming self or others **Total number of sessions:** 8 (8 wks) **Follow-up:** 10 wk **Format:** Computer-based; facilitated by a graduate clinical psychology student **Funding:** n.s.	**Psychoeducation/CBT (CBT)** ***n*:** 30 **Age:** *M* = 18.9 yrs (*SD* = 2.4)* **% female:** 100%	**Post-tx:** 3.3% (1/30) **10-wk follow-up:** 6.6% (2/30)	There was a significant group x time interaction on global Eating Disorder psychopathology, eating concern, and weight concern favouring greater improvement in CBT versus CON occurring over the time period from baseline to follow-up. There was a significant time effect on shape concern, indicating that both groups improved from baseline to post-intervention and follow-up, and no significant within-group change or between-group effect occurred on restraint. In terms of secondary outcomes, CBT improved significantly more than CON on self-esteem (pre-tx to post-tx; pre-tx to follow-up). There was no significant interaction for BMI kg/m^2 but a time effect indicated a significant increase with time in both groups (translating to an approximate 1 kg increase).
	Wait-list control (CON) ***n*:** 30 **Age:** *M* = 18.9 yrs (*SD* = 2.4)* **% female:** 100%	No attrition	

Notes: *Amalgamated group data provided only.

Ax = Assessment; AN = Anorexia nervosa; BED = Binge ED; BMI = Body mass index; BN = Bulimia nervosa. DSM-IV = Diagnostic and Statistical Manual of Mental Disorders (fourth edition); Dx = diagnosis; Hx = History; ICD-10 = International Classification of Diseases (tenth revision); IPT = Interpersonal Psychotherapy; ITT = Intention-to-treat; *M* = mean; mITT = Modified intention-to-treat; mth = month; n.s. = not specified; *SD* = standard deviation; Sx = Symptom; tx = Treatment; wk = week; yr = year.

†'Multiple' refer to studies employing continuous or ongoing programming efforts over a specified period of time as opposed to a specific number of discrete intervention sessions.

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Appendix F

Systematic Reviews on Treatment Meeting Inclusion Criteria for the Evidence Review

First Author	Publication Year/ Search Year	Inclusion/Exclusion Criteria	Indication/s	Intervention/s Reviewed	Number of RCTS Included	Quality Appraisal of Included Studies
Arbaizar	2008 (2008)	*Inclusion criteria:* ■ Randomised, controlled trial ■ Comparison of topiramate to control	■ BN ■ BED	Anticonvulsant medication (topiramate only)	5	+None reported
Brownley	2007(2005)	*Inclusion criteria:* ■ Randomised, controlled trial ■ Publication date 1980+ ■ Standardised diagnostic criteria ■ Trial must have been initiated with at least 10 participants ■ Must report useable data ■ A priori specified outcomes ■ Exclusion criteria: ■ Grey literature or nonpeer-reviewed articles ■ Unobtainable articles	■ BED	Any intervention	20 6 Antidepressant medication 3 CBT 3 Self-help CBT 2 Antidepressant medication + CBT 1 Anticonvulsant medication 1 DBT 1 IPT 1 Obesity medication 1 Obesity medication + cognitive-behavioural therapy 1 Virtual-reality based therapy for body image	+++In-depth quality appraisal conducted, only studies meeting inclusion criteria and achieving a 'fair' or 'good' quality rating were included
Bulik	2007 (2005)	*Inclusion criteria:* ■ Randomised, controlled trial ■ Publication date 1980+ ■ Standardised diagnostic criteria ■ Trial must have been initiated with at least 30 participants ■ Trials must report a minimum 3-month follow-up. ■ Must report useable data ■ A priori specified outcomes ■ Exclusion criteria: ■ Grey literature or nonpeer-reviewed articles ■ Unobtainable articles	■ AN	Any intervention approach	19 7 Family therapies 4 Antidepressant medications 3 CBT 3 Hormone treatments 2 CAT 2 Nutritional/dietary counselling 1 BT 1 Educational behaviour therapy 1 Ego-oriented individual therapy 1 Family group psychoeducation 1 Focal therapy 1 IPT 1 Nutritional supplement	+++In-depth quality appraisal conducted, only studies meeting inclusion criteria and achieving a 'fair' or 'good' quality rating were included

First Author	Publication Year/ Search Year	Inclusion/Exclusion Criteria	Indication/s	Intervention/s Reviewed	Number of RCTS Included	Quality Appraisal of Included Studies
Court	2008 (2006)	*Inclusion criteria:* ■ Randomised, controlled trial ■ Comparison of antipsychotic medication monotherapy or adjunctive therapy to other interventions ■ Standardised diagnostic criteria ■ A priori specified outcomes	■ AN	■ Antipsychotic medication	4	++Assessment of risk of bias reported, all studies meeting inclusion criteria were included
Hay	2004 (2007; updated)	*Inclusion criteria:* ■ Randomised, controlled trial ■ Comparison of psychotherapy to wait-list or no-treatment control or other psychotherapies ■ Standardised diagnostic critiera and broader criteria ■ Adults (aged > 16 years) ■ Subjects recruited from the community or primary, secondary, tertiary clinical units ■ Treated in primary, secondary, or tertiary sectors ■ A priori specified outcomes ■ Exclusion criteria: ■ Studies with > 50% non-completion rates	■ BN ■ BED ■ EDNOS with recurrent binge eating episodes	■ Any psychotherapy	48 A range of approaches, including CBT, IPT, DBT, hypnobehavioural therapy, supportive psychotherapy, behavioural weight loss treatment, and self-monitoring	++Assessment of risk of bias reported, all studies meeting inclusion criteria were included
Reas	2008 (2008)	*Inclusion criteria:* ■ Randomised, placebo-controlled trial ■ Publication date 1985+ ■ Comparison of pharmacotherapy monotherapy to control, or combined pharmacotherapy-psychotherapy to control ■ Exclusion criteria: ■ Medications excluded from the market due to safety concerns	■ BED	■ Any pharmacotherapy	14 8 Antidepressant medication 3 Anticonvulsant medication 3 Obesity medication	+None reported

First Author	Publication Year/ Search Year	Inclusion/Exclusion Criteria	Indication/s	Intervention/s Reviewed	Number of RCTS Included	Quality Appraisal of Included Studies
Stefano	2008 (2005)	*Inclusion criteria:* ■ Randomised, placebo-controlled trial ■ Standardised diagnostic critiera ■ Comparison of antidepressant medication to placebo	■ BED	■ Antidepressant medication	7	++Assessment of risk of bias (Cochrane methodology), all studies meeting inclusion criteria were included
Shapiro	2007 (2005)	*Inclusion criteria:* ■ Randomised, controlled trial ■ Publication date 1980+ ■ Standardised diagnostic criteria ■ Trial must have been initiated with at least 30 participants ■ Trials must report a minimum 3-month follow-up. ■ Must report useable data ■ A priori specified outcomes ■ Exclusion criteria: ■ Grey literature or nonpeer-reviewed articles ■ Unobtainable articles	■ BN	■ Any intervention approach	38 11 Antidepressant medication 11 CBT 4 Antidepressant medication + CBT 4 Interpersonal psychotherapy 4 Self-help CBT 1 Active light intervention 1 Anticonvulsant medication 1 BT 1 Crisis prevention 1 IPT 1 DBT 1 Guided imagery 1 Multiple medications 1 Multiple medications + CBT 1 Nutritional and stress management 1 5-HT3 receptor antagonist	+++In-depth quality appraisal conducted, only studies meeting inclusion criteria and achieving a 'fair' or 'good' quality rating were included

Note: *Number of trials examining a particular intervention may sum to more than the total number of trials given some trials had multiple treatment arms.

Appendix G

Randomised Controlled Trials on Treatments Meeting Inclusion Criteria for the Evidence Review

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Anorexia Nervosa in Youth			
First author, yr: Eisler, 2007 **Country:** United Kingdom **Tx setting:** Outpatient **Population:** Youth with AN **Number randomised:** 40 **Length:** 12 mths **Follow-up:** 5 yrs **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV or ICD-10 AN **Exclusion criteria:** none **Funding:** Yes	**Maudsley family-based treatment – separated (FbT-s)** ***n:*** 21 **Age:** *M* = 15.5 yrs (*SD* = 1.6)* **% female:** 97%*	**Post-tx:** 72% (29/40)*	In this follow-up report, all patients were re-contacted and 38 agreed to be re-assessed. Outcome was defined as 'good' (weight within 15% of ideal body weight, resumption of menstruation, and no evidence of bulimic pathology), 'intermediate' (reached normal weight but without return of menstruation or who report bulimic Sxs at a frequency of less than one per week), and 'poor' (weight is below 85% of ideal body weight or binge eating or purging is present once a week or more). At the follow-up, 40% had a good outcome, 26% had an intermediate outcome, and 34% had a poor outcome. There were no differences in percent ideal body weight gain between FbT-s and FbT-c over time or in percent ideal body weight at different time points. Significantly more individuals in FbT-s resumed menstruation (95%) compared to FbT-c (72%).
	Maudsley family-based treatment – conjoint (FbT-c) ***n:*** 19 **Age:** *M* = 15.5 yrs (*SD* = 1.6)* **% female:** 97%*	**Post-tx:** 72% (29/40)*	
First author, yr: Gowers, 2007 **Country:** United Kingdom **Tx setting:** Outpatient/Inpatient **Population:** Youth with AN **Number randomised:** 170 (includes 3 excluded post-randomisation) **Length:** Inpatient = 6 weeks; outpatient 6 mths **Follow-up:** 12 mths, 24 mths **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV **Exclusion criteria:** Severe intellectual disability; severe, chronic comorbid physical conditions **Funding:** Yes	**Inpatient psychiatric treatment** ***n:*** 57 **Age:** *M* = 14.9 yrs (*SD* not reported)* **% female:** 92%*	**Post-tx: 51**% (29/57)	At 1 yr, all groups showed improvement on weight, global eating outcomes, and psychopathology, and there were no statistically significant differences between groups. At 1 year, 18% in treatment-as-usual, 15% in specialised outpatient, and 21% in inpatient treatment had a good outcome. At 2 yrs there was further improvement for all groups, but 27% overall still had AN. There were no significant differences between groups on the main outcome measures. 28% were still in treatment at 2 yrs with no differences between the groups. At 2 years, 36% in treatment-as-usual, 51% in specialised outpatient, and 30% allocated to inpatient treatment had a good outcome.
	Specialised outpatient ***n:*** 55 **Age:** *M* = 14.9 yrs (*SD* not reported)* **% female:** 92%*	**Post-tx:** 25% (14/55)	
	Control (treatment-as-usual in the general community) ***n:*** 55 **Age:** *M* = 14.9 yrs (*SD* not reported)* **% female:** 92%*	**Post-tx:** 31% (17/55)	
First author, yr: Rhodes, 2008 **Country:** Australia **Tx setting:** Outpatient **Population:** Youth with AN who had undergone an average of 43 days of nasogastric refeeding (and no psychological tx) and commenced study txs one week after inpatient discharge **Number randomised:** 20 (families randomised) **Length:** not specified, 20 sessions for FbT and 20 sessions and 1 parent-to-parent consultation for FbT + PPC **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV-TR AN **Exclusion criteria:** none **Funding:** n.s.	**Maudsley family-based treatment (FbT)** ***n:*** 10 **Age:** *M* = 14.3 yrs (range = 12 to 16) **% female:** 100%	**Post-tx:** n.s.	Percent ideal body weight between hospital discharge to endpoint of study tx increased from 83.4% to 92.2% in the Fbt condition and from 81.2% to 90/9% in the FbT + PPC condition. Morgan-Russel outcome categories indicated that for Fbt 50% had a "good" outcome (body weight within 15% of ideal and regular menstrual cycles), 30% had an "intermediate" outcome (body weight within 15% of ideal but amenorrhoea persists, and 20% had a "poor" outcome (body weight less than 15% of ideal or has developed bulimic Sxs). Within FbT + PPC, 40% had a "good" outcome, 30% had an "intermediate" outcome, and 30% had a "poor" outcome. There was preliminary evidence that addition of PPC to standard FbT led to a significant immediate improvement in rate of increase on % ideal body weight.
	Maudsley family-based treatment + parent-to-parent consultation (FbT + PPC) ***n:*** 10 **Age:** *M* = 13.7 yrs (range = 12 to 16) **% female:** 100%	**Post-tx:** n.s.	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Anorexia Nervosa in Adults			
First author, yr: Brambilla, 2007 **Country:** Italy **Tx setting:** Outpatient **Population:** Individuals with AN **Number randomised:** 20 **Length:** 12 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV AN **Exclusion criteria:** general medical, neuroendocrine, immunologic alterations other than those related to AN; Axis I and Axis II comorbidity; receipt of psychotherapy or pharmacotherapy within 3 mths of study entry **Funding:** Yes	**CBT + nutritional rehabilitation + antipsychotic medication (CBT + NR + OLA)** (Olanzapine, 2.5 mg/day for 4 wks and 5 mg/day for 8 weeks) ***n*:** 10 **Age:** *M* = 23 yrs (*SD* = 4.8)* **% female:** 100% **CBT + nutritional rehabilitation + placebo (CBT + NR + PBO)** ***n*:** 10 **Age:** *M* = 23 yrs (*SD* = 4.8)* **% female:** 100%	**Post-tx:** 0% (0/10) **Post-tx:** 0% (0/10)	BMI kg/m^2 increased significantly from pre-to-post in both conditions (15.7 ± 2.1 to 17.1 ± 1.6 for CBT + NR + OLA and 16.3 ± .7 to 17.5 ± .8 for CBT + NR + PBO), with no significant difference occurring between groups. Leptin levels increased significantly in CBT + NR + OLA, but not CBT + NR from pre-to-post. Ghrelin levels did not change significantly within groups from pre-to-post.
First author, yr: McIntosh, 2005 **Country:** New Zealand **Tx setting:** Outpatient **Population:** Individuals with AN or EDNOS-AN **Number randomised:** 56 **Length:** 20 sessions over a minimum of 20 weeks **Design:** Parallel, ITT **Inclusion criteria:** Female, aged 17 to 40 yrs; DSM-IV AN or partial AN i.e., met some AN criteria but not all **Exclusion criteria:** BMI < 14.5 or > 19.0 kg/m^2; current severe major depression, psychoactive substance dependence, significant medical or neurological illness, developmental learning disorder, cognitive impairment, bipolar disorder, schizophrenia; chronic, treatment-resistant AN; unstable antidepressant medication regimen **Funding:** Yes	**CBT** ***n*:** 19 **Age:** NR **% female:** 100% **IPT** ***n*:** 21 **Age:** NR **% female:** 100% **Specialist supportive clinical management (SSCM; formerly nonspecific supportive clinical management)** ***n*:** 16 **Age:** NR **% female:** 100%	**Post-tx:** 37% (7/19) **Post-tx:** 43% (9/21) **Post-tx:** 31% (5/16)	One outcome was reported on for full-threshold participants only – a global measure of AN outcome defined on a 4-point scale as 4 = meets full criteria for AN, 3 = does not meet full AN criteria but but has a number of Eating Disorder features, 2 = few features of Eating Disorders, and 1 = no significant Eating Disorder features. Baseline features, including the lenient weight criterion, did not predict outcome on the global rating. For ITT, SSCM was superior to IPT, and CBT was neither better than SSCM or worse than IPT on the global outcome. For Completers, SSCM was superior to CBT and IPT.
First author, yr: Miller, 2005 **Country:** United States of America **Tx setting:** Outpatient **Population:** Individuals with AN **Number randomised:** 38 **Length:** 3 wks **Design:** Parallel, Completer **Inclusion criteria:** DSM-IV AN; testosterone level less than the median of the reference range for premenopausal women at screening point **Exclusion criteria:** Receipt of oral contraceptives, progesterone derivatives, glucocorticoids, anabolic agents, or medications known to affect bone metabolism within 3 mths prior to study **Funding:** Yes	**Hormone replacement therapy (TES)** (Testosterone; half randomised to a 150 µg dose and half to a 300 µg dose) ***n*:** 24 **Age:** *M* = 25.0 yrs (*SD* = 1.0) **% female:** 100% **Pill placebo (PBO)** ***n*:** 9 **Age:** *M* = 22.0 yrs (*SD* = 1.0) **% female:** 100%	**Post-tx:** 13% (5/38)* **Post-tx:** 13% (5/38)*	TES was superior to PBO on depression in moderate to severely depressed patients from pre-to-post. There was no significant pre-post improvement for TES or PBO on general well-being or weight. Serum total and free testosterone levels increased significantly in TES but not PBO. TES improved only one of three bone formation markers; PBO improved none.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Mondraty, 2005 **Country:** Australia **Tx setting:** Inpatient **Population:** Individuals with AN receiving tx in a psychiatric setting **Number randomised:** 15 (block randomized) **Length:** 6.5 wks for OLA and 7.5 wks for CHL **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV AN **Exclusion criteria:** none **Funding:** n.s.	**Adjunct antipsychotic medication - atypical (Adj-OLA)** (Olanzapine; maximum dose 20 mg/day) ***n*:** 8 **Age:** *M* = 25.3 yrs (*SD* = 7.4) **% female:** n.s.	**Post-tx:** 0% (0/8)	Adj-OLA was superior to Adj-CHL on ruminative thinking. There were no significant differences between conditions on drive for thinness, body dissatisfaction, and bulimia attitudes and behaviours. Drive for thinness scores decreased 76% in Adj-OLA and 31% in Adj-CHL, body dissatisfaction scores decreased 66% in Adj-OLA and 26% in Adj-CHL, and bulimia attitudes and behaviours decreased 63% in Adj-OLA and 11% in Adj-CHL.
	Adjunct antipsychotic medication – typical (Adj-CHL) (Chlorpromazine; maximum dose 200 g/day) ***n*:** 7 **Age:** *M* = 25.3 yrs (*SD* = 7.3) **% female:** n.s.	**Post-tx:** 28% (2/7)	
First author, yr: Rigaud, 2007 **Country:** France **Tx setting:** Inpatient **Population:** Individuals with AN undergoing inpatient tx (which included dietary tx, behaviour therapy, psychotherapy, and self-help group sessions) **Number Randomised:** 81 **Length:** 8 wks **Follow-up/s:** 1 yr **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV AN **Exclusion criteria:** BMI < 11 kg/m^2 **Funding:** n.s.	**Adjunct cyclic enteral nutrition (Adj-CEN)** ***n*:** 41 **Age:** *M* = 22.5 yrs (*SD* = 4.5) **% female:** 97%	**Post-tx:** 2.4% (1/41)	Adj-CEN had significantly greater weight gain (+9.6 kg to +5.9 kg in TAU), gain in fat free mass, and excess energy expenditure compared to TAU. The 2-mth weight gain was higher and faster in the Adj-CEN condition versus TAU (this equated to a theoretical difference in energy input +510 kcal/day). One-mth and 2-mth intake of lipids, carbohydrates, and protein were higher at endpoint than baseline for Adj-CEN and TAU, with no significant differences between conditions. Average BMI kg/m^2 at 2 mths was 17.9 for Adj-CEN and 15.9 in TAU. Mean vomiting and binge episodes decreased significantly in both conditions from pre-to-post, and were significantly lower in the Adj-CEN condition at day 7, day 15, day 30, and day 60. Complete cessation of vomiting and binge episodes was obtained in 80% of Adj-CEN patients versus 50% of control patients. At discharge, 39% of Adj-CEN had achieved a BMI kg/m^2 of 18.5, compared to 8% of TAU. There were few side effects associated with Adj-CEN administration. After discharge, the length of the relapse-free period was significantly higher in Adj-CEN (34.3 ± 8.2 wks) than TAU (26.8 ± 7.5). The percentage of patients relapsing after one yr was statistically equivalent at 44% for Adj-CEN and 52% for TAU. BMI kg/m^2 remained higher than 18.5 kg/m^2 in 36% of Adj-CEN treated patients and 28% of TAU treated patients.
	Treatment-as-usual control (TAU) ***n*:** 40 **Age:** *M* = 24.2 yrs (*SD* = 3.8) **% female:** 98%	**Post-tx:** 2.4% (0/40)	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Bulimia Nervosa in Youth			
First author, yr: Le Grange, 2007 **Country:** United States of America **Tx setting:** Outpatient **Population:** Youth with BN or EDNOS-BN **Number randomised:** 80 **Length:** 24 weeks (20 sessions over 6 months) **Follow-up/s:** 6-month follow-up **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BN or EDNOS-BN; aged 12 to 19 yrs; participants and parents willing to participate in the study and available for the study duration. **Exclusion criteria:** associated physical or psychiatric Dx necessitating hospitalisation; insufficient knowledge of English; physical dependence on drugs or alcohol; current low body weight (BMI kg/m^2); current tx for the ED or current use of medication known to affect eating or weight; physical conditions or txs known to include eating or weight; unstable antidepressant medication regime in 4 wks prior to randomization; patients on dosage ≥ 50mg/day fluoxetine **Funding:** Yes	**Family-based treatment for BN (FbT-BN)** ***n:*** 41 **Age:** *M* = 16.9 yrs (*SD* = 1.7) **% female:** 98% **Supportive psychotherapy (SPT)** ***n:*** 39 **Age:** *M* = 16.1 yrs (*SD* = 1.6) **% female:** 97%	**Post-tx:** 17% (7/41) **Post-tx:** 12.8% (5/39)	Remission rates (no objective binge episodes, subjective binge episodes, or compensatory behaviour in the previous 28 days) were significantly higher at post-tx for FbT-BN versus SPT (39% v 18%) and at 6-mth follow-up (29% v 10%). Partial remission rates (no longer meeting entry criteria for study) were not statistically higher at post-tx or 6 mths for FbT-BN than SPT but were clinically significant (41% v 21% at post-tx and 49% v 38%). There were no differences in remission rates between those with full-threshold or sub-threshold BN at post-tx or follow-up.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Bulimia Nervosa in Adults			
First author, yr: Bailer, 2004 **Country:** Austria **Tx setting:** Outpatient **Population:** Adults with BN **Number randomised:** 81 (block randomisation) **Length:** 18 wks **Follow-up/s:** 1 yr **Design:** Parallel, ITT and Completer **Inclusion criteria:** DSM-IV BN **Exclusion criteria:** Medically unstable; suicidality; non-stable psychoactive medication dosage in 3 mths prior to study entry **Funding:** Yes	**CBT guided self-help (CBTgsh)** ***n*:** 40 **Age:** *M* = 23.3 yrs (*SD* = 4.1) **% female:** n.s. **CBT (G-CBT)** ***n*:** 41 **Age:** *M* = 24.2 yrs (*SD* = 4.9) **% female:** n.s.	**Post-tx:** 25% (10/40) **Post-tx:** 36.6% (15/41)	G-CBT and CBTgsh both significantly improved outcomes of binge eating frequency across tx on vomiting frequency, use of laxatives, depression, drive for thinness, bulimic attitudes and behaviours, body dissatisfaction, ineffectiveness, perfectionism interpersonal distrust, interoceptive awareness, maturity fears, asceticism, impulse regulation, social insecurity. No significant within-group improvements were observed on meal frequency or BMI kg/m^2. Significant main effects for group were observed on meal frequency (G-CBT increased meal frequency, CBTgsh reduced meal frequency) and social insecurity (favouring CBTgsh). Abstinence from binge eating (preceding mth) at endpoint was 7% for CBTgsh (ITT), 12% for G-CBT (ITT), 30% for CBTgsh (Completer), and 12% for G-CBT (Completer). At follow-up the rates were 22% (CBTgsh) and 15% (G-CBT) (ITT). Significant group × time interactions revealed a faster rate of improvement on bulimic attitudes and behaviours, impulsiveness, perfectionism, and social insecurity, favouring CBTgsh. There was no significant post-tx to 1-yr follow-up change within groups on any of the outcome measures, suggesting that gains were maintained. There were significant group effects - favouring CBTgsh - on vomiting frequency, use of laxatives, bulimic attitudes and behaviours, impulsiveness, perfectionism, interpersonal distrust, interoceptive awareness, asceticism and social insecurity; and a significant group effect – favouring G-CBT - on BMI kg/m^2. Significant group × time interactions revealed a faster rate of improvement for G-CBT on drive for thinness and body dissatisfaction, though raw scores showed that these were delayed tx effects relative to CBTgsh.
First author, yr: Burton, 2006 **Country:** United States **Tx setting:** Outpatient **Population:** Females with BN and EDNOS-BN **Number Randomised:** 85 **Length:** 8 weeks (6 sessions) **Follow-up/s:** 3 month **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BN or EDNOS-BN; female; ≥ 4 binge eating episodes and ≥ 4 compensatory behavior episodes in previous mth **Exclusion criteria:** Tx for the Eating Disorder within the previous mth (including medication); BMI < 19 kg/m^2; physical o rmedical illness compromising dietary and physical change capacity; current suicidal ideation; lifetime history of schizophrenia or bipolar disorder **Funding:** n.s.	**Group Healthy Weight Program (HWP)** ***n*:** 43 **Age:** *M* = 21 yrs (*SD* = 5.3) * **% female:** 100% **Wait-list control (WLC)** ***n*:** 42 **Age:** *M* = 21 yrs (*SD* = 5.3) * **% female:** 94%*	**Post-tx:** n.s. **Post-tx:** n.s.	The authors reported that diagnostic threshold did not moderate any of the primary outcomes – frequency of binge eating and compensatory episodes in previous mth and BN diagnostic status. HWP and WLC demonstrated a significant reduction in binge eating and compensatory frequency from pre-tx to post-tx, which was maintained to follow-up. Those in HWP showed a significantly faster rate of improvement. Proportion to achieve reliable pre-post improvement on binge eating was significantly higher among HWP (90% at post-tx and 94% at follow-up) versus WLC (49% at post-tx and 55% at follow-up), and higher among HWP (90% at post-tx and 81% at follow-up) versus WLC (62% at post-tx and 50% at follow-up) on compensatory behaviours. Remission, defined as zero binge eating and compensatory episodes in the previous mth, was significantly higher at post-tx and follow-up for HWP versus WLC (16% versus 2% at post-x and 35% versus 10% at follow-up).

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Bulimia Nervosa in Adults *continued*			
First author, yr: Erzegovesi, 2004 **Country:** Italy **Tx setting:** Inpatient (hospitalised for the purposes of study observations) **Population:** Adults with BN undergoing intensive CBT **Number Randomised:** 91 **Length:** 6 wks **Follow-up/s:** 1 yr **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BN; aged 15 to 45 yrs **Exclusion criteria:** Presence of co-existing psychiatric Dxs (except for obsessive-compulsive disorder); serious medical conditions which contraindicated pharmacologic drug tx; clinically significant abnormalities in routine ECG and laboratory analyses; pregnancy and lactation **Funding:** Yes	**Cognitive-behavioural-therapy + antidepressant medication (CBT + FLU)** (Fluoxetine; 30-60 mg/day) ***n*:** 25 **Age:** n.s. **% female:** n.s.	**Post-tx:** 0% (0/25)	Patients treated with antidepressant medication had a significantly higher average improvement in eating-related obsessions and compulsions compared to placebo-treated patients. There was no difference in severity of eating-related obsessions and compulsions between the four groups that used active medication.
	Cognitive-behavioural-therapy + antidepressant medication (CBT + FLV) (Fluvoxamine; 150-300 mg/day) ***n*:** 14 **Age:** n.s. **% female:** n.s.	**Post-tx:** 0% (0/14)	
	Cognitive-behavioural-therapy + antidepressant medication (CBT + CIT) (Citalopram; 30-60 mg/day) ***n*:** 16 **Age:** n.s. **% female:** n.s.	**Post-tx:** 0% (0/16)	
	Cognitive-behavioural-therapy + antidepressant medication (CBT + PAR) (Paroxetine; 30-60 mg/day) ***n*:** 10 **Age:** n.s. **% female:** n.s.	**Post-tx:** 0% (0/10)	
	Cognitive-behavioural-therapy + pill placebo (CBT + PBO) ***n*:** 26 **Age:** n.s. **% female:** n.s.	**Post-tx:** 0% (0/26)	
First author, yr: Fairburn, 2009 **Country:** United Kingdom **Tx setting:** Outpatient **Population:** Adults with BN or EDNOS **Number randomised:** Full sample = 154 (57 with BN) **Length:** 20 wks **Follow-up/s:** 60 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV ED Dx **Exclusion criteria:** BMI > 17.5 kg/m^2; prior receipt of tx resembling CBT-E or an evidence-based tx for the same ED; Axis I Dx that precluded ED-focused tx; medical instability; pregnancy; unavailability for tx period; ongoing psychiatric tx except antidepressant medication; non-stable antidepressant medication regimen **Funding:** Yes	**CBT-Enhanced (focused) (CBT-Ef)** ***n*:** Full sample = 154, 57 patients with BN **Age:** Full CBT-Ef sample, *M* = 26.2 yrs (*SD* = 7.2) **% female:** 98.1%	**Post-tx:** 14.0% of those with BN*	At endpoint, 53%, and at follow-up, 61%, of all patients with BN had a global ED psychopathology score less than one *SD* above the community mean.
	CBT-Enhanced (broad) (CBT-Eb) ***n*:** Full sample = 154, 57 patients with BN **Age:** Full CBT-Eb sample, *M* = 26.3 yrs (*SD* = 7.5) **% female:** 94.0%	**Post-tx:** 14.0% of those with BN*	
	Delayed treatment control (WLC) ***n*:** Full sample = 154, 57 patients with BN **Age:** Full WLC sample, *M* = 25.9 yrs (*SD* = 6.4) **% female:** 94.1%	**Post-tx:** 14.0% of those with BN*	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Ghaderi, 2005 **Country:** Sweden **Tx setting:** Outpatient **Population:** Adults with BN **Number randomised:** 50 **Length:** 19 wks **Follow-up/s:** 6 mth **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BN **Exclusion criteria:** Use of psychotropic medication; concurrent psychosocial tx for EDs; age < 18 yrs; pregnancy; psychotic Dx; bipolar Dx; substance abuse; obstacles for study participation; severe or recurring depression; suicidality **Funding:** Yes	**CBT (standardised/focused) (CBTfs)** ***n*:** 26 **Age:** *M* = 27.2 yrs (*SD* = 7.8)* **% female:** n.s. **CBT (individualised/broad) (CBTib)** ***n*:** 24 **Age:** *M* = 27.2 yrs (*SD* = 7.8)* **% female:** n.s.	**Post-tx:** 4% (2/50)* **Post-tx:** 4% (2/50)*	CBTsf and CBTip resulted in significant pre/post/follow-up improvement on objective binge episodes (previous 28 days), abstinence from objective binge episodes, self-induced vomiting, excessive exercise, abstinence from compensatory behaviours; depression, self-esteem, body shape concerns, perceptions of social support, dietary restraint, eating concern, shape concern, weight concern, dieting, bulimia attitudes and behaviours; body dissatisfaction, ineffectiveness, interpersonal distrust, interoceptive awareness, and global ED psychopathology. Neither condition manifested a significant improvement on perfectionism. At post-tx, only 4% of patients met diagnostic criteria for BN. The same patients, and no additional patients, met diagnostic criteria for BN at 6-mth follow-up. Time × group interactions revealed a significant interaction on abstinence from objective binge episodes, body shape concerns, eating concern, global ED psychotathology, which generally favoured CBTib. At post-tx, weeks abstinent from binge eating was 6.2 ± 3.9 (CBTsf) and 10.2 ± 2.8 (CBTib), and at follow-up, these figures were 7.6 ± 3.9 (CBTsf) and 9.0 ± 3.7 (CBTib).
First author, yr: Milano, 2004 **Country:** Italy **Tx setting:** Outpatient **Population:** Adults with BN **Number randomised:** 20 **Length:** 12 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BN, purging type **Exclusion criteria:** none **Funding:** n.s.	**Antidepressant medication (SER)** (Sertraline; 100 mg/day) ***n*:** 10 **Age:** range = 24 to 36 yrs * **% female:** 100% **Pill placebo (PBO)** ***n*:** 10 **Age:** range = 24 to 36 yrs * **% female:** 100%	**Post-tx:** n.s **Post-tx:** n.s.	Those treated with SER had a significantly greater reduction in weight versus those treated with PBO. No patient discontinued from the trial due to serious adverse events.
First author, yr: Milano,2005 **Country:** Italy **Tx setting:** Outpatient **Population:** Women with BN **Number randomised:** 12 **Length:** 12 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BN **Exclusion criteria:** none **Funding:** n.s.	**Antidepressant medication (FLV)** (Fluvoxamine; 200 mg/day) ***n*:** 6 **Age:** Range = 21 to 34 yrs * **% female:** 100% **Pill placebo (PBO)** ***n*:** 6 **Age:** Range = 21 to 34 yrs * **% female:** 100%	**Post-tx:** n.s. **Post-tx:** n.s.	Individuals treated with FLV experienced a mean 8% reduction in body weight compared to a mean of 1.5% for PBO. No patient discontinued tx because of adverse events.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Bulimia Nervosa in Adults *continued*			
First author, yr: Nevonen, 2006 **Country:** Sweden **Tx setting:** Outpatient **Population:** Women with BN **Number Randomised:** 86 **Length:** 20 wks **Design:** Parallel, ITT + Completer **Inclusion criteria:** DSM-IV BN; aged 18 to 24 yrs; female; accepting both individual and group tx; BMI > 18 kg/m^2 **Exclusion criteria:** Current alcohol or substance abuse; psychotic Dx; current receipt of psychotherapy or pharmacotherapy; suicidality **Funding:** n.s.	**Individual sequenced CBT and IPT (iCBT→IPT)** ***n:*** 42 **Age:** *M* = 20.3 yrs (*SD* = 2.0) **% female:** 100%* **Group sequenced CBT and IPT (gCBT→IPT)** ***n:*** 44 **Age:** *M* = 21.1 yrs (*SD* = 2.0) **% female:** 100%*	**Post-tx:** 7% (3/42) **Post-tx:** 11% (5/44)	iCBT→IPT and gCBT→IPT experienced a significant improvement on binge days per week, compensation days per week, dietary restraint, weight phobia, interpersonal problems, general psychopathology, and depression over time (pre-tx/post-tx/1-yr follow-up), with no between-group differences on these variables over time (ITT). Recovery rates (defined as abstinence from binge eating and purging) were 31% in iCBT→IPT and 41% in gCBT→IPT (over previous mth) at endpoint, and 38% in iCBT→IPT and 27% in gCBT→IPT (over previous 3 mths) at follow-up (ITT). The proportion who no longer met diagnostic criteria for BN was 83% for iCBT→IPT and 71% in gCBT→IPT at endpoint, 74% for iCBT→IPT and 57% in gCBT→IPT at 1 yr follow-up, and 79% for iCBT→IPT and 55% in gCBT→IPT at 2.5 yr follow-up (ITT). Proportion of Completers who no longer met diagnostic criteria were; 71% (iCBT→IPT at endpoint), 69% (gCBT→IPT at endpoint), 90% (iCBT→IPT at 1-yr follow-up), 78% (gCBT→IPT at 1-yr follow-up), 87% (iCBT→IPT at 2/5-yr follow-up), and 84% (gCBT→IPT at 2.5-yr follow-up). There were no significant differences between iCBT→IPT and gCBT→IPT at endpoint or 1-yr follow-up on binge days per week, compensation days per week, dietary restraint, ED and related Sxs, interpersonal problems, general psychopathology, and depression (Completer). On the same outcome variables, there was a significant difference between iCBT→IPT and gCBT→IPT at 2.5 yr follow-up on binge days per week and compensation days per week only, favouring iCBT→IPT (Completer).
First author, yr: Nickel, 2005 **Country:** Germany **Tx setting:** Outpatient **Population:** Women with BN **Number randomised:** 60 **Length:** 10 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BN for ≥ 12 mths; aged ≥ 18 yrs; **Exclusion criteria:** psychotic Dx; bipolar Dx; current use of topiramate; severe somatic illness; suicidality; substance abuse **Funding:** n.s.	**Anticonvulsant medication (TOP)** (Topiramate; maximum = 250 mg/day) ***n:*** 30 **Age:** ***M*** = 21.5 yrs (*SD* = 3.1) **% female:** 100% **Pill placebo (PBO)** ***n:*** 30 **Age:** *M* = 21.1 yrs (*SD* = 2.6) **% female:** 100%	**Post-tx:** 17% (5/30) **Post-tx:** 20% (6/30)	From pre-to-post, TOP was superior to PBO on weight, binging/purging frequency, physical functioning, role limitations due to physical health, bodily pain, general health perceptions, vitality, social role functioning, role limitations due to emotional problems, and mental health. Mean body weight declined from 64.9 ± 5.8 to 60.9 ± 5.5 in TOP-treated patients and from 64.5 ± 6.1 to 64.2 ± 6.0 in PBO patients. Mean weekly binging/purging reduced from 8.0 ± 3.0 to 4.6 ± 2.2 in TOP-treated patients and 8.0 ± 2.8 to 7.9 ± 2.7 in PBO patients.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Schmidt, 2004 **Country:** United Kingdom **Tx setting:** Outpatient **Population:** Adults with BN **Number randomised:** 267 **Length:** 1 yr (Phase 1 = wks 1-8→Phase 2 = wks 9 to 52) **Design:** Parallel, ITT **Nomenclature:** DSM-IIIR **Inclusion criteria:** DSM-IIIR BN **Exclusion criteria:** Pregnancy, lactation, or inadequate birth control; psychosis; suicidality; clinically important medical illness; multiple drug allergies or substance dependence; serious laboratory abnormality; tx with psychoactive medication or appetite suppressant < 2 wks of allocation to tx condition; non-compliance during placebo-washout period; < 2 binges/wk at baseline **Funding:** Yes	**Sequential antidepressant medication** (Fluvoxamine; maximum = 300 mg/day) **+ pill placebo (FLU→PBO)** ***n:*** 46 **Age:** range = 18 to 50 yrs **% female:** 100%	**Phase 1 endpoint:** 36% (72/201)* **Phase 2 endpoint:** 56% (26/46)	Remission status was defined according to DSM-IIIR criteria, with categories of 1 "full remission", 2 "partial remission (mild)", 3 "partial remission (moderate)", 4 "actively bulimic according to diagnostic criteria", and 5 "extremely severe disorder". Remission rates at 1-yr were 34% for FLU→FLU, 36% for FLU→PBO, and 33% for PBO→PBO. Short-term fluvoxamine was no more efficacious than placebo, and long-term fluvoxamine was no more efficacious than short-term fluvoxamine or placebo. There were 19 serious adverse events reported in Phase 1 of the study, 17 of which occurred in fluvoxamine-treated patients.
	Antidepressant medication (FLU→FLU) (Fluvoxamine; maximum = 300 mg/day) ***n:*** 83 **Age:** range = 18 to 50 yrs **% female:** 100%	**Phase 1 endpoint:** 36% (72/201)* **Phase 2 endpoint:** 74% (61/83)	
	Pill placebo (PBO→PBO) ***n:*** 49 **Age:** range = 18 to 50 yrs **% female:** 100%	**Phase 1 endpoint:** 26% (17/66) **Phase 2 endpoint:** 53% (26/49)	
First author, yr: Schmidt, 2008 **Country:** United Kingdom **Tx setting:** Outpatient **Population:** Adults with BN or EDNOS-BN **Number randomization:** 97 **Length:** 12 weeks **Follow-up/s:** 3-month, 7-month **Design:** Parallel, ITT **Inclusion criteria:** ≥ 1 purge episode p/wk in previous 3 mths **Exclusion criteria:** Insufficient knowledge of English; insufficient literacy skills; severe intellectual disability; severe depression; acute suicidality; alcohol or substance abuse; unstable antidepressant medication regime in 4 weeks prior to randomisation **Funding:** Yes	**Sequenced CBT pure self-help (3 mths) + CBT (variable doses offered depending on Sx severity) (CBTngsh →CBTv)** ***n:*** 49 **Age:** *M* = 25.6 yrs (*SD* = 6.2) **% female:** 100%	**Post-tx:** 34.7% (17/49)	At 3- and -7mth follow-up, there were no significant between-group differences on objective binge episodes, vomiting episodes, or global ED psychopathology. The authors tested the moderating effects of diagnostic status on the three outcomes and reported no statistically significant effect.
	Sequenced wait-list control (3 mths) + CBT (fixed dose of 15 sessions) (CON →CBTf) ***n:*** 48 **Age:** *M* = 28.7 yrs (*SD* = 8.6) **% female:** 91.7%	**Post-tx:** 33.3% (16/48)	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Bulimia Nervosa in Adults *continued*			
First author, yr: Sundblad, 2005 **Country:** Sweden **Tx setting:** Outpatient **Population:** Women with BN **Number randomised:** 46 **Length:** 12 wks **Design:** Parallel, ITT **Inclusion criteria:** Women with DSM-IV BN; aged > 18 yrs **Exclusion criteria:** none **Funding:** Yes	**Androgen receptor antagonist (FLT)** (Flutamide; maximum = 500 mg/day) ***n*:** 9 **Age:** *M* = 29 yrs **% female:** 100%	**Post-tx:** 33% (3/9)	FLT and FLT + CIT, but not CIT or PBO, experienced a significant reduction in binge episodes per week and % reduction in binge episodes from baseline to endpoint. FLT and FLT + CIT, but not CIT, experienced a significantly greater reduction in binge episodes per week compared to PBO from baseline to endpoint. FLT + CIT was the only active condition to have a significantly greater reduction in % of binge eating episodes compared to PBO between baseline and endpoint. All active tx groups achieved superior ratings on a measure of patient perception of global improvement relative to PBO. Reduction in vomiting frequency did not differ significantly between active tx conditions and PBO.
	Antidepressant medication (CIT) (Citalopram; maximum = 40 mg/day) ***n*:** 15 **Age:** *M* = 26 yrs **% female:** 100%	**Post-tx:** 20% (3/15)	
	Androgen receptor antagonist + antidepressant medication (FLT + CIT) (Flutamide; maximum = 500 mg/day: Citalopram; maximum = 40 mg/day) ***n*:** 10 **Age:** *M* = 25 yrs **% female:** 100%	**Post-tx:** 20% (2/10)	
	Pill placebo (PBO) ***n*:** 12 **Age:** *M* = 28 yrs **% female: 100%**	**Post-tx:** 17% (2/12)	
First author, yr: Walpoth, 2008 **Country:** Austria **Tx setting:** Outpatient **Population:** Women with BN **Number randomised:** 14 **Length:** 3 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BN for ≥ 6 mths; aged 18 to 35 yrs **Exclusion criteria:** Severe depression Sxs; BMI < 17.5 kg/m^2; contraindications to transcranial magnetic stimulation; psychotherapy of pharmacotherapy in previous 3 mths; gravidity; 50% reduction in binge/purge Sxs after the first week of placebo wash-out and/or depression Sxs **Funding:** n.s.	**Repetitive transcranical magnetic Stimulation (rTMS)** ***n*:** 7 **Age:** *M* = 27.4 yrs (*SD* = 4.8) **% female:** 100 %	**Post-tx:** 0% (0/7)	Both rTMS and CON showed significant improvement from baseline to endpoint on depression and obsessive-compulsive Sxs, and from placebo-wash-out to endpoint on obsessive-compulsive Sxs and vomiting frequency per day. There was no significant reduction in binge episodes per day in either condition. There were not significant between-group differences on depression, obsessive-compulsive Sxs, binge episodes per day, or vomiting frequency.
	Sham control (CON) ***n*:** 7 **Age:** *M* = 22.6 yrs (*SD* = 2.6) **% female:** 100%	**Post-tx:** 29% (2/7)	
First author, yr: Zeeck, 2009 **Country:** Germany **Tx setting:** Inpatient/Day Clinic **Population:** Adults with severe BN **Number randomised:** 55 **Length:** 12 wks **Follow-up/s:** 3 mth **Design:** Parallel, ITT + Completer **Inclusion criteria:** DSM-IV or ICD-10 BN; aged > 18 yrs; could reach clinic in ≤ 1 hr; failed to improve in outpatient psychotherapy with ≥ 25 sessions in the previous 2 yrs or showed severe bulimic Sxs that did not allow outpatient tx or showed a chronic course of illness with ≥ 5 yrs or showed severe comorbidity that did not allow outpatient tx **Exclusion criteria:** none **Funding:** Yes	**Multimodal day clinic (mDC)** ***n*:** 22 **Age:** *M* = 26.2 yrs (*SD* = 7.2) **% female:** 95.5%	**Post-tx:** 23% (5/22)	mDC and mI experienced significant improvement in bulimia attitudes and behaviours, binge frequency, vomiting and general psychopathology, with no significant between-group differences (ITT). These improvements were present from intake to discharge, and were maintained from discharge to 3 mth follow-up. There was a significantly greater rate of deterioration following mI (ITT). There was no significant difference between groups in remission rate at discharge, 3-mth follow-up, in the ITT or Completer analysis. Remission was defined as abstinence from binge eating and purging behaviours, and low preoccupation with body shape or weight.
	Multimodal inpatient (mI) ***n*:** 21 **Age:** *M* = 24.0 yrs (*SD* = 7.6) **% female:** 90.5%	**Post-tx:** 29% (6/21)	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Binge Eating Disorder in Adults			
First author, yr: Cassin, 2008 **Country:** Canada **Tx setting:** Outpatient **Population:** Women with BED **Number randomised:** 108 **Length:** 16 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BED; regular compensatory behaviour (≥ once per mth) **Exclusion criteria:** None **Funding:** Yes	**Adapted motivational interviewing + CBT pure self-help (AMI + CBTpsh)** ***n*:** 54 **Age:** *M* = 42.5 yrs (*SD* = 12.7) **% female:** 100%	**Post-tx:** 11.1% (6/54)	AMI + CBTpsh superior to CBTpsh on binge eating frequency, depression Sxs, self-esteem, satisfaction with general life, and satisfaction with oneself. There were no significant differences between AMI + CBTpsh and CBTpsh on satisfaction with social life, satisfaction with sex life, satisfaction with physical appearance, satisfaction with family, or satisfaction with relationships.
	CBT pure self-help (CBTpsh) ***n*:** 54 **Age:** *M* = 42.5 yrs (*SD* = 12.7) **% female:** 100%	**Post-tx:** 14.8% (8/54)	
First author, yr: Claudino, 2007 **Country:** Brazil **Tx setting:** Outpatient **Population:** Obese adults with BED **Number randomised:** 73 **Length:** 21 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BED; obese (BMI ≥ 30 kg/m^2); Binge Eating Scale score ≥ 17 **Exclusion criteria:** Prior exposure to or contraindication to topiramate; exposure to experimental drug in previous yr; pregnancy, lactation, or inadequate birth control; clinically significant or unstable psychiatric disorder; Hx of nephrolithiasis; previous surgical procedures that cause weight loss; recent smoking cessation or intention to quit; concurrent use of specified drugs; enrollment in psychotherapy or ED tx within previous 3 mths **Funding:** Yes	**CBT + anticonvulsant medication (CBT + TOP)** (Topiramate; *M* for Completers at endpoint = 205.8mg/day) ***n*:** 37 **Age:** *M* = 41.1 yrs (*SD* = 9.9) **% female:** 97.3%	**Post-tx:** 18.9% (7/37)	CBT + TOP superior to CBT + PBO on weight loss (-6.8kg v. -.9kg) and BMI kg/m^2. Significantly more individuals that received CBT + TOP achieved remission, defined as abstinence from binge eating in the week preceding endpoint (84% v. 61%). There were no significant differences between CBT + TOP and CBT + PBO on binge days per week, binge episodes per week, binge eating severity, or depression Sxs across the duration of the study. No serious adverse events were noted during tx.
	CBT + pill placebo (CBT + PBO) ***n*:** 36 **Age:** *M* = 35.4 yrs (*SD* = 10.7) **% female:** 94.4%	**Post-tx:** 27.8% (10/36)	
First author, yr: Dingemans, 2007 **Country:** Netherlands **Tx setting:** Outpatient **Population:** Adults with BED **Number randomised:** 52 **Length:** 10 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BED **Exclusion criteria:** Current Hx of self-induced vomiting, misuse of laxatives, diuretics, enemas, diet pills, other weight-controlling medications, fasting, excessive exercise with previous 24 wks; concurrent psychological or weight loss tx; comorbid Dx of psychotic disorder, self-damaging behaviours, or mental deficiency; pregnancy **Funding:** n.s	**CBT (CBT)** ***n*:** 30 **Age:** *M* = 38.8 yrs (*SD* = 10.4) **% female:** 94%*	**Post-tx:** 6.6% (2/30)	CBT was superior to WLC on global ED psychopathology, dietary restraint, eating concern, weight concern, shape concern, general psychopathology, depression, passive reacting as a coping strategy, and binge abstinence during the previous 28 days at endpoint. There were no significant differences between CBT and WLC over time on subjective binge eating episodes (previous 28 days), objective binge eating episodes (previous 28 days), and specific coping styles (active tackling, palliative reacting, avoiding/waiting, seeking social support, expression of emotions, reassuring thoughts). One yr follow-up of CBT-treated, including the CBT-treated former WLC group showed significant improvement on objective binge eating episodes, subjective binge eating episodes, objective overeating, BMI kg/m^2 , dietary restraint, eating concern, shape concern, psychological Sxs, depression, and changes in coping strategies.
	Wait-list control (WLC) ***n*:** 22 **Age:** *M* = 36.4 yrs (*SD* = 11.3) **% female:** 94%*	**Post-tx:** 0% (0/22)	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Binge Eating Disorder in Adults *continued*			
First author, yr: Devlin, 2005 **Country:** United States of America **Tx setting:** Outpatient **Population:** Overweight or obese adults with BED **Number randomised:** 116 **Length:** 20 wks **Follow-up/s:** 2 yr (Devlin, 2007) **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BED; overweight or obese; aged 18 to 70 yrs; maximum weight of 159 kg; met BED criteria ≥ 6 mths **Exclusion criteria:** Current medical illness not adequately controlled with diet or medication; certain psychiatric Dxs; concurrent eating/weight control txs; current use of antidepressants, mood stabilizers, or appetite suppressants **Funding:** Yes	**Group behavioural weight loss + individual CBT + antidepressant medication** (Fluoxetine; *M* at endpoint = 52mg/day*) ***n*:** 28 **Age:** *M* = 39.4 yrs (*SD* = 12.1) **% female:** 78%*	**Post-tx:** 25% (7/28)	There was a significant effect of adjunct individual CBT with or without medication on endpoint binge frequency, abstinence from binge eating, depression Sxs, and disinhibited eating, and no significant effect on weight, body shape concerns, binge eating severity, hunger, restraint, self esteem, interpersonal problems, and general psychological Sxs. There was a significant effect of adjunct fluoxetine on depression Sxs and body shape concern, but not on binge frequency, abstinence from binge eating, binge eating severity, hunger, disinhibited eating, restraint, self esteem, interpersonal problems, and general psychological Sxs. Neither adjunctive CBT or fluoxetine significantly reduced weight beyond group BWL. There was no significant CBT × fluoxetine interaction on the primary outcomes. Individual CBT, but not fluoxetine, confers benefit with BWL in terms of reducing binge eating.
	Group behavioural weight loss + individual CBT + pill placebo ***n*:** 25 **Age:** *M* = 43.3 yrs (*SD* = 11.8) **% female:** 78%*	**Post-tx:** 40% (10/25)	
	Group behavioural weight loss + antidepressant medication (Fluoxetine; *M* at endpoint = 52mg/day*) ***n*:** 32 **Age:** *M* = 45.9 yrs (*SD* = 13.6) **% female:** 78%*	**Post-tx:** 31% (10/32)	
	Group behavioural weight loss + pill placebo ***n*:** 21 **Age:** *M* = 44.1 yrs (*SD* = 10.2) **% female:** 78%*	**Post-tx:** 71% (15/21)	
First author, yr: De Zwann, 2005 **Country:** United States of America **Tx setting:** Outpatient **Population:** Obese women with BED **Number randomised:** 71 **Length:** 24 wks **Follow-up:** 1 mth, 6 mth, 1 yr **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BED; aged 18 to 55 yrs; 50 lbs above ideal body weight **Exclusion criteria:** Current use of psychotropic medication; medical condition precluding safe participation; current evidence of psychosis, suicidality, or chemical abuse; current psychiatric or obesity tx **Funding:** n.s	**Obesity treatment + CBT (OT + CBT)** ***n*:** 36 **Age:** *M* = 40.9 yrs (*SD* = 7.7) **% female:** 100%	**Post-tx:** 5% (2/36)	There were no clinically significant differences in weight loss, frequency of binge eating, and binge abstinence (during preceding week) between the two conditions. Participants lost an average 16% (16 ± 8.3 kg) of original body weight. Abstinence from binge eating for OT + CBT was 58% at endpoint, 50% at 1-mth follow-up, and 33% at 1-yr follow-up; abstinence for OT – CBT was 74% at endpoint, 54% at 1-mth follow-up, and 32% at 1-yr follow-up. At 1-yr follow-up, there were no significant differences in weight and BMI kg/m^2 regain between those who did or did not receive CBT, although an average of 5% weight loss was maintained. There were no differences in proportion who did not meet diagnostic criteria for BED at 1-yr follow-up (54% for OT + CBT and 58% for OT - CBT).
	Obesity treatment (OT – CBT) ***n*:** 35 **Age:** *M* = 37.7 yrs (*SD* = 6.5) **% female:** 100%	**Post-tx:** 20% (7/35)	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Golay, 2005 **Country:** Switzerland **Tx setting:** Outpatient **Population:** Obese adults with BED **Number randomised:** 89 **Length:** 24 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BED; aged 18 to 65 yrs; BMI ≥ 30 kg/m^2 **Exclusion criteria:** Pregnancy, lactation, or non-use of medically accepted contraception if fertile; known hypersensitivity to orlistat, Hx or presence of significant medical disorders; active gastrointestinal disorders such as peptic ulcer disease or malapsorption syndromes; pancreatic disease; pancreatic enzyme deficiency; Hx or presence of pancreatitis **Funding:** Yes	**Obesity medication (ORL)** (Orlistat; 130mg 3 × day) ***n:*** 44 **Age:** *M* = 41.2 yrs (*SD* = 6.2) **% female:** 91% **Pill placebo (PBO)** ***n:*** 45 **Age:** *M* = 40.6 yrs (*SD* = 6.1) **% female:** 91%	**Post-tx:** 11% (5/44) **Post-tx:** 29% (13/45)	At endpoint, ORL was superior to PBO on weight loss, body fat mass, waist circumference, hip circumference, global ED psychopathology, perfectionism, and interoceptive awareness. There were no significant differences on total energy expenditure, BED Dx (23% for ORL and 29% for PBO), anxiety, depression, quality of life, generalized anxiety Dx, major depression Dx, drive for thinness, bulimia attitudes and behaviours, body dissatisfaction, ineffectiveness, interpersonal distrust, maturity fears, asceticism, impulse regulation, and social security. At endpoint, the mean number of binge episodes per week was 1.0 for ORL and 1.7 for PBO. Weight loss at endpoint was significantly and three times greater for ORL patients (-7.4%) than PBO patients (-2.3%). At endpoint, energy intake from fat was significantly lower for ORL patients (524 kcal/2192 kJ) versus PBO patients (626 kcal/2619 kJ).
First author, yr: Grilo, 2005 **Country:** United States of America **Tx setting:** Outpatient **Population:** Adults with BED **Number randomised:** 90 **Length:** 12 wks **Follow-up/s:** 3 mth **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BED; aged 18 to 60 yrs; BMI ≥ 27 kg/m^2 **Exclusion criteria:** Concurrent tx for eating, weight, or psychiatric illness; medical conditions that influence weight; severe psychiatric conditions; pregnancy **Funding:** Yes	**Behavioural weight loss guided self-help (BWLgsh)** ***n*:** 37 **Age:** *M* = 46.0 yrs (*SD* = 9.2) **% female:** 79%* **CBT guided self-help (CBTgsh)** ***n*:** 38 **Age:** *M* = 46.0 yrs (*SD* = 9.2) **% female:** 79%* **Attention control (CON)** ***n*:** 15 **Age:** *M* = 48.0 yrs (*SD* = 8.2) **% female:** 79%*	**Post-tx:** 33% (13/38) **Post-tx:** 13% (5/37) **Post-tx:** 13% (2/15)	CBTgsh was superior to control and BWLgsh in terms of binge abstinence at endpoint, and BWLgsh did not differ from CON. CBTgsh was superior to CON on eating concern, hunger, cognitive restraint, and self esteem. BWLgsh was superior to CON on hunger and cognitive restraint. CBTgsh was superior to BWLgsh on objective binge eating, hunger, and cognitive restraint.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Binge Eating Disorder in Adults *continued*			
First author, yr: Grilo, 2005 **Country:** United States of America **Tx setting:** Outpatient **Population:** Adults with BED **Number randomised:** 50 **Length:** 12 wks **Follow-up/s:** 3 mth **Design:** Parallel, ITT and completer **Inclusion criteria:** DSM-IV BED; aged 35 to 60 yrs; BMI ≥ 30 kg/m^2 **Exclusion criteria:** Concurrent tx for eating, weight, or psychiatric illness; medical conditions that influence weight; severe psychiatric conditions; pregnancy or lactation **Funding:** Yes	**CBT guided self-help + obesity medication (CBTgsh + ORL)** (Orlistat; 120mg 3 × day) ***n*:** 25 **Age:** *M* = 45.2 yrs (*SD* = 7.4) **% female:** 88%*	**Post-tx:** 24% (19/25)	There were no significant differences between conditions at post-tx or 3-mth follow-up on dietary restraint, eating concern, weight concern, shape concern, depression, or self esteem. CBTgsh + ORL was superior to CBTgsh + PBO on weight loss at post-tx, but not at follow-up. The ITT binge eating abstinence rate (previous 28 days) was 64% at endpoint for CBTgsh + ORL, and 36% for CBTgsh + PBO. The Completer abstinence rates were 79% for CBTgsh + ORL, and 45% for CBTgsh + PBO. The conditions did not differ significantly in abstinence at 3-mth follow-up, with approximately half meeting the abstinence criterion at follow-up. Addition of orlistat was associated with a somewhat better response in terms of weight loss, but this difference was only a trend and not significant at follow-up.
	CBT guided self-help + placebo (CBTgsh + PBO) ***n*:** 25 **Age:** *M* = 47.0 yrs (*SD* = 7.0) **% female:** 88%*	**Post-tx:** 20% (20/25)	
First author, yr: Grilo, 2005 **Country:** United States of America **Tx setting:** Outpatient **Population:** Adults with BED **Number randomised:** 108 **Length:** 16 wks **Design:** Parallel, ITT + Completer **Inclusion criteria:** DSM-IV BED ; aged 18 to 60 yrs, between 100% and 200% of ideal weight for height **Exclusion criteria:** Concurrent tx for eating, weight, or psychiatric problems; specific medical conditions that influence weight/eating; severe psychiatric conditions requiring different tx; pregnancy or lactation **Funding:** Yes	**Antidepressant medication (FLU)** (Fluoxetine; 60mg/day) ***n*:** 27 **Age:** *M* = 44.3 yrs (*SD* = 9.5) **% female:** 70%	**Post-tx:** 78% (21/27)	CBT + PBO was superior to PBO on objective binge episodes during the previous 28 days, eating concern, shape concern, disinhibited eating, depression, and abstinence from binge eating (ITT). There were no significant differences between groups on restraint, weight concern, hunger, cognitive restraint, body dissatisfaction or BMI kg/m^2 (ITT). CBT + FLU was superior to PBO on objective binge episodes during the previous 28 days, global ED psychopathology, eating concern, weight concern, shape concern, hunger, disinhibited eating, body dissatisfaction, and abstinence from binge eating (ITT). There were no significant differences on dietary restraint, cognitive restraint, depression, and hunger (ITT). CBT + PBO was superior to FLU on objective binge episodes during the previous 28 days, global ED psychopathology, dietary restraint, eating concern, weight concern, shape concern, disinhibited eating, body dissatisfaction, depression, and abstinence from binge eating (ITT). There were no significant differences on hunger, cognitive restraint, and BMI kg/m^2 (ITT). CBT + FLU was superior to FLU on objective binge episodes (previous 28 days), global ED psychopathology, dietary restraint, eating concern, weight concern, shape concern, hunger, disinhibited eating, depression, and abstinence from binge eating (ITT). There were no significant differences on cognitive restraint, body dissatisfaction, or BMI kg/m^2 (ITT). There were no significant differences between CBT + FLU and CBT + PBO (ITT), or between FLU and PBO on any outcome outcomes. Binge eating abstinence rates (previous 28 days) at endpoint were 19% (FLU), 26% (PBO), 50% (CBT + PCO) and 60% (CBT + FLU) (Completer).
	Pill placebo (PBO) ***n*:** 27 **Age:** *M* = 43.6 yrs (*SD* =8.5) **% female:** 85%	**Post-tx:** 85% (23/27)	
	CBT + antidepressant medication (CBT + FLU) (Fluoxetine; 60mg/day) ***n*:** 26 **Age:** *M* = 44.7 yrs (*SD* = 8.1) **% female:** 77%	**Post-tx:** 77% (20/26)	
	CBT + pill placebo (CBT + PBO) ***n*:** 28 **Age:** *M* = 43.6 yrs (*SD* = 8.5) **% female:** 79%	**Post-tx:** 79% (22/28)	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Guerdjikova, 2009 **Country:** United States of America **Tx setting:** Outpatient **Population:** Obese adults with BED **Number randomised:** 51 **Length:** 16 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BED; BMI ≥ 30 kg/m^2; aged 18 to 65 yrs **Exclusion criteria:** concurrent BN; concurrent or past yr substance abuse or dependence; Hx of any psychiatric Dx that could interfere with assessment, tx, or compliance; current clinically unstable depressive or bipolar disorder; suicidality; receipt of CBT, IPT, or DBT for BED within past 3 mths; unstable medical illness; Hx of seizures; clinically significant laboratory abnormalities; receipt of psychoactive, monoamine oxidase inhibitors, and/or investigational medications within specified time frame prior to randomisation; previous tx with lamotrigine; < 2 binge days in the wk prior to randomization; pregnant, lactating, or not using medically accepted contraception if fertile **Funding:** Yes	**Anticonvulsant medication (LAM)** (Lamotrigine; 236± 150 mg/day) ***n*:** 26 **Age:** *M* = 46.1 yrs (*SD* = 12.6) **% female:** 84% **Pill placebo (PBO)** ***n*:** 25 **Age:** *M* = 42.7 yrs (*SD* = 12.7) **% female:** 75%	**Post-tx:** 44% (11/26) **Post-tx:** 29% (7/25)	There were no significant differences in change scores over time or on endpoint scores on all study outcomes, which included, binge days per week, binge episodes per week, body weight, BMI kg/m^2, clinical global severity, eating-related obsessions, eating-related compulsions, depression, emotional overeating, impulsivity, disability, restraint, disinhibition, and hunger.
First author, yr: Guerdjikova, 2008 **Country:** United States of America **Tx setting:** Outpatient **Population:** Obese adults with BED **Number randomised:** 44 **Length:** 12 wks **Design:** Parallel, ITT + Completer **Inclusion criteria:** DSM-IV BED; BMI ≥ 30 kg/m^2; aged 18 to 60 yrs **Exclusion criteria:** concurrent BN; concurrent or past yr substance abuse or dependence; Hx of psychosis, mania, hypomania, dementia, or any psychiatric Dx that could interfere with assessment, tx, or compliance; suicidality; receipt of CBT, IPT, or DBT for BED within past 3 mths; unstable medical illness; Hx of seizures; clinically significant laboratory abnormalities; receipt of psychoactive and/or investigational medications within specified time frame prior to randomisation; previous tx with escitalopram; < 2 binge days in the wk prior to randomisation **Funding:** Yes	**Antidepressant medication (high-dose ESC)** (High dose escitalopram; 10-30mg/day) ***n*:** 21 **Age:** *M* = 36.9 yrs (*SD* = 10.0) **% female:** 95.5% **Pill placebo (PBO)** ***n*:** 23 **Age:** *M* = 41.0 yrs (*SD* = 10.7) **% female:** 95.7%	**Post-tx:** 20% (5/21) **Post-tx:** 17% (4/23)	High-dose ESC was superior to PBO at endpoint on binge episodes per week, binge days per week, BMI kg/m^2, weight and clinical global severity (ITT, one observation missing). There were no significant differences between conditions on binge-eating related obsessions and compulsions or depression Sxs (ITT, one observation missing). Those receiving high-dose ESC experienced a significantly faster improvement in weight loss, BMI kg/m^2, and clinical global severity. Weight decreased an average of 1.0 kg (ITT) and 1.1 kg (Completer) in 12 weeks for the high-dose ESC condition, and was stable (ITT) or increased marginally (Completer) in the PBO condition. There were no significant differences in the incidence of adverse events.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Binge Eating Disorder in Adults *continued*			
First author, yr: Hilbert, 2004 **Country:** United States of America **Tx setting:** Outpatient **Population:** Women with BED (full- or sub-threshold) **Number randomised:** 20 full threshold (28 full- or sub-threshold in total) **Length:** Approximately 26 wks **Follow-up/s:** 4 mth **Design:** Parallel, Completer **Inclusion criteria:** DSM-IV BED (full- or sub-threshold) **Exclusion criteria:** Pregnancy; psychotic Sxs; substance dependence; suicidality; use of psychoactive medication or medication affecting body weight **Funding:** Yes	**Group CBT + body exposure (CBT-E)** ***n:*** 10 full threshold (14 full-threshold and sub-threshold combined) **Age:** Full sample, *M* = 42.1 yrs (*SD* = 12.1) **% female:** 100%	**Post-tx:** 14% (2/14)	In terms of those with full-threshold BED, 80% (CBT-E) and 70% (CBT-C) no longer met DSM-IV BED criteria at post-tx and 70% (CBT-E) and 90% (CBT-C) no longer met criteria at the 4-mth follow-up. These were the only outcome data available for the full-threshold participants.
	Group CBT + cognitive intervention on body image (CBT-C) ***n:*** 10 full threshold (14 full-threshold and sub-threshold combined) **Age:** Full sample, *M* = 38.6 yrs (*SD* = 8.5) **% female:** 100%	**Post-tx:** 14% (2/14)	
First author, yr: Leombruni, 2008 **Country:** Italy **Tx setting:** Outpatients **Population:** Obese women with BED **Number randomised:** 42 **Length:** 24 wks **Design:** Parallel, Completer **Inclusion criteria:** DSM-IV BED; primary obesity with BMI ≥ 30 kg/m^2, aged 18 to 65 yrs; absence of medically unstable conditions; absence of full-syndrome Axis I disorders **Exclusion criteria:** Overweight caused by pharmacological tx or suspected metabolic or endocrine disorders **Funding:** n.s.	**Antidepressant medication (SER)** (Sertraline; 100-200mg/day) ***n:***22 **Age:** *M* = 39.6 yrs (*SD* = 8.5)* **% female:** 100%	**Post-tx:** 27% (6/22)	Significant pre-tx to post-tx improvement was present within conditions on primary outcomes of weight, BMI kg/m^2, binge episodes per previous week, clinical global severity, binge eating severity, depression. There were no significant time × group interactions, indicating a comparable rate of change between SER and FLU on outcomes. There were significant improvements within conditions on bulimic attitudes and behaviours, body dissatisfaction, and interoceptive awareness. No time × group interactions were present. There were no significant improvements within conditions on drive for thinness, ineffectiveness, perfectionism, asceticism, impulse regulation, and social insecurity. Weight loss of 5% or more was observed in 45% of sertraline-treated patients and 47% of fluoxetine-treated patients. Rate of abstinence from binge eating did not differ between the conditions. There was no difference in incidence of adverse events.
	Antidepressant medication (FLU) (Fluoxetine; 40-80mg/day) ***n:***20 **Age:** *M* = 39.6 yrs (*SD* = 8.5)* **% female:** 100%	**Post-tx:** 25% (5/20)	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: McElroy, 2007 **Country:** United States of America **Tx setting:** Outpatient **Population:** Adults with BED **Number randomised:** 40 **Length:** 10 wks **Design:** Parallel, ITT + Completer **Inclusion criteria:** DSM-IV BED; aged 18 to 65 yrs; weighed ≥ 85% ideal body weight; ≥ 3 binge episodes/wk and ≥ 2 binge days/wk one wk prior to baseline **Exclusion criteria:** Concurrent BN or substance use disorder; lifetime Hx of a psychotic Dx, bipolar Dx, dementia or other cognitive disorder; personality Dx that could interfere with assessment, tx, or compliance; suicidality or homicidality; receipt of CBT or IPT or behavioural weight management within 3 mths of study entry; unstable medical illness; Hx of seizures; required tx with any drug that might obscure effect of medication; laboratory or electrocardiogram abnormalities; receipt of psychotropic medication within specified time frame prior to randomisation; previous tx with atomoxetine; pregnancy, lactation, or non-use of medically accepted contraception if fertile **Funding:** Yes	**Antidepressant medication (ATO)** (Atomoxetine; *M* at endpoint 106 mg/day) ***n:*** 20 **Age:** *M* = 43.1 yrs (*SD* = 10.2) **% female:** 80% **Pill placebo (PBO)** ***n:*** 20 **Age:** *M* = 39.2 yrs (*SD* = 7.7) **% female:** 85%	**Post-tx:** 30% (6/20) **Post-tx:** 45% (9/20)	Mean pre-post change scores indicated significantly greater change for ATO than PBO on binge days per week, binge episodes per week, binge-eating related obsessions, clinical global severity of illness, weight, and BMI kg/m^2 (ITT). No significant differences between ATO and PBO in pre-post change were noted for the outcomes of depression, binge-eating related compulsions, cognitive restraint, hunger, and disinhibited eating (ITT). Abstinence from binge eating (previous week) at endpoint was achieved by 70% (ITT) of ATO patients compared to 32% (ITT) of PBO patients. ATO patients had an average 2.7 ± 3.7 kg (ITT) and 3.9 ± 3.3 kg (Completer) weight loss, versus an average 0 ± 3.2 kg (ITT) and .2 ± 4.3 kg (Completer) for PBO patients There was a higher incidence of adverse events in the ATO condition, though no patient in the study experienced a serious adverse event.
First author, yr: McElroy, 2007 **Country:** United States of America **Tx setting:** Outpatient **Population:** Adults with BED **Number randomised:** 394 **Length:** 16 wks **Design:** Parallel, ITT + Completer **Inclusion criteria:** DSM-IV BED; aged 18 to 65 yrs; ≥ 3 binge episodes/wk 2 wks prior to baseline; BMI ≥ 30 and ≤ 50 kg/m^2; good health **Exlusion criteria:** pregnancy, lactation, or non-use of medically accepted contraception if fertile; current or lifetime Dx major organic psychiatric disease, psychotic Dx, or bipolar Dx, clinically significant depression; current or recent substance abuse; enrolment in a formal psychotherapy program for BED or any other psychiatric Dx ≤ 6 mths prior to screening; Hx of factitious Dx, malingering, or a personality Dx that might interfere with assessment or compliance; unstable concurrent medical Dx; medical condition that might compromise topiramate absorption, metabolism or excretion; Hx of nephrolithiasis or seizures; known hypersensitivity to or a prior adverse event with topiramate **Funding:** Yes	**Anticonvulsant medication (TOP)** (Topiramate; median at endpoint 300mg/day) ***n:*** 195 **Age:** *M* = 44.0 yrs (*SD* = 11.5) **% female:** 84.2% **Pill placebo (PBO)** ***n:*** 199 **Age:** *M* = 45.0 yrs (*SD* = 11.6) **% female:** 84.2%	**Post-tx:** 30% (56/195) **Post-tx:** 30% (58/199)	At endpoint, there were significant tx × time interactions favouring TOP on binge episode frequency, binge days, motor impulsiveness, nonplanning impulsiveness, binge-eating related obsessions, binge-eating related compulsions, cognitive restraint, disinhibited eating, hunger, school/work disability, social life disability, family life disability, clinical global severity, weight change and BMI kg/m^2 (ITT). Body mass index declined uniformly over tx with TOP but remained steady with PBO (ITT). TOP was associated with a shorter time to recovery and response on binge eating (ITT). There was a higher incidence of adverse events in the TOP condition, typically of mild to moderate severity. Three patients in each condition experienced serious adverse events.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Binge Eating Disorder in Adults *continued*			
First author, yr: Milano, 2005 **Country, Tx setting:** Italy **Tx setting:** Outpatient **Population:** Adults with BED **Number randomised:** 20 **Length:** 12 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BED **Exclusion criteria:** none **Funding:** n.s.	**Antidepressant medication (SER)** (Sertraline; 100mg/day) ***n*:** 10 **Age:** range = 24 to 36 yrs * **% female:** 100% *	**Post-tx:** n.s.	The authors reported on one useable outcome of percent weight loss. Those treated with SER achieved an average 9% weight loss at endpoint versus 4% for PBO.
	Pill placebo (PBO) ***n*:** 10 **Age:** range = 24 to 36 yrs * **% female:** 100%	**Post-tx:** n.s.	
First author, yr: Milano, 2005 **County:** Italy **Tx setting:** Outpatient **Population:** Obese women with BED **Number randomised:** 20 **Length:** 12 wks **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV BED **Exclusion criteria:** none **Funding:** n.s.	**Obesity medication (SIB)** (Sibutramine; 10 mg/day) ***n*:** 10 **Age:** range = 24 to 36 yrs * **% female:** 100%	**Post-tx:** 0% (0/10)	Binge days per week reduced significantly from pre-to-post with SIB (4.4 ± 1.0 to 1.0 ± 1.0), but not PBO (4.7 ± 1.3 to 4.4 ± .5). Binge eating severity reduced significantly for SIB but not PBO. Average weight loss was 4.48 ± 2.1 kg for SIB and .6 ± .0 kg for PBO. No serious adverse events occurred among patients receiving SIB.
	Pill placebo (PBO) ***n*:** 10 **Age:** range = 24 to 36 yrs * **% female:** 100%	**Post-tx:** 0% (0/10)	
First author, yr: Munsch, 2007 **Country:** Switzerland **Tx setting:** Outpatient **Population:** Adults with BED **Number randomised:** 80 **Length:** 16 wks **Follow-up/s:** 12 mth **Design:** Parallel, ITT + Completer **Inclusion criteria:** DSM-IV BED; aged 18 to 70 yrs, BMI ≥ 27 and ≤ 40 kg/m^2 **Exclusion criteria:** Psychiatric Dx warranting immediate tx; pregnancy; participation in a diet program or other psychotherapy; tx with weight loss medication; previous surgical tx of obesity **Funding:** n.s.	**CBT guided self-help (CBTgsh)** ***n*:** 44 **Age:** *M* = 44.4 yrs (*SD* = 11.5) **% female:** 90.9%	**Post-tx:** 30% (13/44)	In the ITT group at endpoint, CBTgsh was superior to BWLgsh on abstinence from binge eating (previous 28 days) (41% v. 58%), and BWLgsh was superior to CBT on BMI kg/m^2 (though this was not clinically significant). There were no differences between conditions on objective binge days (previous 28 days) and BED diagnosis (50% v. 78%), though arguably a clinically significant difference on BED diagnosis. At 12-mth follow-up for the ITT sample, there were no significant differences between CBTgsh and BWLgsh on abstinence from binge eating (previous 28 days) (52% v. 50%), BMI kg/m^2, objective binge days (previous 28 days), and BED diagnosis (43% v. 53%). In the Completer group at endpoint, BWLgsh was superior to CBTgsh at endpoint on BMI kg/m^2 (though this was not clinically significant). CBTgsh was superior to BWLgsh on abstinence from binge eating (previous 28 days) (80% v. 36%),, objective binge days (previous 28 days) and BED diagnosis (4% v. 32%). At 12-mth follow-up, CBTgsh was superior to BWLgsh on objective binge days (previous 28 days), abstinence from binge eating (previous 28 days) (94% v. 89%), BED diagnosis (6% v. 16%). There was no significant difference between groups on BMI kg/m^2 at follow-up.
	Behavioural weight loss guided self-help (BWLgsh) ***n*:** 36 **Age:** *M* = 47.8 yrs (*SD* = 11.8) **% female:** 86.1 %	**Post-tx:** 25% (9/36)	

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
First author, yr: Schlup, 2009 **Country:** Switzerland **Tx setting:** Outpatient **Population:** Women with BED **Number randomised:** 36 **Length:** 8 wks **Follow-up/s:** 3 mth, 6 mth, 12 mth **Design:** Parallel, ITT **Inclusion criteria:** DSM-IV-TR BED; aged 18 to 70 yrs; female **Exclusion criteria:** DSM-IV-TR severe mental illness warranting immediate tx; pregnancy; participation in a diet program or another psychotherapy; tx with weight loss medication; previous surgical tx of obesity **Funding:** Yes	**Group CBT with booster sessions (G-CBT + Boost)** ***n:*** 18 **Age:** *M* = 47.1 yrs (*SD* = 8.5) **% female:** 100% **Wait-list control (WLC)** ***n:*** 18 **Age:** *M* = 41.2 yrs (*SD* = 11.1) **% female:** 100%	**Post-tx:** 5% (1/18) **Post-tx:** 0% (0/18)	A significantly larger pre-post difference favouring G-CBT + Boost was observed on binge eating abstinence (39% for G-CBT + Boost and 0% for WLC), objective binge episodes, binge episodes (previous week), and eating concern. No significant differences were observed on BMI kg/m^2, subjective binge episodes, weight concern, shape concern, restraint, depression, anxiety, self-efficacy, and life satisfaction. From pre-tx and across observations to 12-mth follow-up, outcomes for those treated with G-CBT + Boost (including former WLC participants), revealed significant improvements on binge eating abstinence (previous 28 days), objective binge eating episodes, BMI kg/m^2, subjective binge episodes, binge episodes (previous week), weight concern, shape concern, eating concern, restraint, depression, and life satisfaction. No significant improvement was observed on anxiety or self-efficacy. The abstainer rates were 39% for G-CBT + Boost and 0% for WLC at post-tx. The abstainer rate at 12-mth follow-up was 25%. BMI kg/m^2 reduced from 33.0 for the full sample at pre-tx, to 32.5 at post-tx, and 32.0 at 12-mth follow-up.
First author, yr: Tasca, 2006 **Country:** Canada **Tx setting:** Outpatient **Population:** Adults with BED **Number randomised:** 135 **Length:** 16 wks **Follow-up/s:** 6 mth, 12 mth **Design:** Parallel, Completer **Inclusion criteria:** DSM-IV BED; ≥ 2 binge episodes/wk for 6 mths prior to study **Exclusion criteria:** Current problems with substance use; bipolar Dx; psychotic Dx; suicidality; current medical or other tx for BED; Hx of non-BED ED; current purging behaviour **Funding:** Yes	**Group CBT (G-CBT)** ***n:*** 48 **Age:** *M* = 42.7 yrs (*SD* = 10.8)* **% female:** 63%* **Group psychodynamic IPT (G-PIP)** ***n:*** 47 **Age:** *M* = 42.7 yrs (*SD* = 10.8)* **% female:** 63%* **Wait-list control (WLC)** ***n:*** 40 **Age:** *M* = 42.7 yrs (*SD* = 10.8)* **% female:** 63%*	**Post-tx:** 21% (10/48) **Post-tx:** 23% (11/47) **Post-tx:** 17% (7/40)	From pre-tx to post-tx, G-CBT and G-PIP showed significantly greater improvement on binge days (previous wk), interpersonal problems, and restraint relative to WLC. G-CBT only showed significantly greater improvement on hunger relative to WLC. G-PIPT only showed significantly greater improvement on depression relative to WLC. No significant differences between the tx groups compared to WLC were observed on the outcomes of BMI kg/m^2 and self-esteem. From pre-tx to post-tx, there were no significant differences between G-CBT v. G-PIP on the outcomes of BMI kg/m^2, days binged, depression, self esteem, interpersonal problems, restraint, and hunger. From pre-tx to follow-ups, there were significant improvement in days binged and hunger within the active txs and no between-tx differences. There was no significant change in BMI kg/m^2 from pre-tx to 12-mth follow-up within active txs. There was a significant reduction in depression from pre-tx to 6-mth follow-up within txs and no between-tx difference. The G-PIP condition had greater improvement in self-esteem from pre-tx to 6-mth follow-up.

Study Characteristics and Design Features	Study Groups	Attrition Rate	Summary of Outcomes
Binge Eating Disorder in Adults *continued*			
First author, yr: Wilfley, 2008 **Country:** United States of America **Tx setting:** Outpatient **Population:** Adults with BED **Number randomised:** 304 **Length:** 24 wks **Design:** Parallel, mITT (95% of randomised sample i.e. all those for whom a post-randomisation efficacy measure was available), Completer **Inclusion criteria:** DSM-IV BED; aged 18 to 65 yrs; BMI < 45 kg/m^2 **Exclusion criteria:** Blood pressure > 140/90 mm Hg; pulse > 95 bpm; Hx of stroke, narrow angle glaucoma; cardiac disease, seizures, or renal or hepatitic dysfunction; use of insulin, medications known to affect weight; specific psychoactive medications; current participation in a weight loss program; surgical tx for obesity; BN Dx or purging within prior 6 mths; alcohol or drug abuse in previous yr; current Dx treated with a psychoactive agent; current major depressive Dx; Hx of AN, psychosis, bipolar Dx, or suicide attempts; psychotherapy within previous 2 mths; pregnancy, lactation, or non-use of medically accepted contraception if fertile **Funding:** Yes	**Obesity medication (SIB)** (Sibutramine; 15 mg/day) ***n*: 152** **Age:** *M* = 41.8 yrs (*SD* = 9.7) **% female:** 90% **Pill placebo (PBO)** ***n*:** 152 **Age:** *M* = 42.1 yrs (*SD* = 9.9) **% female:** 90%	**Post-tx:** 33% (50/152) **Post-tx:** 43% (65/152)	There was a significant difference in pre-post change favouring SIB on binge days/wk, binge episodes/wk, weight, BMI kg/m^2, % weight loss, cognitive restraint, disinhibited eating, and hunger, but not on quality of life (mITT). Those receiving SIB had a mean reduction of 2.7 ± 1.7 binges/wk compared to 2.0 ± 2.3 for PBO (mITT). Patients receiving SIB lost an average 4.3 ± 4.0 kg from baseline versus an average .8 ± 3.5 kg for PBO (mITT), and 5.2 ± 5.4 kg for SIB and 1.2 ± 4.1 kg for PBO (Completer). Higher incidences of adverse events accompanied the SIB condition.

Notes: *Amalgamated group data provided only.

AN = Anorexia nervosa; BED = Binge ED; BMI = Body mass index; BN = Bulimia nervosa. DSM-IV = Diagnostic and Statistical Manual of Mental Disorders (fourth edition); Dx = diagnosis; Hx = History; ICD-10 = International Classification of Diseases (tenth revision); IPT = Interpersonal Psychotherapy; ITT = Intention-to-treat; *M* = mean; mITT = Modified intention-to-treat; mth = month; n.s. = not specified; *SD* = standard deviation; Sx = Symptom; tx = Treatment; wk = week; yr = year.

Trials from 2004 to more recent are included only as this was an inclusion criterion for the Level II evidence.

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