

Adolescence & Chronic disease



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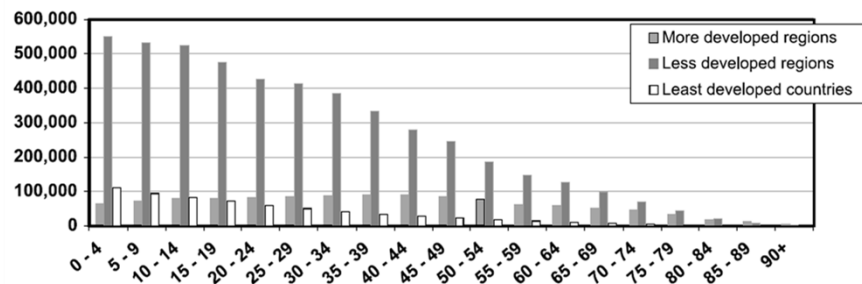
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“People spend their childhood learning to be like their parents, and their adolescence learning who they are and how they are different from their parents.”

Dr Miriam Kaufman, 2006

Why concentrate on this age group?

Figure 4.1
Male-Female population distribution in developed and developing regions, 2000

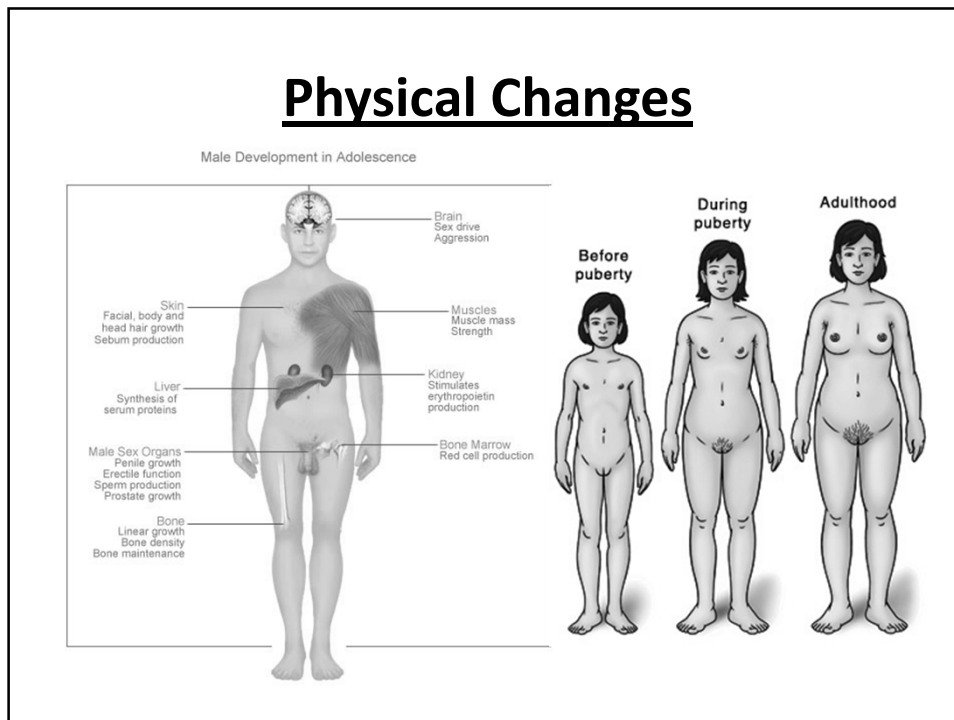


Source: United Nations Population Division, Department of Economic and Social Affairs, 2002.

What is Adolescence

- “ to grow up”
- Age 10 – 18 years
- From Child to Adult
- Period of profound changes in sexual, psychosocial, physical, cognitive development
- Complex process – interplay between individual, family, society, peers, health care professionals.

Physical Changes



Characteristics of Puberty

- Adrenarche: activation of the adrenal glands whose hormonal stimulation is partially responsible for onset of body odor, increase in sweat rate, increase in skin oil production, acne and (to some degree) facial hair growth in both genders
- Pubarche: the appearance of pubic hair
- Thelarche: the appearance of breast tissue
- Menarche: the first menstruation
- Changes related to hormonal changes – growth and sex hormones

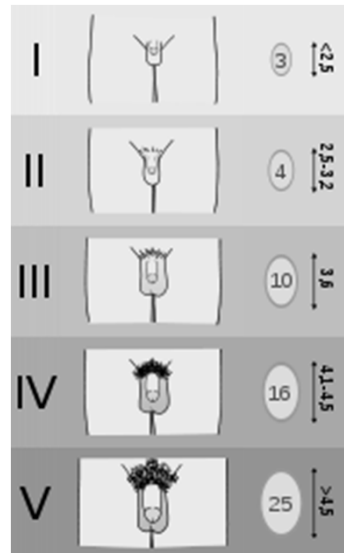
Tanner Scale – Pubic hair (M/F)

- Tanner I no pubic hair at all (prepubertal Dominic state) [typically age 10 and younger]
- Tanner II small amount of long, downy hair with slight pigmentation at the base of the penis and scrotum (males) or on the labia majora (females) [10–11.5]
- Tanner III hair becomes more coarse and curly, and begins to extend laterally [11.5–13]
- Tanner IV adult-like hair quality, extending across pubis but sparing medial thighs [13–15]
- Tanner V hair extends to medial surface of the thighs [15+]

Tanner scale – Male genitalia

- Tanner I prepubertal (testicular volume less than 1.5 ml; small penis of 3 cm or less) [typically age 9 and younger]
- Tanner II testicular volume between 1.6 and 6 ml; skin on scrotum thins, reddens and enlarges; penis length unchanged [9-11]
- Tanner III testicular volume between 6 and 12 ml; scrotum enlarges further; penis begins to lengthen to about 6 cm [11-12.5]
- Tanner IV testicular volume between 12 and 20 ml; scrotum enlarges further and darkens; penis increases in length to 10 cm and circumference [12.5-14]
- Tanner V testicular volume greater than 20 ml; adult scrotum and penis of 15 cm in length [14+]

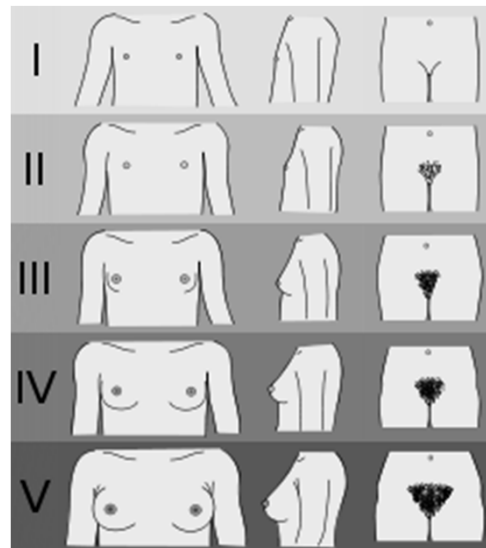
Tanner scale – Male genitalia



Tanner scale – Female genitalia

- Tanner I no glandular tissue: areola follows the skin contours of the chest (prepubertal) [typically age 10 and younger]
- Tanner II breast bud forms, with small area of surrounding glandular tissue; areola begins to widen [10-11.5]
- Tanner III breast begins to become more elevated, and extends beyond the borders of the areola, which continues to widen but remains in contour with surrounding breast [11.5-13]
- Tanner IV increased breast size and elevation; areola and papilla form a secondary mound projecting from the contour of the surrounding breast [13-15]
- Tanner V breast reaches final adult size; areola returns to contour of the surrounding breast, with a projecting central papilla. [15+]

Tanner scale – Female genitalia



Cognitive maturation – Piagets stages

Concrete operational thinking 7-11 years

Seriation—the ability to sort objects in an order according to size, shape, or any other characteristic. For example, if given different-shaded objects they may make a color gradient.

Transitivity- Transitivity, which refers to the ability to recognize relationships among various things in a serial order.

Classification—the ability to name and identify sets of objects according to appearance, size or other characteristics

Decentering—where the child takes into account multiple aspects of a problem to solve it.

Reversibility—the child understands that numbers or objects can be changed, then returned to their original state.

Conservation—understanding that quantity, length or number of items is unrelated to the arrangement or appearance of the object or items.

Elimination of Egocentrism

Formal operational thinking 11yrs – adulthood

- In this stage, individuals move beyond concrete experiences and begin to think abstractly, reason logically and draw conclusions from the information available, as well as apply all these processes to hypothetical situations.
- The abstract quality of the adolescent's thought at the formal operational level is evident in the adolescent's verbal problem solving ability.
- The logical quality of the adolescent's thought is when children are more likely to solve problems in a trial-and-error fashion.
- They use hypothetical-deductive reasoning, which means that they develop hypotheses or best guesses, and systematically deduce, or conclude, which is the best path to follow in solving the problem.
- During this stage the adolescent is able to understand such things as love, "shades of gray", logical proofs and values. During this stage the young person begins to entertain possibilities for the future and is fascinated with what they can be.

Examples

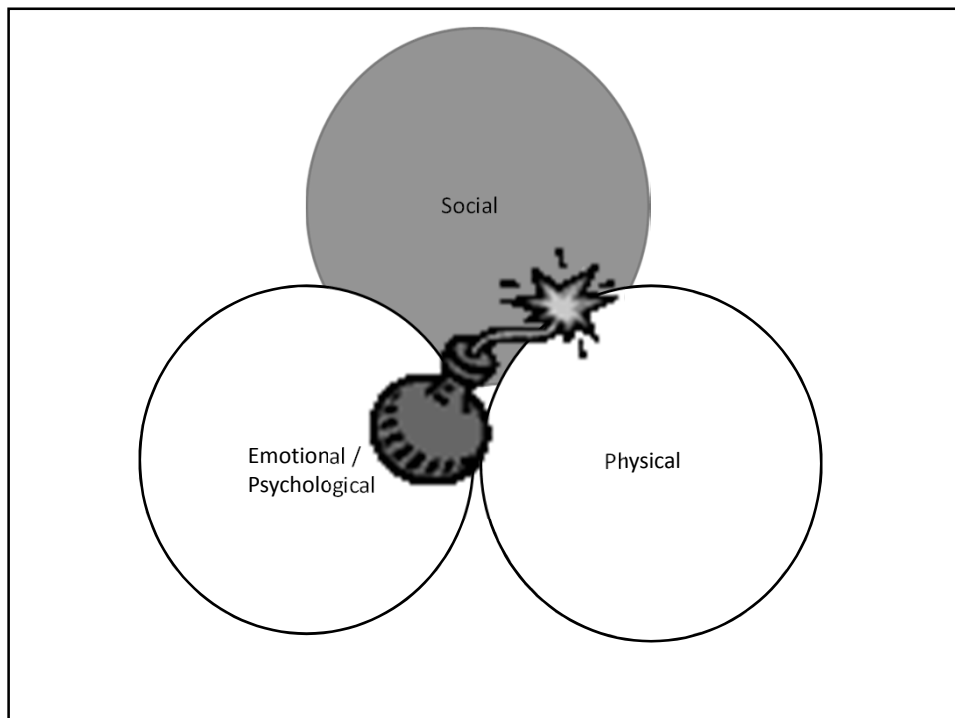
"If Kelly is taller than Ali and Ali is taller than Jo, who is tallest?"

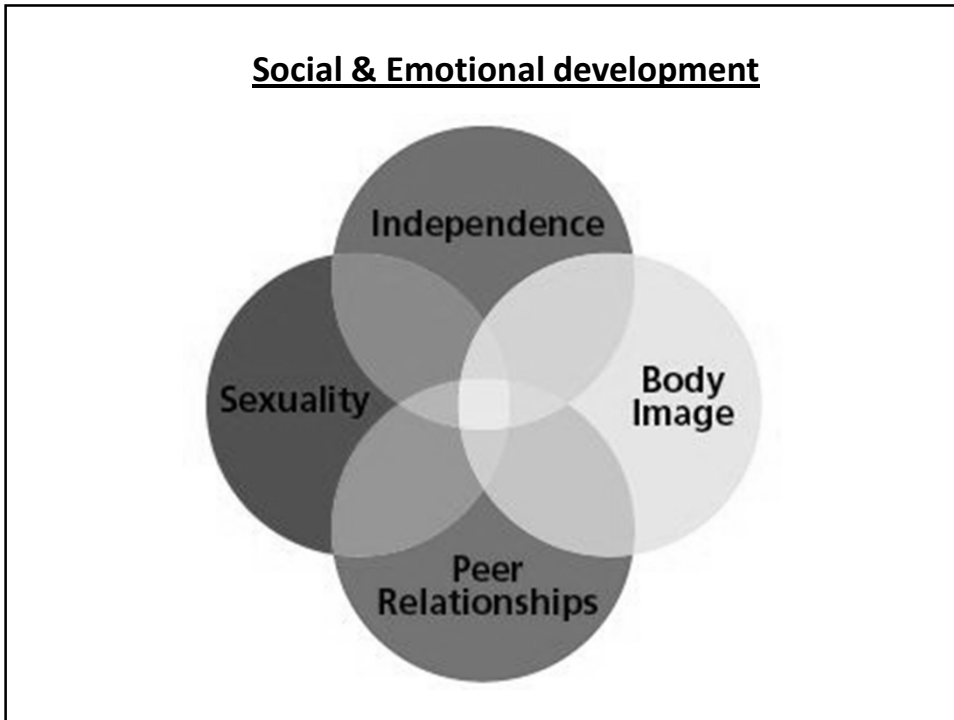
If this can be performed without drawing then that implies abstract thinking – formal operational

Examples


If you could have a third eye, where would you put it ?

- Concrete operational – “On my forehead” - 9 year old
- Formal operational – “ On my hand so that I can around corners” – 12 year old





Stages of adolescence

Early (10-14 yrs)		yrs)
Maximal Somatic / growth		l' operational
Thinking focused – / peer group		lity
“Normality”		
Exploratory sexual behaviour		

Developmental disorders

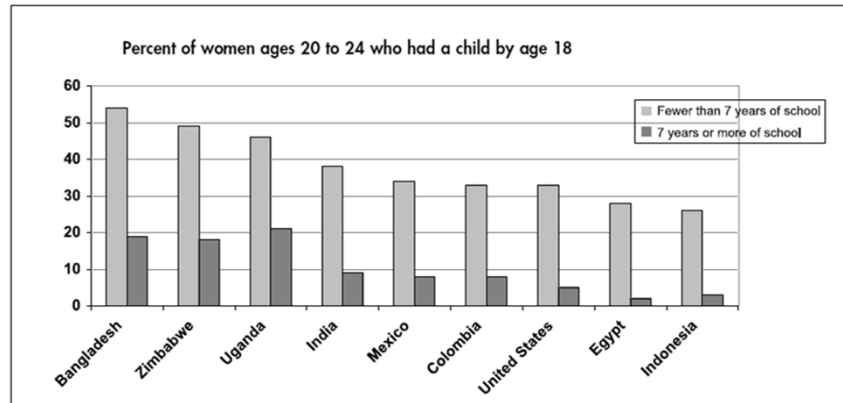
- Anxiety disorders
- Depression
- Conduct Disorder
- Suicidal behaviour
- Psychotic disorder
- Substance Abuse

Alcohol & substance abuse

- On the increase in South African teenagers
- Influenced by peer pressure
- Increase high risk sexual behaviour
- Substance itself may interfere with either the disease process, treatment, or both
- Clouds judgement, ethics

Teenage pregnancy

Childbirth among women younger than 18 years of age



Source: Population Reference Bureau, *World Youth Data Sheet 2002*.

Chronic illness

- To the physical, emotional and social turmoil we add an additional factor – chronic illness
- Impact on physical condition might be mild eg in asthma, or pre-terminal eg Dilated Cardiomyopathy
- Added burden or responsibility to adhere to treatment including medication

Prevalance of chronic diseases in adolescence

- Between the age of 9-19 years approximaltely 15 % of adoscelents will have some type of chronic illness
- Diabetes, Asthma, Cystic Fibrosis, HIV, Obesity, Cerebral palsy, Cardiac , Renal disease , Cancers etc.
- As we improve survival from child hood through new medical knowledge so the incidence of chronic disease in this age group increases.

Increasing chronic illnesses

Areas	Type of survey	Age group	Prevalence
Israel (1985) ²⁰²	Retrospective survey	17–18 years	2.65% (M) 2.14% (F)
Rabat, Morocco (1992) ²⁰³	School-based	(not known)	3.4%
United States (1994–95) ²⁰²	NHIS	12–17 years	1.63%
State of Guernsey, Mexico (1999–2000) ²⁰³	School-based	4–6/13–14 years	33.55%
Merida, Yucatan, Mexico (1994)	School-based	6–12 years	12.0%
Six cities, Brazil (2001) ²⁰⁴	School-based	13–14 years	9.8% (M) 10.2% (F)
Campos Gerais, Brazil (1996) ²⁰⁵	School-based	13–14 years	28.5%
Ten regions, Italy (1994–95) ²⁰⁴	School-based	13–14 years	10.4%
Melbourne, Australia (1990) ²⁰⁷	School-based	15 years	22.0%
St. Gallen, Switzerland (1990) ²⁰⁷	School-based	15 years	4.3%
La Serena, Chile (1990) ²⁰⁷	School-based	15 years	7.4%
China, province of Taiwan (1995–96) ²⁰⁸	School-based	(not known)	10.0% (M) 7.0% (F)
Chandigarh, India (2001) ²⁰⁹	School-based	9–20 years	2.6% (M) 1.9% (F)
British Columbia, Canada (1991) ⁴⁰	School-based	13–18 years	18.2% (M) 25.8% (F)
United Kingdom (1992) ⁴⁰	National sample	14–17 years	13.5%
Patras, Greece (1978) ⁴¹	School-based	8–10 years	1.5%
Patras, Greece (1991) ⁴¹	School-based	8–10 years	4.6%
Patras, Greece (1998) ⁴¹	School-based	8–10 years	6.0%

What aspects to address when counselling ?

1. Interference of the disease with pubertal processes
2. Degree of invalidity/incapacity
3. Visibility of the disease (including side-effects affecting self image)
4. Evolution (continuous, or sporadic)
5. Prognosis
6. Associated mental health problems
7. Everyday constraints (e.g. physical disability, complex treatment)
8. Beliefs and expectations
9. Defence mechanisms: denial, expectations, etc

Table 7: Reciprocal effects of chronic illness or disability and adolescent development^{105, 114, 118, 288, 289}

Effects of chronic illness or disability on development	Effects of developmental issues on chronic illness or disability
<p>Biological</p> <ul style="list-style-type: none"> • Delayed puberty • Short stature • Reduced bone mass accretion 	<p>Biologically</p> <ul style="list-style-type: none"> • Increased caloric requirement for growth may negatively impact on disease parameters • pubertal hormones may impact upon disease parameters (e.g. growth hormone impairs metabolic control in diabetes)
<p>Psychological</p> <ul style="list-style-type: none"> • Infantilisation • Adoption of sick role as personal identifier • Egocentricity persists into late adolescence • Impaired development of sense of sexual or attractive self 	<p>Poor adherence & poor disease control due to:</p> <ul style="list-style-type: none"> • poorly developed abstract thinking and planning (reduced ability to plan and prepare using abstract concepts) • difficulty in imagining the future; self-concept as being "bullet-proof" • rejection of medical professionals as part of separation from parents • exploratory (risk-taking) behaviours
<p>Social</p> <ul style="list-style-type: none"> • Reduced independence at a time of when independence is normally developing • Failure of peer relationships then intimate (couple) relationships • Social isolation • Educational failure & then vocational failure; failure of development of independent living ability 	<p>Associated health risk behaviours</p> <ul style="list-style-type: none"> • chaotic eating habits may result in poor nutrition • smoking, alcohol & drug use often in excess of normal population rates • sexual risk-taking, possibly in view of realisation of limited life span

Factors resulting in poor compliance

Factors related to the adolescent

- Cognitive factors
- Perception of the disease
- Emotional/psychological factors
- Patient education

Factors related to the teenager's environment

- Family functioning
- Peer influence

Factors related to the setting and communication

- Setting
- Relationship with the health-care team, communication style
- Complexity of the therapeutic regimen
- Interference of the treatment with the adolescent's needs and lifestyles

How to improve compliance

Factors related to the adolescent

- Provide information appropriate for the adolescent's maturational stage
- Take into account underlying psychological factors
- Tailor the treatment to the patient's individuation process and stage
- Communicate information in a straightforward way, trust the adolescent
- Tailor the doses of the medication to the patient's physiological status (puberty/growth)
- Adapt the therapy to the adolescent's lifestyle
- Ask for proposals from the patient

Factors related to the teenager's environment

- If needed, suggest the support of siblings, peers

Factors related to the setting and communication

- Keep the same professionals in charge of individual patients over time
- Assess adherence regularly and in a non-threatening manner, check for side-effects
- Simplify the

Needs to be addressed

- Home (nature and quality of family environment)
- Education (school setting and problems, professional future)
- Activity (sports and leisure activities)
- Drugs (use and misuse of tobacco/alcohol/illegal drugs)
- Sexuality (sexual identity, expectation, behaviour)
- Security (risk-taking versus prevention of accidents)
- Suicide and self-harm (mood, anxiety, depression, suicidal conducts)

Components of a good adolescent service

1. Discuss the matter during childhood and as the young person grows up
2. Acknowledge issues facing both the patient and his/her parents
3. Identify colleagues who have an interest in (or responsibility for) young adults
4. Select a health worker (family practitioner, nurse, etc.) who can supervise the transition
5. Organize common meetings with the new care team
6. Plan ahead for some follow-up phone calls
7. Identify individuals, (adults, peers) who can give support to the patient during the transition

Requirements of youth friendly service

1. Availability and accessibility, safe and supportive environment
2. Youth-friendly procedures (time schedule, dealing with emergencies, waiting time, confidentiality, anonymity)
3. Youth-friendly staff, multi-disciplinarity
4. Counselling services
5. Adequate and comprehensive information
6. Youth participation
7. Community support

Summary

- Increasing need for adolescent specific services
- Such service need to be multidisciplinary including psychologists, socialworkers, dieticians etc.
- Need to invest extra time and effort to make progress
- Very rewarding – responsible, productive adult emerges from the cocoon of adolescence

