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Absorption:

An Individual Difference to Consider in Mind–Body Interventions

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Abstract

Given that mind–body interventions constitute a major portion of complementary and alternative medicine used by the public, it seems important to explore those human characteristics that may contribute to the efficacy of mind–body interventions in those who are most likely to benefit. One such characteristic, *absorption*, reflects an individual’s cognitive capacity for involvement in sensory and imaginative experiences in ways that alter an individual’s perception, memory, and mood with behavioral and biological consequences. Thus, one’s level of absorption may potentially create differential treatment effects in mind–body intervention outcomes. Conducting practical clinical trials helps address the challenge of determining whether a specific mind–body modality intervention may be effective. Such trials may be strengthened by including measures of personality dimensions such as absorption.

Keywords

mind–body techniques; nursing interventions; personality

Introduction

Use of complementary and alternative medicine (CAM) practices or products in the United States has steadily increased over the past three decades (Barnes, Powell-Griner, McFann, & Nahin, 2004; NCCAM, 2007), increasing concern in some instances about the effectiveness of these practices and products in the absence of evidenced-based information. As a consequence, research into the efficacy of CAM practices and products has been promulgated and supported by the NIH, National Center for Complementary and Alternative Medicine (NCCAM).

From the outset, research testing CAM practices and products posed a number of challenges. First among the challenges was determining those elements that defined CAM and then categorizing them. NIH met that challenge by identifying five domains of CAM, that is, “biologically based methods, energy therapies, manipulative and body-based methods, mind–body interventions, and whole/alternative medical systems” (NCCAM, 2007). Mind–body interventions are the least controversial and most widely used area of CAM, which places them at high priority for nursing research. The aim of this article is to address a potential methodological issue associated with mind–body nursing intervention research in persons diagnosed with an acute or chronic illness. Because selected mind–body modalities require one to become intentionally focused, keeping out all extraneous thoughts, it is important to

determine who may be most successful in doing this prior to selecting a mind–body modality. Thus, it is appropriate to explore the personality characteristic *absorption* given its influence on intentionally focused intervention activities. A useful question to ask may be, “Is the personality characteristic absorption, as described, defined, and measured by Tellegen and Atkinson (Tellegen’s Absorption Scale [TAS], 1974), an effective predictor of outcomes in mind-body interventions?”

Absorption as a Personality Characteristic

Absorption is defined as a disposition for situations in which one’s total attention fully engages one’s representational (perceptual, enactive, imaginative, and ideational) resources (Tellegen & Atkinson, 1974). That is, this personality characteristic reflects an individual’s cognitive capacity for involvement in sensory and imaginative experiences in ways that alter an individual’s perception, memory, and mood with behavioral and biological consequences (Milling, Reardon, & Carosella, 2006; Rader, Kunzendorf, & Carrabino, 1996; Roche, Barnier, & McConkey, 1998; Wickramasekera, 1995, 2003).

Absorption as a personality characteristic seems stable across time and situations. It appears to be partly genetically based, as shown in studies of monozygotic twins, even when the twins are reared apart (Tellegen et al., 1988). Absorption is also a moderate correlate of hypnotic ability (Crawford, 1982; Tellegen & Atkinson, 1974) and is considered a predisposing factor to stress-related physical symptoms that may lead to chronic psychophysiological disorders (Roche & McConkey, 1990; Wickramasekera, 2003). The perception of a stressor can result in unspecific hyperarousal of the autonomic nervous system, activating physiologically the hypothalamic–pituitary–adrenal-axis that may eventually result in neuroendocrine and immune changes or general homeostatic dysfunction (Flor & Turk, 1989; Wickramasekera, 2000). For example, high absorption has been shown to be a risk factor for several stress-related disorders, including postchemotherapy treatment nausea (Zachariae et al., 2007), morbid obesity (Wickramasekera & Price, 1996), somatic complaints (Wickramasekera, 1995), nonorganic chest pain (Saxon & Wickramasekera, 1994), anticipatory nausea and vomiting (Challis & Stam, 1992), nightmares (Belicki & Belicki, 1986), and bulimia nervosa (Pettinati, Horne, & Staats, 1985).

Tellegen’s Absorption Scale as a Test of Absorption

Absorption is measured by the Tellegen Absorption Scale (Tellegen & Atkinson, 1974), one of the 11 component scales of the larger Multidimensional Personality Questionnaire (Tellegen, 1982). The scale does not involve a hypnotic induction or an actual behavioral measure of one’s responses to standardized suggestions. It is a short (10 min) paper-and-pencil test containing 34 true/false self-report items that assesses an individual’s openness to experience, emotional and cognitive alterations across a variety of situations (Roche et al., 1998; Roche & McConkey, 1990; Tellegen, 1981; Tellegen & Atkinson, 1974), and is associated with periods of relaxed focused attention (Owens, Taylor, & DeGood, 1999). One’s absorption ability is captured by the sum of “true” responses on the Absorption Scale. Summed scores on the instrument are calculated by identifying *true* responses as 1 and *false* responses as 0, creating a possible range of 0 to 34, with higher scores indicating stronger trait absorption (Tellegen & Atkinson, 1974). Tellegen (1982) reported high levels of internal reliability ($r = .88$) on a study sample of college females ($n = 500$) and college males ($n = 300$) and high levels of test–retest reliability ($r = .91$) on a study sample of college females ($n = 111$) and college males ($n = 62$). The test–retest reliability ($r = .85$) of the scale was replicated in a study sample of college students ($N = 591$) and was again found to be high (Kihlstrom et al., 1989).

Descriptions of High Versus Low Absorption Scorers

Persons who score high on absorption are described as those who are emotionally responsive to engaging sights and sounds, are readily captured by entrancing stimuli, and think in images (Tellegen, 1981). Such individuals seemingly can summon and become absorbed in vivid and compelling recollections and imaginings and can experience episodes of expanded awareness. Persons with low absorption are not as emotionally responsive as those with high absorption. Those with low absorption capacity are not easily caught up in sensory or imaginative experiences and do not readily relinquish a realistic frame of reference (Tellegen, 1981). Using a self-report phenomenological state instrument to explore the relation between absorption (Tellegen & Atkinson, 1974) and subdimensions of consciousness, including relaxation-meditation, in a study sample of college females ($n = 179$) and college males ($n = 70$), researchers found that high absorption subjects ($M = 29.9$) reported significantly more ($p < .05$) visual imagery than low absorption subjects, greater positive affect, increased ability to concentrate and focus, and greater alterations in self-awareness (O'Grady, 1980; Pekala, Wenger, & Levine, 1985).

Scores on the absorption test have been found to correlate with dream recall, hypnotizability, spontaneous trance states (Roche & McConkey, 1990; Tellegen & Atkinson, 1974), fantasy proneness (Wilson & Barber, 1983), and creative imagery production (Wild, Kuiken, & Schoplocher, 1995). Thus, absorption is a personality characteristic that may affect a person's response to a therapeutic CAM-related mind-body nursing intervention and, as such, may be associated with effective use of mind-body modalities. Hence, evidence of this personality characteristic may help to identify a subset of the population that may benefit from selected mind-body interventions such as imagery (Owens et al., 1999).

Level of Absorption and Mind-Body Intervention Outcomes

One's level of absorption can potentially create differential treatment effects, that is, it may make a difference in intervention effectiveness (Buck, Baldwin, & Schwartz, 2005; Caspi & Bursell, 2005; Wickramasekera, 2003). If individuals who possess a high level of absorption use internally focused interventions such as guided imagery, they may more easily achieve intended outcomes. Several researchers have reported relationships between level of absorption and research intervention outcome. For example, individuals with high absorption scores showed greater relaxation benefit with imagery than those with low absorption scores (Qualls & Sheehan, 1981). High absorption was also associated with (a) the effective use of guided imagery to relieve anxiety, in a small study with healthy graduate students (Kwekkeboom, Huseby-Moore, & Ward, 1998), (b) the enhancement of the immune response in healthy subjects (Gregerson, Roberts, & Amiri, 1996), (c) reduced effects of stress on immune function in medical students at exam time (Gruzelier, 2002), (d) reduction in headache activity for vascular headache sufferers (Neff, Blanchard, & Andrasik, 1983), and (e) deeper experiential states of prayer (Richards, 1991).

More recently, two groups of researchers have explored the influence of absorption as one variable that may explain or predict differential responses to interventions driven by required intentional focus of mind-body modalities such as guided imagery or directed energy healing practices (Menzies, Taylor, & Bourguignon, 2006; Schwartz et al., 2004). In a study exploring the relationship between absorption and a healthcare provider's capacity to detect bioenergetic fields around the human body for purposes of energy healing, Schwartz et al. (2004) predicted that high absorbers, following hand-related bioenergy awareness training, would be more likely to show an increased ability to detect a biofield. Results demonstrated that the study participants' baseline absorption scores were significantly correlated with the degree of biofield energy detection accuracy ($p < .05$). Specifically, individuals who scored high on the absorption

measure at baseline demonstrated a 58.3% accuracy compared to a 52.7% accuracy for those with low absorption scores (Schwartz et al., 2004, p. 169).

In a randomized, controlled clinical trial to examine the effectiveness of guided imagery to decrease pain and to enhance self-efficacy and functional status in persons diagnosed with fibromyalgia (FM), results showed that functional status scores ($p = .03$), self-efficacy for managing pain scores ($p = .03$), and self-efficacy for managing other symptoms of fibromyalgia scores ($p < .01$) improved significantly in a guided imagery intervention group during the course of a 10-week study (Menzies et al., 2006). When exploring the effects of absorption on study outcomes, clinically important trends were noted. Individuals in the intervention group using imagery who had a high level of absorption reported more clinically relevant improvements in affective pain, functional status, and self-efficacy for management of other symptoms than those in the imagery group with low absorption levels. Persons not receiving the intervention (control group) who were high in absorption rated their pain, functional status, and self-efficacy slightly worse than those in the control group who were low in absorption. Perhaps the high absorbers in the control group were hypervigilant in noticing symptoms, unlike those with low absorption, but were without the benefit of an intervention to decrease the hypervigilance, which led to slightly worse outcomes than for those in the control group with low absorption (Bourguignon, Menzies, & Taylor, 2007).

Several researchers suggest that high absorbers are prone to hypersensitivity, that is, in a general way, it may be that high absorbers attend too much to physiologic responses to stressors and sometimes in a negative way (Flor & Turk, 1989; Neff et al., 1983; Shea, Burton, & Girgis, 1993; Wickramasekera, 1988, 2000, 2003; Wickramasekera, Pope, & Kolm, 1996). The consequence of such sensitivity may be that these high absorbers amplify even minimal unpleasant sensations in their bodies. As Wickramasekera (2000, 2003) points out, there seems to be a duality to the personality characteristic, absorption. On one hand, persons with high absorption are able to respond more quickly to mind–body therapeutics; on the other hand, this ease of response may be a risk factor. Such sensitization may, in some cases, predispose them to hypersensitivity (Wickramasekera, 2000, 2003).

Assessing Absorption Level to Identify Candidates for Selected Mind–Body Therapies

Given that mind–body interventions constitute a major portion of CAM used by the public (Barnes et al., 2004; NCCAM, 2007), it seems important for nurse researchers to continue to explore the human characteristics that may contribute to the efficacy of mind–body interventions in those who are most likely to benefit. Absorption assessment provides a noninvasive, minimum burden and cost-effective measure that can be given to study participants at the point of enrollment in mind–body protocols to obtain, at minimum, an estimate of these individuals' imaginative/hypnotic abilities. This may help identify anticipated therapeutic response to learning-based mind–body interventions such as imagery. The challenge of determining whether a specific mind–body modality nursing intervention would be effective is to conduct practical clinical trials (Astin, Shapiro, Eisenberg, & Forsys, 2003; Caspi & Burlison, 2005). Such trials may be strengthened by including measures of personality dimensions such as absorption and positive and negative affect and/or by combining quantitative measurements with explorations of qualitative features related to contexts within which mind–body interventions are applied.

Mind–Body Modalities: Implications for Nursing Practice and Education

Although nursing science has long promoted mind–body principles, and these are dominant themes of academic discourse, incorporating such principles into nursing education and

practice has been sometimes slowed by professional role restrictions and educational programs focused on meeting accreditation standards. However, as evidence-based data accumulate to support selected modalities, changes in practice standards will likely include these modalities within nursing practice specialties.

Recent events that make it more likely for nurses to know about mind–body interventions and the personality characteristic absorption include the National League for Nursing listing of 10 trends to watch for in nursing education (Heller, Oros, & Durney-Crowley, 2000). Emerging complementary modalities and genetics were listed fourth among the trends. Also, the National Organization for Nurse Practitioner Faculty has prepared guidelines for curricular implications of integrating content on complementary modalities and related constructs into nursing practitioner programs (Quinn, 2002). These guidelines are fostering further curriculum development in mind–body modalities.

Imagery is one such modality that has been recommended as an independent nursing intervention using psychoneuroimmunology principles and should contain information about absorption. However, research examining the effects of imagery has yielded mixed results. One possible explanation for the inconsistencies is that the ability to imagine or visualize may determine one's capacity to use imagery successfully. Two measurable factors have been suggested as possible correlates of imagining ability: the ability to generate mental images and absorption, the personality characteristic that is the focus of this article (Owens et al., 1999). This example supports the relevance of holistic nurses developing their knowledge and skills in the use of mind–body modalities.

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