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Nicole J. Albrecht, *RMIT University*

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Does Meditation Play an Integral Role in Achieving High-Level Wellness as Defined by Travis and Ryan (2004)?

Nicole J. Albrecht

Abstract

In the emerging discipline of wellness, Travis and Ryan (2004) develop a dynamic theory of wellness that while not explicitly stated takes a systems theory approach to health and wellness. As a result, their theory of wellness resonates with many of the concepts and ideals experienced through a meditation practice. It is with this congruence in mind that the current paper explores whether there is any relationship between meditation and high-level wellness and if meditation techniques play an integral role in helping to achieve enhanced levels of wellness. A wide range of research across disciplines is reviewed, and despite controversies in the methodology employed to test meditation's efficacy, it is readily apparent that numerous benefits or wellness outcomes are derived from a meditation practice. However, it is doubtful that meditation is the only path to deliver high-level wellness, other means exist—some that may be a function of the natural human condition.

KEYWORDS: wellness, well-being, meditation, systems theory

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Introduction

Wellness, in the United States (US) alone, is poised to become a trillion dollar industry (Sacavem and Correia, 2009). The concept is additionally considered central to the positive psychology movement (Seligman et al., in Roscoe, 2009) and is the principal paradigm used in counseling and development (Myers, in Roscoe, 2009). Fields such as economics, health promotion, sociology, anthropology, biomedicine (Cronin de Chavez et al., 2005), geography (Fleuret and Atkinson, 2007) and education (McCallum and Price, 2010) have also all made attempts to incorporate various wellness principles into the theories and models which govern their respective disciplines. As a testament to the increased academic interest in the concept and its growing commercialization, wellness has recently emerged as a discipline in its own right, with the establishment of university undergraduate and graduate programs.

Travis, who began writing about the concept of wellness in the late 1970's, is considered to be one of the leading figures to shape our current views of wellness (Arloski, 2009; Palombi, 1992). In 1975, he opened what is believed to be the first wellness center in the US, and also developed the first measurement tool to assess individual wellness (J Travis 2010, pers. comm., 4 Dec). His model is used as a basis for wellness coaching, wellness programs in corporate and healthcare settings (Arloski, 2009) and as a foundation text in the emerging discipline of wellness. Travis together with co-writer Ryan (2004) present a dynamic theory of wellness, exploring the personal experience of wellness in 12 key areas of life (see Appendix 1).

While not explicitly stated, their approach adopts a systems-based orientation towards the whole field of health. As such, their definition of wellness is dynamic, stressing the interaction between humans and the environment. In true systems fashion, Travis & Ryan's concept of wellness is imbued and imparted in every page and activity of their workbook.

The authors' understanding of wellness resonates with many of the concepts and ideals expressed and experienced through meditation techniques. Insight gained through a systems view or a meditative practice enables individuals to not only improve the quality of their own lives but to improve the health of the whole system (Levey and Levey, 2003). With this congruence in mind I will explore possible relationships between meditation and high-level wellness and further, whether meditation techniques can play an integral role in helping individuals to achieve high-level wellness.

I will first outline Travis and Ryan's definition and understanding of high-level wellness as well as their measurement instrument. Next I will attempt to clarify how meditation practices are defined and separated from other practices such as prayer. However, this will prove to be no easy task. Following, in an

effort to align with the systems approach that governs wellness models (Roscoe, 2009), I will use the same method to analyze the research literature, quantitative and qualitative, including systematic reviews. An additional benefit of using a systems approach is that it gives credence to the spirituality and connectedness embodied and fundamental to many meditation techniques in the East and the West, whilst also acknowledging the ‘parts’ – such as physical health benefits. The spiritual or belief component of practices is reported to be poorly described in research literature and it is additionally unclear the role spirituality or belief play in a successful practice (Ospina et al., 2007). Western research has concentrated on assessing meditation’s efficacy in relation to physiological, psychological and cognitive correlates (Andresen, 2000) and is thus criticized as having a myopic and mechanistic outlook (Leloup, 2009). No published research to date has used the Travis and Ryan model to assess the benefits of meditation. I will therefore analyze research from various disciplines aimed at understanding meditations efficacy on the ‘whole’ of wellness as well as the ‘parts’.

Understanding and defining wellness

While the term ‘wellness’ is regarded by some researchers to date back to the early 1960s (see Palombi, 1992), is in fact much longer lived – dating back to the 1600s (J Travis 2010, pers. comm., 10 Sept). The term that was coined in the late 1950s, was ‘high-level wellness’ by Dunn (1957). Dunn remarked that there was nothing new in his conception of wellness. For example, the Constitution of the World Health organization states that ‘Health is a state of complete physical, mental, and social well being and not merely the absence of disease and infirmity.’ (Dunn, 1957:225). Dunn expanded and clearly enunciated the meaning of the terms ‘wellness’ and ‘high-level wellness’ in a series of lectures, journal articles and a book. He asked for medical professionals, educators, business leaders and researchers from all disciplines to rethink their fragmented and compartmentalized view of man, where man’s physical health is divorced from his spiritual health and knowledge is given priority over wisdom. Dunn called for man to be viewed as ‘a physical, mental and spiritual unity – a unity which is constantly undergoing a process of growth and adjustment within a continually changing physical, biological, social and cultural environment (Dunn, 1959:789).’ He asked that future researchers develop methods to measure an individual’s wellness and use this as a foundation for improving the world (Dunn, 1957; 1959).

Travis relates that his first encounter with Dunn’s book¹ brought him a multidimensional view of health – a new and expanded world

¹ Found on a clearance table at the Johns Hopkins Medical Bookstore in 1972.

view incorporating the body, mind and emotions. It became the catalyst for his life's work devoted to redefining how we view health and well-being. (Travis and Callander, 2009).

The authors describe wellness and a high-level of wellness as follows:

High-level wellness involves giving good care to your physical self, using your mind constructively, expressing your emotions effectively, being creatively involved with those around you, and being concerned about your physical, psychological and spiritual environments (2004:xix).

To further enhance their definition of wellness they state that wellness is:

a choice – a decision you make to move toward optimal health; a way of life – a lifestyle you design to achieve your highest potential for well-being; a process – a developing awareness that there is no end point, but that health and happiness are possible in each moment here and now; a balanced channeling of energy – energy received from the environment, transformed within you, and returned to affect the world around you; the integration of body, mind, and spirit – the appreciation that everything you do, and think, and feel, and believe has an impact on your state of health and the health of the world; is the loving acceptance of yourself (Travis and Ryan 2004:xvi).

Wellness inventory

In 1975, Travis developed the first measure of individual wellness called the 'Wellness Inventory' (WI) – see myWellnessTest.com. Other inventories have been developed since this time (see Roscoe, 2009 for summary), however, the WI has, in my opinion significant advantages over other measurement tools. It has: broader application and appeal; includes a greater level of detail and more questions in regards to the dimensions of transcending and finding meaning; has sufficient depth to distinguish between individuals' wellness levels and in addition, closely resembles and expands upon Dunn's original conception of high-level wellness.

The inventory contains 120 questions within the 12 dimensions of the Wellness Energy System, listed in Appendix 1. Items are scored on a 5-point Likert scale ranging from '0' (No/never/hardly ever) to '4' (Yes/always/usually). Higher scores on the inventory reflect higher levels of individual wellness. In 1992, Palombi determined that the model had internal consistency. However, due to the limited psychometric measures to test wellness theories, the WI, akin to other assessments of wellness, can only be evaluated in terms of how well it

measures the authors' conception of wellness (Roscoe, 2009). It therefore cannot currently be determined whether any model of wellness adequately depicts reality and the underlying factors that influence an individual's level of wellness. Further, Travis says that the WI is subject to report bias. He believes the WI serves more as an educational tool to illuminate steps that can be taken to experience a more harmonious and balanced way of living (J Travis 2010, pers. comm., 4 Dec).

In general, questions in wellness inventories provide a detailed view of the researcher's view and understanding of wellness. The questions can be likened to the characteristics (parts) or fundamental elements that combine together to form the 'whole' of wellness (see Appendix 2 to for a synopsis of WI characteristics). However, consistent with the systems theory view, namely that the whole is always more than the sum of its parts, an individual's overall state of wellness will always reflect the dynamic interplay of the different aspects of human activity measured in the WI.

Understanding and defining meditation

Over 800 studies on meditation have been conducted since 1956 (Ospina et al., 2007). Despite this an operational definition has been slow to take shape (Cardoso et al., 2004). The inability to clearly and succinctly define the term is perhaps due to the fact that over the centuries hundreds of different techniques have been developed – often tailored to meet a wide spectrum of goals. 'Meditation' has thus become an umbrella term to describe a multitude of techniques as well as referring to a 'state' in and of itself.

As a consequence of the complex, diverse and multi-dimensional array of practices grouped under this umbrella term, researchers have found little consensus when it comes to demarking, classifying or defining meditation practices (Andresen, 2000; Ospina et al., 2007). It has been noted that definitions of meditation are often a function of the researcher's own familiar practice/s and thus fail to represent the many techniques classified by this term (Bond et al., 2009). Over 30 years ago, Brown, in Andresen (2000:19/20) addressed the dilemma involved in defining meditation. He writes that the research literature gives many different meanings to the term meditation:

It has been defined in certain physiological variables, for example, as a certain meditation pattern, measured by EEG (Akishige, 1973; Anand et al., 1961(a); Banquet 1973; Kasamatsu & Hirai, 1996 (reprinted as Kasamatsu & Hirai, 1969a,b); by certain changes in arousal (Fischer, 1971); by more specific autonomic variables (Wallace, 1970; Walrath & Hamilton, 1975); and by a certain pattern of muscular tension/relaxation

(Ikegami, 1973). Others have defined meditation more in terms of attention deployment (Davidson & Schwartz, 1976; Deikman, 1966; Van Nuys, 1973) (also see DiNardo and Raymond, 1979), related cognitive control mechanisms (Silverman, 1968), or ego control mechanisms (Manupin, 1965). Still others have defined meditation more as a process of therapy, with resultant significant changes in affective and trait variables (Davidson & Goleman, 1975; Davidson, Goleman, & Schwartz, 1976; Goleman, 1971).

There is little agreement on: how to define meditation, what should be measured, and what the most useful measuring instruments may be.

Brown suggests that the most fundamental questions researchers need to ask are a) What are the most important properties of meditation? b) How may they be operationally defined and measured? c) How are these variables related to each other?

In recent years, several researchers have presented criteria to provide a working definition for meditation and to demark it from other practices such as prayer (Craven, in Black et al., 2009; Bond et al., 2009; Cardoso et al., 2004; Travis and Shear, 2010), by listing the technique's most important properties and are thus addressing some of Brown's fundamental criticisms. Researchers suggest it is essential that meditation practices: a. utilise clearly defined and specific techniques; b. involve logic relaxation (i.e. 'Not to intend' to analyse or justify possible psychophysical effects and 'not to intend' to create any expectation regarding the process.); c. involve a self-induced state. They also may: d. involve a state of psychophysical relaxation somewhere in the process; e. be embedded in a religious/spiritual/philosophical context; f. involve an experience of mental silence (Bond et al., 2009; Cardoso et al., 2004; Ospina et al., 2008). Other properties may also include: g. deliberate self-regulation of attention in the present moment (Craven, in Black et al., 2009) or on a specific object (Cahn and Polich; Raffone and Srinivasan, in Travis and Shear); h. maintenance of a self-observing attitude with an increased sense of integration and cohesiveness (Craven, in Black et al., 2009) and i. 'automatic transcending' (Craven, in Black et al., 2009; Travis and Shear). Automatic transcending describes the process of transcending the nature and activities of the meditation technique and entering a non-local domain. This mental state is marked by the absence of both focus and individual control or effort which keeps the meditator embedded within the specific techniques of the practice (Travis and Shear).

Diverse, multi-dimensional meditation practices incorporating these properties and states include: Mantra Meditation; Mindfulness Meditation; Chi Kung and Tai Chi; yoga and practices that blend different approaches (Ospina et al., 2008). Therapeutic and self-regulation strategies such as self-hypnosis, guided

imagery and bio-feedback are excluded as they are said not to contain a meditative component (Ospina et al., 2007).

A major goal of this working definition is to demark meditation practices from other techniques such as guided imagery and hypnosis – hence the inclusion of item ‘b’. However, multi-component practices such as Chi Kung have intended physical and energetic outcomes and ask practitioners to visualize these outcomes during practice – contravening characteristic ‘b’. The beginner Chi Kung practitioner is commonly taught that each movement has a resultant consequence and is for a specific medicinal purpose. The intention as well as the visualization accompanying the movement is suggested to play an important role in embedding and internalizing the practice (Gong and Kelson, 2001; Kerr, 2002). Masters of Tai Chi and Chi Kung, have in the past, spent considerable time and effort to ensure that a visualization for a ‘form’ was perfectly aligned with its corresponding physical and energetic movement as well as the whole series of forms. As a result, a Chi Kung set can be practiced as a complete visualization without any physical movement (Liang, 1977).

The researchers consensually agreed that item b) logic relaxation was essential to defining meditation practices also defined Chi Kung as meditation technique. This flaw perhaps is due to the fact that the expert panel that consensually arrived at the definition had no experience in Chi Kung or Tai Chi (see Bond et al., 2009) – thus giving support to their own observation that definitions of meditation are often a function of a researcher’s own meditation practice and experience.

It can be seen that after 30 years of discussing a potential operational definition for the term ‘meditation’ researchers are perhaps no closer to this goal. To truly understand meditation techniques, personal subjective experience is a pre-requisite. Even then as one young meditator succinctly states, ‘It’s hard to say what it is but you know when you do it,’ (Fisher, 2006). It has been suggested that any attempts to craft a precise definition threatens to limit the phenomena artificially and obscure the subtlest nuances of the practice (Andresen, 2000). However, the properties outlined above (excluding property ‘b’, – logic relaxation which may feature in some techniques but not in others), while perhaps not providing an ultimate definition of the term ‘meditation’ act as a starting point for analyzing, discussing and demarking some of the most important variables that may be experienced in a meditation practice. The various meditation practices said to fall under the banner of the term will be the focus of discussion in the following sections.

Meditation and transcendental experiences

Meditation techniques have been used as spiritual and healing practices for more than 5000 years (Ospina et al., 2008). Over the past 40 years, meditation has gained wide popularity in the West, with an estimated 10 million practitioners in the United States alone, as well as hundreds of millions worldwide (Deurr, in Ospina et al., 2007). Individuals gravitate to meditation groups or teachers for a wide range of reasons. For example, to recover from emotional disturbances; improve sporting performance or reduce high blood pressure (Harrison, 1998). However, the original intention of meditation was to develop spiritual understanding, awareness (Chrisman and Frey, 2006) and an understanding of the interconnectedness between humans and their environment (Levey and Levey). Meditation, from this perspective, in essence supports and promotes high-level wellness, particularly the dimensions of Transcending, Finding Meaning and Self-Responsibility & Love. Travis and Ryan also emphasize the concept and experience of connection in their model and describe it as the currency of wellness (Travis and Callander, 2009). The following quote from Einstein, in Levey and Levey (2003:255) eloquently demonstrates how transcendence can open the mind to perceiving the planet and humanity from a systems perspective:

A human being is part of the whole called by us universe, a part limited in time and space. We experience ourselves, our thoughts and our feelings as something separate from the rest. A kind of optical delusion of consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest us. Our task must be to free ourselves from this prison by widening our circle of compassion to embrace all living creatures and the whole nature in its beauty... We shall require a substantially new manner of thinking if mankind is to survive.

This experience is further illuminated by a description of ‘automatic transcending’ by Sufi master Aliya Haeri (in Debold, 2009):

One can only say that one totally disappeared into some kind of a cosmic state and then returned with a sense of the love and the wonder and the joy of knowing that the surface of life was just a veneer, just a covering over this extraordinary reality that some people call pure consciousness or God or the Great Mystery. It doesn't matter what the name is. It unites one with all that is, with all of existence as we know it, and what is beyond existence. That brought a sense of responsibility, if you like, into living in this world and recognizing that one wanted to share this.

A comparison of descriptions from different people of various ages in different cultures suggests that universal qualities frame experiences associated with automatic transcending (Stace, in Harung et al., 2009). However, transcendental states are perhaps flavored by an individual's unique worldview, with each state experienced varying in nuance, akin to how each day is perceived differently. Individuals who regularly experience automatic transcending are said to be characterized by stable inner happiness and enhanced intuitive capacity (Harung et al., 2009). Transcendental consciousness allows the individual to transcend the confines of ordinary time and space, experience unfragmented wholeness (Blank, in Harung et al., 2009) and the sensation of an integrated self (Maslow, in Harung et al., 2009). The mind is said to transcend the experience of the subtlest thought to arrive at the source of thought (Maharishi, in Gelderloos et al., 1990). A myriad of wellness benefits then flow including improvements in: decision making; creativity; problem solving and precognition (Bradley, 2010) – characteristics particularly associated with the dimensions of Thinking, Finding Meaning and Transcending in the Travis and Ryan wellness model.

Meditation instructors also describe different stages of transcendence in both the TM and Chi Kung techniques (Maharishi, in Gelderloos et al., 1990; Liao, 2009). In Chi Kung, the transcendent experience is described more in terms of life energy – *Chi*. An individual's life energy is said during Chi Kung practice to harmonize with the original source of consciousness. In this state, high-level wellness is achieved and with regular practice, *Chi* can then be refined into a higher form of energy known as *Jing* (Liao, 2009). *Jing* can then be transmitted outside the body for healing purposes (Liao, 2009; Chen, 2004). Chinese scholars have long been interested in measuring the effects of *Jing* and have produced a large body of literature over the last 30 years (Chen, 2004). The philosophy of Chi Kung closely aligns with the energy basis of the Travis & Ryan wellness model, and the dimension of Transcending.

Gelderloos et al. (1990) suggests that there is a great deal of research data supporting the relationship between wellness and transcendental experiences – perhaps because over 600 studies have been conducted on the TM method alone since the 1950s (Hankey, 2006). Gelderloos et al. (1990) using Herman's self-investigation or self-confrontation method studied the relationship between automatic transcending as cultivated by Transcendental Meditation™ and Transcendental Meditation-Sidhi programs and wellness. Wellness was defined as: a high potential for integration of self; a high level of self-sufficiency; self-reliance; self-determination; freedom; independence; control or mastery over situations; intrinsic spirituality; creativity; liveliness and a clear conception of where one is going and what one is doing (Gelderloos et al., 1990) – characteristics common to the Travis and Ryan wellness model. These researchers found that a high-level of wellness was positively correlated with the level of

experience meditators had with automatic transcendence and that meditations techniques were instrumental in the development of this well-being. Physiologists using standard methodologies in their field have additionally contributed to understanding the processes which occur in transcendental states:

Physiologists have characterized it as a “wakeful hypometabolic” state because of the increased global electroencephalographic (EEG) alpha/theta power, phase synchrony and coherence, and the reduced activity of the hypothalamic-pituitary-adrenocortical axis and sympathetic nervous system (Badawi, Wallace, Newberg, Travis, Wintering & Nidich et al; Travis & Wallace; Travis, Teece, Arenander & Wallace; Wallace, in Orme-Johnson, 2008:1218). Cortisol, respiratory rate, plasma lactate, and vascular resistance decrease, and skin resistance and muscle relaxation increase more than in controls sitting with their eyes closed in the same posture (Dillbeck & Orme-Johnson; Jevning, Wilson & Smith, in Orme-Johnson, 2008:1218). Current dipole source analysis using magnetoencephalography (MEG) locates the source of synchronous EEG alpha during the Transcendental Meditation technique in the medial pre-frontal cortex (mPFC) and anterior cingulate cortex (ACC) (Yamamoto, Kiramura, Yamada & Nakashima et al in Orme-Johnson, 2008:1218). A positron emission tomography (PET) study found a parallel increase in the frontal cortex, with decreases in the thalamus, hippocampus, and basal ganglia corresponding to the meditators’ experience of the mind transcending sensory activity and thinking (Newberg, Travis, Wintering, Nidich et al, in Orme-Johnson, 2008:1218).

This research supports Travis and Ryan’s promotion of meditation techniques, particularly those that encourage automatic transcending, such as TM and Chi Kung. It additionally supports their view that a regular meditation practice may be an indicator or contributing factor to high-level wellness (see Appendix 2 – Dimension (D) 7, Characteristic (C) 10; D8, C8; D12, C8.)

Transcendental experiences as an inherent state of the human condition

Meditation techniques throughout the centuries have been used as a tool to awaken pure consciousness. However, such practices are not the only means to achieve self-transcendence. For example, famous poets such as Emily Bronte and Tennyson, scientists such as Einstein and Schrodinger and athletes including Roger Banister and Billie Jean King have all reported a comprehensive range of higher state of consciousness (Harung, in Harung et al., 2009). Billie Jean King

(King and Chapin, in Harung et al., 2009:881) describes one of her peak experiences on the court:

It almost seems as though I'm able to transport myself beyond the turmoil on the court to some place of total peace and calm. Perfect shots extend into perfect matches (...) I appreciate what my opponent is doing in a detached abstract way. Like and observer in the next room (...) It is a perfect combination of (Intense) action taking place in an atmosphere of total tranquility. When it happens, I want to stop the match and grab the microphone and shout that's what it's all about, because it is. It is not the big prize I'm going to win at the end of the match or anything else (...) When I'm in that kind of state (...) I feel that tennis is an art form that's capable of moving both the players and the audience (...) When I'm performing at my absolute best, I think that some of the euphoria that I feel must be transmitted to the audience.

It would therefore appear that while meditation techniques can trigger enlightenment and lead to an increased sense of well-being, the techniques are not the only path leading to automatic transcending. The ability to transcend may be an inherent part of the human condition, one that no doubt can be cultivated by certain meditation practices.

Meditation, RCT's and systematic reviews

As mentioned previously, a large number of studies have been conducted to assess the purported benefits of meditation techniques and randomized clinical trials (RCT's) have featured predominantly. RCT's are often considered to be the gold standard for evaluating the effects of health-care therapies and take the top rung in the hierarchy of research evidence (Pirota, 2007). However, systems theorists believe that while much can be learned by taking apart systems and studying their parts, one should not lose sight of the important relationships that bind each sub system to the others and to higher levels of the hierarchy (ed. Wright, 2007). It is with this systems perspective in mind that we now turn to interpreting RCT results.

Due to the large number of RCT's conducted on meditation techniques it is not possible for the present paper to analyze each and every one. However, a number of systematic reviews on meditation studies have been conducted recently and will assist in giving an overview of the current body of research. As might be anticipated from the previous sections, reviewers found that because meditation contains a wide range of techniques that are complex in nature there is a large variation in results of the practice's therapeutic effects (Ospina et al., 2007;

Ospina et al., 2008). Clinical trials have tested meditation's effect on numerous physical outcomes, with the most common being reduced blood pressure in hypertensive patients. Other research areas include positive psychological outcomes, such as: happiness; empathy; spirituality; autonomy; social and interpersonal relationships; as well as health related quality of life. However, researchers included four hundred clinical trials in their review and determined that only 10% of the studies were considered to be of good methodological quality (Ospina et al., 2008).

The University of Alberta Evidence-based Practice Center (UAEPC) recently published a review of the state of research on meditation practices for health (Ospina et al., 2007). The studies included had to be comparative and have health related outcomes. RCT's as well as NRCTs were included and it is considered the most comprehensive meta-analysis to date (Orme-Johnson). Reviewers once again found the methodological quality of meditation research to be poor with significant threats to validity. They report:

TM had no advantage over health education to improve measures of systolic blood pressure and diastolic blood pressure, body weight, heart rate, stress, anger, self-efficacy, cholesterol, dietary intake, and level of physical activity in hypertensive patients; Relaxation Response was not superior to biofeedback in reducing blood pressure in hypertensive patients; Yoga did not produce clinical or statistically significant effects in blood pressure when compared to nontreatment; Zen Buddhist meditation was no better than blood pressure checks to reduce body weight in patients with cardiovascular disorders (Ospina et al., 2007: 4).

In addition, methodological problems were identified. For example, the majority of RCT's did not adequately explain the methods of randomization, blinding, withdrawals, and concealment of treatment allocation. They state:

Observational studies were subject to bias arising from uncertain representatives of the target population, inadequate methods for ascertaining exposure and outcome, insufficient followup period, and high or inadequately described losses to followup (Ospina et al., 2007:3).

Orme-Johnson in a commentary on the UAEPC report, criticizes the above mentioned review for using blinding (also used by Ospina et al., 2008) as a measure for assessing research quality. He questions how it is possible to keep subjects from knowing that they are doing yoga or TM, when these techniques are so prevalent in society. Orme-Johnson writes that other methods are available to account for the placebo effects and subsequent meta-analyses have found that TM does improve high blood pressure. In order for systematic reviews to be free from

bias and reflect meditation's field success, Orme-Johnson asks that new criteria be developed to evaluate the research. He also stresses the need to not only consider evidence derived from RCT's when assessing the potential effects of meditation but also other research designs which are commonly used in bio-medicine. For example, recent studies in the meditation field have shown that increased levels of activity, specifically in the left frontal lobe, are associated with better mood and improved immunity (Davidson et al., in Hassed, 2007). Long-term meditators additionally have increased cortical thickness indicating a slowing of age-related degeneration (Lazar, Kerr, Wasserman et al., in Hassed, 2007; Clements et al; Wallace et al., in Hankey, 2006).

Mindfulness and psychological theory

Over the last 25 years, 'mindfulness' has additionally been incorporated into psychological theory and practice (Bishop et al., 2004; Brown and Ryan, 2003; Shapiro, 2009). The discipline of psychology has been deconstructing meditation practices in order to understand what exactly is occurring when one engages in meditation (Kostanski and Hassed 2008). Psychologists have focused on the mindfulness meditation technique, most often associated with Buddhism. The technique encourages the practitioner to become consciously aware of thoughts as they come and go. Mindfulness meditation is believed to empower the individual to find release from depressive rumination, anxiety and stress in his/her life (Kostanski and Hassed, 2008). Findings from various studies on the technique have lent preliminary supporting evidence to the hypothesis that increases in mindfulness lead to enhanced wellness outcomes (Shapiro et al., 2008). Increases in mindfulness have been found to improve psychological functioning in individuals with stress-related disorders (Carmody and Baer, in Shapiro et al., 2008) and trait measures of mindfulness are correlated with a variety of cognitive and affective indicators of mental health, including lower levels of emotional disturbance and higher levels of wellness (Brown and Ryan, 2003; Carlson and Brown, in Shapiro et al., 2008). A recent study found preliminary evidence that at least one aspect of mindfulness, namely 'attention' can be cultivated and is beneficial for one's well being² (Shapiro et al., 2008; Shapiro, 2009). This component is a fundamental element in Travis and Ryan's definition of high-level

² Three fundamental components to mindfulness have been posited: (1) intention, (2) attention, and (3) attitude. Intention involves knowing why one is paying attention and motivation – a conscious direction and purpose. Attention involves the direct, moment-to-moment knowing of what is happening as it is actually occurring, with the mind trained to focus, aim and sustain attention. Attitude describes how one pays attention, referring to the accepting, caring and discerning qualities of mindfulness (Shapiro et al., 2008).

wellness and is represented in a number of the characteristics that indicate and test for high-level wellness (see Appendix 2: D2, C4; D7, C4; D11, C4). However, current measures of mindfulness, i.e. the Mindful Attention and Awareness Scale (MAAS) only take into account the ‘attentional’ aspect of mindfulness. Therefore, other measures that capture ‘intention’ and ‘attitude’ would need to be developed to fully assess the efficacy of meditation techniques.

Further theoretical research into the mechanisms of action underlying mindfulness-based interventions postulate that this meditation technique leads to increased levels of mindfulness, re-perceiving, self-regulation, value clarification, cognitive and behavioral flexibility that would greatly enhance an individual’s level of wellness (Carmody et al., 2009). Researchers have noted that while the demonstrated positive outcomes derived from mindfulness meditation are not conclusive, the operationalization of mindfulness into existing psychological models has profound benefits for treating an ever-increasing range of psychological problems as it highlights a mode of emotion regulation not captured by western psychological models. They believe a more open-minded examination of Buddhist psychology may be able to profoundly inform the way we understand psychological functioning (Chambers et al., 2009).

Meditation and qualitative research

To give further depth to meditation’s impact on wellness, a recent qualitative study in the field of nursing will now be reviewed. The study describes the lived experiences of nurses practicing yoga, Tai Chi, meditation and Reiki healing sessions for the first time. Nurses documented their feelings and responses in journals after weekly classes over a 3 month period (Raingruber and Robinson, 2007). A common theme throughout the journal was that while it took a few weeks to adjust to the new meditation techniques, after this initial break-in period, nurses reported that they: felt calmer and were more grounded; were bringing a certain quality of attention to moment-by-moment experiences (Kabat-Zinn, in Bishop et al., 2004); felt a greater connection to everything around them; had enhanced problem solving skills; and also regulated and modified their eating habits. One Tai Chi participant notes:

I feel a sense of peace, calm and warmth all over my body when I walk in the room. It’s a tingling feeling that flows like a stream over me. That’s odd because I’ve been to a lot of meetings in the same room and I never felt that sense of peace that I notice in the room during the Tai Chi class (Rainburger and Robinson, 2007:1146).

It can once again be seen that a meditation technique, even in a short period of time, has the potential to improve an individual's level of wellness.

Conclusion

The aim of the present paper was to discover whether a relationship exists between meditation and high-level wellness and if meditation techniques play an integral role in achieving high-level wellness. Travis and Ryan's concept of wellness was used as a benchmark to assess research across disciplines. Their concept of wellness in this emerging discipline is dynamic and expansive, characterizing and detailing the 'wholes' as well as the 'parts'. Therefore, to truly understand meditation and its relation to wellness, the research presented in the paper also needed to be multi-dimensional and illuminate various benefits or aspects of the technique's practice. Various perspectives of meditation have been presented ranging from meditation's original intent of spiritual understanding, awareness and the direct experience of ultimate reality to an analysis of the 'parts' through systematic reviews and PET studies. It was seen that automatic transcending offers the meditation practitioner the opportunity to experience a level of consciousness where he/she feels connected to others and the environment – the currency of wellness. These insights enable practitioners to apply this knowledge and experience to benefit their own lives as well as the health of others. Transcendence and its resultant outcomes were argued to be encapsulated in Travis & Ryan's definition of high level wellness. However, it was also noted that transcendent states and their resultant awareness can also be achieved through other means such as sporting activities, meta-cognitive pursuits and may in fact be an inherent human capacity.

As other types of research were examined it became readily apparent that numerous benefits or wellness outcomes are derived from a meditation practice – even at the beginner level. However, systematic reviews have called into question the quality of research design in meditation studies as well as the technique's efficacy. In turn, the systematic reviews have been criticized for their narrow focus, methodological flaws, bias and inability to acknowledge other research designs. It would appear that a new and consensually agreed upon research criteria by which to evaluate meditation's efficacy is needed.

It was further seen that the field of psychology has made great inroads into discovering the underlying mechanisms of meditation and is in the process of building an evidence base to support the practice's effectiveness. However, to gain a greater depth of understanding of meditation's mechanisms and potential, measurement tools that capture other aspects of mindfulness need to be developed and rigorously tested.

In conclusion, based on the research to date, it would appear that a positive correlation exists between meditation and high-level wellness. This perhaps gives credence to Travis and Ryan's inclusion of the technique in the WI as an indicator of high-level wellness. However, it is doubtful that meditation is the only path to achieve high level wellness, other means exist – some that may be a function of the natural human condition.

Appendix 1: Travis and Ryan 12 Wellness Dimensions

Self-Responsibility & Love:

Self-responsibility, with love and compassion, is the first form of energy in the Wellness Energy System. This creates an environment, or context, within which all other energy expressions can be better considered. Self-responsibility and love flow from the appreciation that we are not separate and individual entities, nor are we made up of separate parts. Rather, we are united in a single energy system along with everything else in creation.

Breathing:

Breathing is synonymous with living. It is basic to our energy-transforming metabolism. In the Wellness Energy System, breathing provides the first energy input. The oxygen that breathing provides is needed for the production of the high-energy chemical bonds that result when it combines with our blood sugar within every cell of our body. Our breathing invokes more subtle energies not presently recognized by most of Western science - the prana, or life force.

Sensing:

Sensory information (light, heat, touch, sound, odor, taste, movement, and so on) is the second form of energy input in the Wellness Energy System. Vast amounts of energy are received from our environment and channeled by our physical senses (and possibly through other senses that are less well understood). These energies are necessary for our protection and survival, and they serve as our most basic form of communication.

Eating:

The third energy input type in the Wellness Energy System is food. Eating (including digestion and assimilation) is the process whereby nutrients are extracted from food, combusted with the oxygen supplied by breathing, and transformed into electrochemical and heat energy. The newly acquired organic molecules are also used in the production of raw materials needed for building and repairing body parts.

Moving:

Movement is one of the most basic expressions of energy output in the Wellness Energy System. When nourished and stimulated with oxygen, sensory data, and food (fuel), the body responds with internal movement (lungs expanding, heart pumping, and so on) and external movement (walking, smiling, and so on). The ability to move is the basis for more complex bodily activities such as working and playing, creative expression, communicating, and sexual bonding.

Feeling:

The expression of emotions - the primary ones being anger, fear, sadness, and joy - is an important form of human energy output in the Wellness Energy System. Feelings are generated from within the limbic system of the brain, and serve to motivate both thought and action.

Thinking:

Thinking depends on the production of electrochemical energy in the brain, and thus, is a type of energy output in the Wellness Energy System. While thinking draws energy from all three of the Wellness Energy System input sources, it is particularly dependent upon sensory data. Thinking energy is intimately connected with the energy of feeling/emotions in mapping our internal version or interpretation of external reality.

Working & Playing:

Playing and working are directed, focused expressions of the Wellness Energy System. The energies of thinking and communicating, enhanced by the energy of movement, combine to create a form of energy in which human beings interact with others and their environment, produce goods and services, and structure their time and, thus, their lives.

Communicating:

Feeling and thinking together lead to communication. Communicating involves the organization of feeling and thinking energies and their transmission in the form of a message, verbal or nonverbal. Communicating is an energy output of the Wellness Energy System that allows us to share our internal maps of reality with others, and thus forms the foundation of culture.

Intimacy & Sex:

In the Wellness Energy System, intimacy is one of the deepest forms of connection. Often it is closely related to sex as an expression of the vital life force, the elan vital, or, in Eastern philosophy, ki, or chi. It is the energy of our aliveness. Sex is also about the preservation of life - a type of communication in which the entire organism attempts to unify itself with another. It depends dynamically upon the input sources that we get from breathing, sensation, and food/fuel for its complete expression, and it is strongly modified by our energy outputs of thoughts, feelings, and messages. Sex may also serve to open us to new levels of meaning in life as well as provide experiences of transcendence.

Finding Meaning:

The search for meaning is a complex energy output of the Wellness Energy System that involves all of the previous energy forms. It involves these basic questions: Who am I? Why am I here? Where am I going? What do I want? What is real? What is true? Regardless of whether these questions are conscious or unconscious, all life activity, all energy expressions, are colored by them. The ongoing process of addressing these questions encourages a balanced life and provides us with a focal point toward which to direct our energy.

Transcending:

Transcending is the movement in which all the energies of the Wellness Energy System, once experienced as separate and in individual contexts, are appreciated as one. We come to know that we are one with all that is - and that the one" that we are energy. This knowledge inspires both love and self-responsibility, which bring us full circle in the never-ending spiral of wellness.
(Travis et al., 2011).

Appendix 2: Travis & Ryan High-level Wellness Characteristics - Overview

Dimension 1: Self-Responsibility & Love High-level Wellness Characteristics

1. Compassion for yourself and others.
2. Capacity to love yourself and others.
3. Take responsibility, where possible for you health and well-being.
4. See disease as an opportunity to reevaluate your lifestyle.
5. Recognize interdependence with other humans and the planet.
6. Accept feelings of weakness and vulnerability.
7. Take responsibility for your actions but do not berate yourself.
8. Volunteer and participate in community activities.
9. Tune into your body at regular intervals throughout the day to assess its needs.
10. Love, learn about and respect your body's needs.
11. Act in an environmentally friendly manner.
12. Consume and spend money with an environmental conscience.
13. Have sufficient resources to meet your/family's needs within a particular economy.

Dimension 2: Breathing High-level Wellness Characteristics

1. Use the breath to promote relaxation and creativity.
2. Avoid polluted environments and minimize your contribution to air pollution.
3. Take note of your posture and how it facilitates breathing.
4. Use the breath as a means to centre and live fully in the present moment.
5. Wear comfortable clothing that allows unrestricted breathing.
6. Ensure you have adequate rest and sleep.

Dimension 3: Sensing High-level Wellness Characteristics

1. Appreciate the senses - seeing, touching, smelling, hearing, tasting, temperature, movement (kinetic and kinesthetic senses).
2. Take care not to abuse the senses.
3. Use the senses creatively.
4. Be aware of the impact of different colors and styles of lighting on your well-being.
5. Recognize the healing power of touch.

6. Revive and rejuvenate your senses with relaxation exercises and massage.
7. Be comfortable with silence and taking time to be alone.
8. Awareness of subtle energy.

Dimension 4: Eating High-level Wellness Characteristics

1. Have knowledge of what constitutes a nutritious and well-balanced diet.
2. Eat a healthy diet with at least 5 servings of raw fruits or vegetables each day.
3. Supplement where necessary with vitamins & mineral supplements.
4. Eat organically.
5. Drink at least 6 glasses of water each day.
6. Avoid using food as a reward, escape, or punishment.
7. Avoid dieting and if weight is the issue address the underlying cause.
8. Eat food slowly and chew thoroughly.
9. Tune into the body's signals in order to recognize what food makes you feel good both physically and psychologically.
10. Have a good appetite and be within 15 percent of your ideal weight.

Dimension 5: Moving High-level Wellness Characteristics

1. Practice some form of mind-body-spirit discipline that integrates breathing, movement, and body awareness on a regular basis.
2. Have an exercise regime tailored to strength, cardio-vascular fitness and flexibility.
3. Enjoy exploring new and effective ways of caring for yourself through body movement.
4. Be aware that exercise can help you feel better when depressed, anxious or overstressed.

Dimension 6: Feeling High-level Wellness Characteristics

1. Allow yourself to experience a full range of emotions and find constructive ways to express them.
2. Respect other people's differing sensitivity to and styles of expressing their feelings.
3. Recognize, acknowledge and accept fears.
4. Express anger in ways that help to solve problems rather than repressing the feelings.
5. The ability to say 'no' to people without feeling guilty.

6. Being open to experiencing and expressing joy.
7. The ability to graciously accept other people's positive comments.
8. Be able to express concern & love for others.
9. Have close and loving friendships.
10. Listen to and consider other people's criticisms without reacting defensively.
11. Be aware of the power contained in negative feelings and instead of denying these feelings, draw on the power to deepen self-understanding.

Dimension 7: Thinking High-level Wellness Characteristics

1. Awareness of any recurring thoughts that occupy your mind.
2. Notice that your perception of the world is colored by your thoughts.
3. Monitor your thoughts and attitudes at intervals throughout the day to ensure they are affirming.
4. Being conscious of the connection between certain thoughts and the subsequent changes (such as breathing pattern, muscle tension & skin moisture) in your body in response to the thoughts.
5. Awareness of the connection between thoughts, emotions and the immune system.
6. Awareness of the influence of different environments on your thoughts.
7. Be satisfied with the quality of your thoughts.
8. Embrace experience in a way that reduces the need to directly control or change experience.
9. Pursue stimulating and creative mental activities.
10. Use some form of positive imagery, guided imagery or meditation.
11. Exercise intuition, dreams and creativity to gain new insights.
12. Solve problems creatively by brainstorming and using journaling techniques.

Dimension 8: Working & Playing High-level Wellness Characteristics

1. Take time to nurture and strengthen yourself physically, mentally, emotionally and spiritually each day.
2. See problems and challenges as stepping stones rather than stumbling blocks.
3. Enjoy and take time for spontaneous activities.
4. Play and work cooperatively, not competitively.
5. Avoid undue seriousness.
6. Laugh freely and often.

7. Avoid taking on unnecessary and unrealistic burdens and responsibilities.
8. Use relaxation and visualization practices to transform any stressful or negative attitudes towards work/study.
9. Value yourself for who you are not for just what you do.
10. Work to enhance the well-being of others and the planet without taking away from anyone.
11. Create opportunities for your creative & intuitive self to be expressed and heard.
12. Sleep late without feeling guilty.
13. Be able to readily shift from a goal-oriented frame of mind to a purposeless activity when it is appropriate to do so.

Dimension 9: Communicating High-level Wellness Characteristics

1. Communication with others is clear and well understood.
2. Enjoy communicating and have genuine interest in what others have to say.
3. Truthful and compassionate in your communications.
4. Aware that absolutes, generalizations, labels and judgments undermine clear, mutually beneficial communications.
5. Strive to connect with others by relating to them as equals.
6. Be sensitive to your own and other people's tone of voice, facial expression, and body language when communicating.
7. Recognize that humans are not the only species on the planet that have complex patterns of communication.
8. Pay attention to the communications from the natural world and from your environment that offer direction in what is needed for our planet's well-being.
9. Initiate conversations.
10. Ability to communicate with strangers easily.
11. Communicate limitations when appropriate.
12. Listen and consider opposing viewpoints.
13. Able to let go of control and allow a situation to work itself out through means you may not fully understand.

14. Awareness of defense mechanisms and have the ability to set them aside when appropriate.
15. Clearly express thoughts and feelings instead of assuming others can read your mind.

Dimension 10: Intimacy & Sex High-level Wellness Characteristics:

1. Provide any children in your life with healthy role modeling and education about caring and responsible expressions of their sexuality and sexual practices.
2. Make responsible and caring decisions about sexual practices.
3. Commitment to exploring sexuality in pleasurable and positive ways.
4. Can speak about sexual issues in a comfortable respectful and appropriate manner.
5. Feel good about your body.
6. Enjoy your body and the sensations of which it is capable.
7. Comfortable with own sexual orientation and gender in ways that are not harmful to others.
8. Live life with the knowledge that as a whole person you have everything that you need for happiness.
9. Experience sexuality as being in harmony with spirituality.
10. Recognize that the wellbeing of your body is interdependent with the well being of the earth.
11. Aware of the difference between needing someone and loving someone.
12. Feel comfortable touching people of your own sex.

Dimension 11: Finding Meaning High-level Wellness Characteristics:

1. Contemplate what is meaningful and regularly examine your values and priorities.
2. Listen to your own inner guidance in assigning the meaning you bring to life.
3. Set realistic goals that support the manifestation of your dreams and aspirations.
4. Focus awareness in the present moment, instead of living in the past or future.
5. Accept that death is a natural part of life.
6. Look forward to the future as an opportunity for growth.
7. See life as exciting and challenging.
8. Let your inner voice guide you instead of acting in accordance with the expectations of others.

9. Place importance on achieving both outward (material) and inward (spiritual) goals.

Dimension 12: Transcending High-level Wellness Characteristics:

1. Enjoy practicing a spiritual discipline or allowing time to sense the presence of a greater force moving in your life.
2. Experience synchronistic events in your life.
3. When ill, consciously activate and participate in the healing process.
4. Aware that experience of the world often mirrors your beliefs about reality.
5. Live life as a mysterious process, sometimes beyond description or comprehension, in which you have a significant role.
6. Experience yourself as a part of a larger whole - aware of connections with people and things that seem to transcend physical boundaries.
7. Use messages interpreted from dreams to better your waking life.
8. Meditate or practice some kind of relaxation or centering process for at least 20 minutes every day.
9. Consciously seek to develop and trust your intuition.
10. Accept confusion and paradox as elements in your spiritual journey.
11. Be curious about the nature of reality.
12. Be comfortable with intuition, or knowing things without understanding precisely how you know them.
(Travis & Ryan)

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