BOREDOM AND MINDFULNESS:

OPPOSITE CONSTRUCTS ON THE SAME CONTINUUM

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by

Cheree Rochelle Ramon

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Abstract

of

BOREDOM AND MINDFULNESS:

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The relationships between mindfulness, boredom proneness, sexual satisfaction, positive and negative affect, basic needs satisfaction, and meaning in life were investigated (data from 265 university students). A correlational analysis demonstrated that lower levels of boredom proneness were associated with higher levels of mindfulness, positive affect, basic needs satisfaction, meaning in life (Presence), and sexual satisfaction. Three components, labeled Mindful Engagement, Sexual Satisfaction, and Exploration, were identified through principal components analysis and accounted for 62% of variance. It was speculated that Mindful Engagement would directly predict Exploration and indirectly predict Exploration with the latent mediation variable of Sexual Satisfaction. Results of a structural analysis run with the components yielded a suppression effect, suggesting that Mindful Engagement is predictive of Exploration and that the suppressor,

Sexual Satisfaction, is not particularly useful in predicting Exploration but correlates with Mindful Engagement and accounts for some of the variance explained by that predictor.

_____ Committee Chair
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has given me. In my interactions with Dr. Furtak, it has become apparent to me that she is a pioneer. She has excelled not only in her field of study but also in her personal life with a mix of hard work, effort, and genuine compassion. I aspire to live my life free of confines and she sets a wonderful example for me to strive toward. Dr. Hurtz has been a consistent driving force in my willingness to expand outside of my comfort zone, experiment with statistics, and believe in myself. I do not say this lightly, but if it were not for Dr. Hurtz guidance I may not have ever imagined I could, and attempted to, pursue Industrial/Organizational Psychology. I am grateful for his ability and willingness to connect with students in a meaningful way to give demonstrations to and explain advanced concepts in an accessible manner. As far as other acknowledgments, I could write another thesis longer than this one just giving gratitude to the many people who have inspired and supported me along the way. Thank you.

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INTRODUCTION

Boredom

Boredom In The Scientific Community

Although many may be familiar with the experience of boredom, the construct of boredom is widely disagreed upon in the body of literature on the topic. There is not one standard definition for boredom that is globally accepted and the scientific community acknowledges that without a clearly defined construct, a cohesive body of research will not be achieved (Goldberg, Eastwood, J., Laguardia, & Danckert, 2011). There have been multiple areas of disagreement on the subject, including the existence, nature, and causes of boredom. With regard to its existence, many researchers envisage boredom as a distinct construct but some have considered it a form of other psychological constructs. For example, apathy, anhedonia, and depression have been investigated as the underpinnings of boredom due to similarity in affective presentation; however, outside of sharing some behavioral characteristics with apathy, boredom empirically presents as a distinct construct from all three of these phenomenological experiences (Goldberg et al., 2011). Depression can be difficult to parse away from boredom due to high comorbidity rates, but it has been stated that the difference lies with the quality and intensity of mood, with boredom being indicative of a more mild experience (Farmer & Sundberg, 1986). Research into related topics has indirectly supported the existence of boredom by outlining what is now considered to be the opposite of boredom, flow (Csikszentmihalyi,

1992). Flow is defined as a mental state of operation in which a person performing an activity is fully immersed in, focused on, and enjoying that activity (Csikszentmihalyi, 1992). The nature and causes of boredom are complex and will be discussed in more depth in the following sections.

Boredom: A State or A Trait?

The next important issue with the construct of boredom in scientific literature is the disagreement regarding its nature. Research articles in the body of literature vacillate between describing boredom as a state, or transient, and as a characteristic, or a trait.

Boredom defined as a state.

Boredom has been discussed and defined as being an experience that is ephemeral in nature and inclusive of an individual feeling a lack of intention or purpose, feeling as though she or he is in a state of limbo, and/or feeling averse to engaging with the world (Fenichel, 1951; Fisher, 1998; Heidgegger, 1995; Mills, 1959; Smith, 1981). A description of boredom that captures the term in this sense, is that it is "an unpleasant, transient affective state in which [an] individual feels a pervasive lack of interest in and difficulty concentrating on the current activity" (Fisher, 1993, p. 396). This definition of boredom highlights the experience as a state of core motivational deficits accompanied with a phenomenological experience of a lack of interest and/or affective engagement (Fisher, 1998). Another explanation that has been given for the circumstances surrounding the experience of boredom, albeit complex, is when "cognitive changes in the direction of less differentiated and more homogenous construing give rise to a state of subjective monotony which induces, or perhaps even represents, the state we call

boredom" (Perkins & Hill, 1985). This definition could be simplified and described as "a state of relatively low arousal and dissatisfaction, which is attributed to an inadequately stimulating environment" (Mikulas & Vodanovich, 1993, p. 3). As distinct as these definitions are, each includes a popularly accepted element of dependence upon external, activity or task-related criteria.

Proponents of a state-theory of boredom, that boredom is externally-driven and is the affective result of impoverished external stimuli, have postulated several theories including occupational deprivation, as well as those involving task repetition and task monotony (Berlyne, 1960; Darden & Marks, 1999; Hebb, 1966; Mikulas & Vodanovich, 1993; Shaw, 1996; Wegner, Flisher, Chikobvu, Lombard, & King, 2008). The theory of occupational deprivation states that individuals without opportunities for occupational engagement are likely to experience boredom, as the environment is not providing enough stimulation to keep them engaged (Martin et al., 2012). With regard to the nature of tasks, it has been presupposed that tasks that are monotonous and/or repetitive are more likely to induce boredom than tasks that vary and are not repetitive; unfortunately not all studies find validity with these presumptions as some workers prefer similarly undemanding tasks (Fisher, 1993; Geiwitz, 1966; Hill & Perkins, 1985; O'Hanlon, 1981; Reid, 1986; Smith, 1981).

In general, these theories may be compelling for individuals who have experienced task-related boredom; however, if task characteristics were the only factors involved in boredom, then boredom would only last until the task is changed for something more appealing (Danckert & Allman, 2005). Individuals who have

experienced boredom may recognize that it does not always dissipate after a change in activity. In this scenario it is apparent that state theories exclude regard for the role of the individual and the individual's subjective perception of their environment and/or the task being performed (Gewitz, 1966). The exclusion of analysis of individual characteristics in the investigation of boredom is not uncommon among researchers who believe that the nature of boredom is externally driven. This is where the schism between boredom theorists is evident, while some believe that the nature of boredom is externally driven others believe it is rooted internally. And as the body of research grows, it is becoming more apparent that boredom may be less dependent upon tasks and external stimuli and more dependent upon internal characteristics.

Boredom defined as a trait.

Research on the topic of boredom is revealing more support for boredom being a dispositional characteristic, indicating that certain people have a propensity toward being bored across time and situations (Drory, 1982; Farmer & Sundberg, 1986; Kass, Vodanovich, & Callender, 2001; O'Hanlon, 1981; Vodanovich, 2003; Watt & Ewing, 1996). This concept of a trait-like boredom is often referred to as boredom proneness, which is an individual's proclivity to experience boredom or not. Individuals who are boredom prone have been described as possessing "a tendency to experience tedium and lack of personal involvement and enthusiasm, to have a general or frequent lack of sufficient interest in one's life surroundings and future" (Sundberg, Latkin, Farmer, & Saoud, 1991, p. 210; Watt & Hargis, 2009).

To measure boredom proneness, the Boredom Proneness Scale was created

(Farmer & Sundberg, 1986; Martin et al., 2012). Individuals who score high on the Boredom Proneness Scale are considered to be prone to boredom. This is seen as an enduring personality characteristic, as evidence demonstrates that people who are boredom prone tend to become bored with nearly anything they do and attribute it to themselves rather than the task (Farmer & Sundberg, 1986; Harris, 2000; Polly, Vodanovich, Watt, & Blanchard, 1993). Unfortunately, logic suggests that if being prone to boredom is a personality characteristic, then the potential for finding a solution is unlikely (Martin et al., 2012). Fortunately, the competing nature of state and trait theories of boredom has required researchers to further investigate the construct and its causes, and as research accumulates there is more evidence to support that there may actually be distinct types of boredom.

Two Types of Boredom: A Hybrid Investigation

Instead of disregarding the influence of the individual, theorists acknowledge that boredom and flow are dependent upon an individual's personal characteristics and how that individual perceives her or his involvement in a task rather than just the objective characteristics of the task (Csikszentmihalyi, 1992). This opens the discussion for researchers to investigate two types of boredom, one related to task characteristics and another related to individual characteristics (Vodanovich, 2003). These two types of boredom have been called responsive (state) and chronic (trait) boredom, normal (state) and pathological (trait) boredom, and agitated (state) and apathetic (trait) boredom (Fenichel, 1951; Grennson, 1951). The majority of boredom research has discussed the state version of boredom, such as task characteristics that influence the affective response

of individuals completing the tasks. The move to consider individual characteristics as a root of boredom has led to more theories regarding the trait causes of boredom. As the exploration of the trait causes of boredom continues, there have been several individual factors postulated to have an effect on the experience of boredom. In attempt to determine support for internal characteristics having a role in boredom but maintaining a dependence upon external tasks, hybrid examinations of boredom have been conducted. In hybrid examinations, both external and internal factors are assessed for a relationship with boredom.

Factors affecting boredom.

In a hybrid investigation of boredom, Pattyn, Neyt, Heridericlcx, and Soetens (2008) hypothesized that arousal levels would be a factor in experience of boredom while conducting a vigilance task. Individuals were assessed for arousal levels as well as the perceptive experience of boredom. Arousal levels were suggested to be important as logic suggests suboptimal levels of arousal during an activity would be associated with boredom and high levels of arousal would not; however, researchers noticed that individuals may experience boredom regardless of stimulation level and attribute this to lack of effortful attention (Pattyn et al., 2008). The concept that individuals can experience boredom at varying levels of stimulation may mean that attention, not stimulation, is a more significant moderating factor for boredom.

In research on boredom and attention, investigators support that the affective experience of boredom is associated with cognitive attentional processes that are indicative of an underdeveloped attentional control mechanism (Cheyne, Carriere, &

Smilek, 2006; Eastwood, J., Cavaliere, Fahlman., & Eastwood, A., 2007; Hamilton, 1981; Hamilton, Haier, & Buchsbaum, 1984; Leary et al., 1986). Therefore, the inability to focus on and attend to stimuli is speculated to be the cause of boredom. In hybrid investigations, researchers have suggested that boredom is associated with both a lack of stimulation from the environment and by difficulty focusing attention, as well as negative attitudes (Berlyne, 1960; Damrad-Frye & Laird, 1989; Farmer & Sundberg, 1986; Vodanovich, 2003). Research continues to support the importance of attention in the experience of boredom by demonstrating that individuals who are boredom prone have a decreased ability to sustain their attention on tasks, which leaves these individuals unable to become fully engaged in activities, precluding them from experiencing flow (Csikszentmihalyi, 1992; Fisher, 1993; Hamilton, 1981; Hamilton et al., 1984; Seib & Vodanovich, 1998). Increasing numbers of studies are demonstrating the relationship between attention and boredom as individuals with a lack of attention tend to report being more bored than individuals who can focus and attend to specific stimuli (Ahmed, 1990; Fanner & Sundberg, 1986; Farmer & Sundberg, 1986; Ferrari, 2002; Hamilton, 1981; Kass, Wallace, & Vodanovich, 2003; Leary, Rogers, Canfield, & Coe, 1986; Larson & Richards, 1991). In fact, investigation of the influence of attention on boredom has led researchers, such as Damrad-Frye and Laird, to hypothesize that "the essential behavioral component of boredom is the struggle to maintain attention" (1989, p. 316).

In a deeper look into attention and boredom, investigators suggested that attentional difficulties combined with awareness of forcing attention to a specific stimulus may be central to the experience of boredom; however, it was found that

awareness of actively forcing attention did not increase perception of boredom (Fisher, 1998). In studies that investigated if forcing attention is related to the experience of boredom, researchers introduced interruptions of varying severities during a vigilance task, participants reported non-task-related thought interruptions during task, and then gave a subjective report on the level of boredom experienced. Contrary to initial hypotheses, results indicate that subtle interruptions are more likely to be associated with boredom than no interruptions or blatant interruptions when interruptions are not task relevant, which was not the case when the interruptions were task relevant (Damrad-Frye & Laird, 1989; Fisher, 1998). Nonetheless, repeated external interruptions did not increase boredom but in a few cases it decreased boredom on simple low-attention tasks (Fisher, 1998). On the other hand, internal interruptions (non-task-related thoughts without apparent environmental cueing) were highly diagnostic of boredom (Fisher, 1998). Therefore, individuals who achieve high levels of attention and less non-task-related thought interruptions are more likely to experience flow, and those with poor attentional ability are more prone to boredom (Martin et al., 2012).

Constructs Associated With Boredom

The multitude of issues currently associated with the experience of boredom are what necessitate the investigation of the construct. The body of literature indicates that boredom is significantly correlated with several health, psychological, habitual, cognitive and organization-based outcomes.

Health, psychological, and habitual problems associated with boredom.

Although causality is not determined by correlation, boredom is associated with a

very large range of health and psychological issues. Boredom is quite pervasive, but it is more common in psychiatric populations, from individuals experiencing depression all the way to individuals healing from traumatic brain injury (Cicerone, Levin., Malec, Stuss, & Whyte, 2006; Seel & Kreutzer, 2003). Individuals who report experiencing boredom are also experiencing negative psychological, behavioral, and health-related symptomology at a higher rate than individuals who report feeling less bored. Some of the main complaints of individuals who are experiencing boredom are feelings of alienation (Martin et al., 2012), lack of motivation (Iso-Ahola & Weissinger, 1987; McGiboney & Carter, 1988), anger, anxiety, apprehension (Dahlen., Martin, Ragan, & Kuhlman, 2005), depression, dissatisfaction in life (Binemma, 2004; Farmer & Sundberg, 1986), high susceptibility to the views of others (being hurt or feeling disliked by others; Sommers & Vodanovich, 2000), loneliness, hopelessness (Farmer & Sundberg, 1986), insecurity, lack of autonomy, and low self-actualization (Vodanovich, 2003; Vodanovich & Rupp, 1999). Individuals with higher levels of boredom also report higher levels of relational problems, such as aggression, hostility, low sociability (Dahlen et al., 2005), maladaptive self-awareness (Fenigstein, Scheier, & Buss, 1975; Seib & Vodanovich, 1998), narcissism (Wink & Donahue, 1997), negative affect (Vodanovich,Verner, & Gilbride, 1991), neuroticism (Gordon, Wilkinson, McGown, & Jovanska, 1997), obsessive-compulsive disorder (Sommers & Vodanovich, 2000), orientation toward failure (Gjesme, 1977), poorly developed interpersonal relationships (Abramson & Stinson, 1977), sleep disorder (Kass et al., 2003), Type-A behavior (Kass & Vodanovich, 1990), obesity (Abramson & Stinson, 1977), and physical discomfort/pain (Drory, 1982).

While the psychological issues are more than enough to warrant a desire for a therapeutic intervention for boredom, boredom is also significantly correlated with maladaptive habitual behaviors, such as impulsivity (Leong & Schneller, 1993), sensation seeking (Kass & Vodanovich, 1990), crime (Ferrel, 2004), substance abuse, eating disorders (Sommers & Vodanovich, 2000), and procrastination (Watt & Vodanovich, 1992).

Cognitive issues associated with boredom.

As the ability to maintain attention is significantly, negatively correlated with boredom, it is no wonder boredom is also associated with a multitude of cognitive issues (Ahmed, 1990; Farmer & Sundberg, 1986; Ferrari, 2002; Hamilton, 1981; Kass et al., 2003; Leary et al., 1986; Larson & Richards, 1991; Ferrari, 2002; Kass et al. 2003). Some of the cognitive issues that typically present with boredom include, but are not limited to, concentration difficulties, distractibility, low attentional control (Neff & Germer, 2013), negative self-awareness (tendency to judge and evaluate one's emotion (Seib & Vodanovich, 1998), and pervasive lack of interest (Damrad-Frye & Laird, 1989; Farmer & Sundberg, 1986; Fisher, 1993; Hamilton, 1981; Hamilton et al., 1984; Martin et al., 2006; Neff & Germer, 2013).

Organizational issues associated with boredom.

Based upon its negative relationship with attention, it may not come as a surprise that boredom is associated with several issues with dysfunction at work and/or in an educational setting. At work, boredom is associated with dissatisfaction with coworkers, opportunities for promotion, pay, supervision, and job (Kass et al., 2001). Presumably

boredom-related dissatisfaction is not enjoyable for the employee experiencing it, but the consequences for the workplace and other employees can be quite severe. Bruursema, Kessler, and Spector (2011) found that boredom at work is associated with abuse against coworkers (physical and/or psychological), production deviance (purposeful failure to perform job tasks effectively), sabotage (defacing or destroying organizational property), withdrawal (behavior that restricts time spent working to less than what is required by the organization), and theft. These counterproductive work behaviors are extremely detrimental to the work environment and are often accompanied by other issues associated with boredom, such as absenteeism (Drory, 1982), increased rates of accidents (Branton, 1970; Gardell, 1971), and increased rates of mistakes (Charlton & Hertz, 1989; Hitchcock, Dember, Warm, Moroney, & See, 1999; Martin et al., 2012). In work and education, boredom is associated with low achievement, low involvement with work, low performance, and low self-motivation (Branton, 1970; Drory, 1982; Gardell, 1971; Gordon et al., 1997; Hitchcock et al., 1999; Iso-Ahola & Weissinger, 1987; Jekins, Zyzanski, & Renman, 1979; Kass et al., 2001; Sommers & Vodanovich, 2000; Vodanovich, 2003).

Therapeutic Interventions

The substantial body of research on boredom identifies the construct as problematic for boredom-experiencing individuals in several aspects of life. From health issues, feelings of frustration and dissatisfaction, to maladaptive behaviors at work, in school, and in relationships, boredom is associated with negative outcomes (Martin, Sadlo, & Stew, 2006; Vodanovich, 2003). While past research suggests that dealing with

boredom could be as simple as providing individuals with more stimulating activities, there is accumulating research that suggests boredom is more highly associated with attentional control than activity (Fisher, 1993; Hamilton, 1981; Leary et al., 1986). Researchers have hypothesized that a more effective way to curtail boredom and the negative outcomes associated with it, is to utilize mindfulness-based practices to develop the ability to focus attention (Martin et al., 2012). Mindfulness-based-practice training is hypothesized to work because it increases an individual's ability to attend to tasks, and fully attending to tasks is associated with an experience of well-being that is generally negated by the experience of boredom (Csikszentmihalyi, 1992; Martin, Sadlo, & Stew, 2012). Outside of this reasoning, it is highly likely that mindfulness-based practices are a good tool to decrease the negative outcomes of boredom because mindfulness-based practices are effective for reducing some of the issues most commonly associated with boredom. For example, mindfulness-based practices are effective for ameliorating problems associated with depression, anxiety, impulsivity, low attentional control, maladaptive social relationships, lack of resiliency, low task commitment, poor task performance, and poor memory (Baer, 2003; Glomb et al., 2012; Levy et al., 2012).

Mindfulness

Origins and Definitions

The practice of focusing attention has been a part of several distinct traditions since ancient times (Hacker & Davis, 2006; Hyland, Lee, & Mills, 2015). Specifically, Buddhist, Christian, Islamic, and Hindu religions have all included focused attention, contemplative practices in their traditions for centuries (Hyland et al., 2015). Of those

widespread religions, Buddhism is perhaps the most commonly associated with focused-attention, contemplative practices such as meditation, although those practices predate the Buddhist religion by more than a millennium (Hacker & Davis, 2006; Hyland et al., 2015). In the Buddhist tradition, meditation is used for the purpose of aiding practitioners to see things as they truly are in the present moment, all while maintaining an attitude of open-minded curiosity, kindness, and compassion (Gunaratana, 2002). While other major religions have traditions of contemplative practice, the inclusion of attitudinal aspects, such as practicing kindness, appears to be unique to the Buddhist tradition. Nonetheless, however engrained in and associated with religious tradition these practices are, they are not unique to religion and religious underpinnings are unnecessary for observance. In general, outside of any specific traditional confines, the term mindfulness is utilized to describe the act of practicing focused attention.

As the popularity of mindfulness-based practices increases in the western world, so does the number of definitions of mindfulness. The well-known Buddhist monk, Thich Nhat Hahn (2016), defines mindfulness as keeping one's attention focused on the present reality. Cognitive psychologist, Elainor Rosch, defines mindfulness as adhering "in that moment, to the object of consciousness with a clear mental focus" (Rosch, 2007, p. 259). Mindfulness expert, Jon Kabat-Zinn, defines it as "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally;" while other researchers refer to mindfulness as "present-focused consciousness" (Dane, 2011; Kabat-Zinn, 2005). Researchers have even defined mindfulness as active information processing, a seemingly more accessible definition of the term (Langer, 1989). However, this definition

of mindfulness is inclusive of categorizing, judging, and problem solving, all of which are actions that are antithetical within other conceptualizations of mindfulness (Langer, 1989).

Despite the varying denotations of mindfulness, the majority include three major components; a focus on the present moment, paying attention to internal and external stimuli, and addressing stimuli in an open and accepting way without ascribing judgment (Brown & Ryan, 2003; Dane, 2011; Glomb et al., 2012; Herndon, 2008; Kabat-Zinn, 2005; Thondup, 1996). Within this broad, summative definition, internal stimuli typically include thoughts, feelings, and body sensations, while external stimuli include sights, sounds, scents, and events that occur in a person's physical and social environment (Glomb, Duffy, Bono, & Yang, 2012; Kabat-Zinn, 2005). Researchers have included all three of the major components of mindfulness within their definition, calling mindfulness receptive attention to and awareness of present moment events and experiences (Brown, Ryan, & Creswell, 2007). Herein, mindfulness is defined as a secular, intentional, receptive, and non-judgmental attention to, and awareness of, present-moment internal and external stimuli, events, and sensory experiences.

Mindfulness-Based Practices: Purpose

The definitions of mindfulness are plentiful, as are the associated reasons for practice within and between traditions. In the Buddhist tradition, mindfulness-based practices are used to keep a clear, stable, and focused mind. This mental training is considered a requirement for individual purification, which is considered necessary for the cessation of suffering that is said to be caused by ignorance and self-delusion (Bodhi,

1984). In a related yet secular and psychological sense, one commonly sought outcome of prescribed mindfulness-based practices is self-regulation, as mindfulness prevents mechanical or mindless thinking and behavior by disrupting automaticity of mental processes (Chaiken, 1980; Glomb et al., 2012).

It is postulated that mindfulness practices allow individuals to disengage from automatic thought patterns, ingrained brain states, emotional filters, cognitive schemas, and other brain-based habits, so that they can experience a truthful version of what is occurring devoid of a commentary or story about what is occurring as colored by negative, circumstantial perspective (Shapiro, Carlson, Astin, & Freedman, 2006). As utilized above, the concepts of habitual brain states and fixating on thought to create commentary or story are parallel with the psychological concept of rumination. Rumination is defined as repetitive and self-focused negative thinking about past events, the causes and consequences of the events, and the resulting emotional experience (Im & Follette, 2016; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Rumination is said to interfere with an individual's ability to respond in a mentally flexible way, which makes engaging in valuable life behaviors difficult and leads to negative psychological, physiological, cognitive, and social outcomes (Im & Follette, 2016).

Mindfulness-based practices are postulated to benefit practitioners for a multitude of reasons. With mindfulness-based practices one can cultivate awareness of one's mental state and shift one's attention from ruminative thought patterns to the present moment. Transitioning from rumination to present-moment may allow for more flexible responses in given contexts, increase emotional engagement, and reduce trauma-related symptoms

(Im & Follette, 2016). Inflexible thinking, or mental rigidity, can be implemented as a self-protecting psychological mechanism that people use to erroneously reject negative feedback and increase perception of positive feedback (Teper & Inzlicht, 2014).

As ostensibly detrimental as blocking oneself off from the world is, mental rigidity is also associated with states of decreased emotional reactivity and disengagement. These states are associated with impulsive decision making and dismissal of unexpected results, which lead to adherence to status quo and immediate-reward-promising reactions, which is contraindicated for long-term success and growth (Fiol & O'Connor, 2003; Hayes, 2004). Individuals who participate in mindfulness-based practices are more likely to exhibit mental flexibility, have an improved ability to perceive events objectively, and have increased ability to resist cognitive bias (Hafenbrack, Kinias, & Barsade, 2014; Hayes, 2004; Shapiro et al., 2006). Mental flexibility, as developed through mindfulness-based practices, is associated with consistent attentional focus, enhanced reflective awareness of sensory experience, and improved sensory processing (Kilpatrick et al., 2011).

Mindfulness: Psychological, Physiological and Cognitive, and Relationship Benefits

Psychological benefits of practicing mindfulness.

Mindfulness-based practices are commonly associated with decreased psychological distress and improved mental health (Chu, 2010; McCraty, 2003; Williams, 2006). Essentially, one of the most cited psychological benefits of mindfulness-based practices is stress reduction. Regardless of amount of experience an individual has with mindfulness-based practices, her or his career, or her or his initial

self-reported level of stress, individuals who participate in mindfulness-based practices report reduction of perceived stress (Chu, 2010; Davidson et al., 2003; Foureur, Besley, Burton, Yu, & Crisp, 2013; Galantino, Baime, Maguire, Szapary, & Farrar, 2005; McCraty, 2003; Roeser et al., 2013). A reduction of stress could be the foundation for other benefits associated with mindfulness-based practices, such as reduction of anxiety, depression, and related symptomatology (Davidson et al., 2003; Farb et al., 2010; McCraty, 2003; Orzech, Shapiro, Brown, & McKay, 2009; Roeser et al., 2013). In fact, consistent participation in mindfulness-based practices has been found to be more effective at reducing long-term depression than antidepressant drugs (Kuyken et al., 2008). Even after brief mindfulness-based interventions or trainings, individuals with depressive symptomology showed improvements in mood and affect, reported higher levels of happiness and subjective well-being, as well as improved emotional health and outlook on life (Davidson et al., 2003; Galantino et al., 2005; Orzech et al., 2009; McCraty, 2003).

The enhancements of mood and decreased experience of negative emotional responses experienced by individuals who participate in mindfulness-based practices, may be caused by the individual's reappraisal of poignant emotional stimuli (Modinos, Ormel, & Aleman, 2010). Research with fMRI shows that participants of mindfulness-based practices demonstrate a change in brain response to sadness provocation that is associated with a reduction of the negative impact of negative-emotion-inducing stimuli (Modinos et al., 2010). Further research demonstrates that participating in mindfulness-based practices reduces emotional exhaustion, particularly in high-stress environments

(Hülsheger, Alberts, Feinholdt, & Lang, 2013). And participation in mindfulness-based practices is also associated with positive shifts in mood, attitudinal changes, and have been shown to result in positive modifications of behavior and decrease the extent of the negative impact of daily stressors in mindfulness-trained individuals (Williams, 2006).

Physiological and cognitive benefits of practicing mindfulness.

The reduction of stress, anxiety, and depressive symptoms are not the only health-related benefits that individuals who participate in mindfulness-based practices may experience. Research shows that along with reductions in those symptomologies, participating in mindfulness-based practices is associated with decreased chronic and transient pain, symptoms of rheumatoid arthritis, multiple sclerosis, fibromyalgia, psoriasis, HIV, and hypertension (Chiesa & Serreti, 2010; McCraty, 2003; Nyklíček, Mommersteeg, Van Beugen, Ramakers, & Van Boxtel, 2013). When compared to a control group, meditation practice improves blood pressure, breathing rate, and heart rhythm of participants with hypertension (Wolever et al., 2012). Researchers also found that mindfulness meditation improves energy levels, enhances immune system function, and can lead to a decrease in levels of c-reactive proteins in the body, which are associated with inflammation (Malarkey, Jarjoura, & Klatt, 2013).

Along with these more easily observable symptoms, mindfulness-based practices also affect change in the brain. Not only do mindfulness-based practices induce temporary changes in brain activity and neurochemistry, but they are also associated with positive changes in density of grey matter in the dorsal prefrontal cortex (Davidson et al., 2003; Hölzel et al., 2011; Modinos et al., 2010). The dorsal prefrontal cortex is

responsible for processing information relative to working memory tasks, learning, affective processing, emotional regulation, empathy (perspective taking), and facilitation of adaptive responses to stress (Davidson et al., 2003; Hölzel et al., 2011; Modinos et al., 2010). Therefore, it is not surprising that meditation-group participants showed improvements in performance on working memory tasks, sustaining attention, executive functioning, and performance on other cognitive tasks when compared to control group subjects (Anicha, Ode, Moeller, & Robinson, 2012; Chambers, Lo, & Allen, 2008; Roeser, 2013; Zeidan, Johnson, Diamond, David, & Goolkasian, 2010).

Meditation was also found to increase activity of the anterior cingulate cortex (Jha, Krompinger, & Baime, 2007). The anterior cingulate cortex is responsible for self-regulation of attention and is part of the emotional network of the brain typically referred to as the limbic system. This measured increase in activity was also accompanied by increased attention and awareness (Jha et al., 2007). The same study found that meditation also improves attention-related behavioral responses like spatial orienting and navigation, as well as selective attention, which is useful to avoid becoming disoriented or lost during navigation (Jha et al., 2007). Even brief mindfulness training was shown to improve participants' visual-spatial processing and performance on cognitive tasks that necessitate sustained attention (Zeidan et al., 2010). Overall, these aforementioned changes demonstrate the long-term and structural benefits that can occur in the brain through participating in mindfulness-based practices.

Relationship benefits of practicing mindfulness.

Along with the psychological, physiological, and cognitive benefits, research has

also demonstrated that mindfulness-based practices improve relationship functioning. When compared to a control group, practitioners of mindfulness meditation demonstrate increased emotional intelligence; which is comprised of self-awareness, self-management, social awareness, and relationship management (Chu, 2010). Emotional intelligence is extremely important in the success and functioning of social and romantic relationships, as its underlying constructs have an effect on social interactions. It is postulated that meditation may function to improve relationships because it helps a practicing-individual decrease her or his tendency toward negative emotional reactivity within the context of social situations (Baer, 2003). In romantic relationships, mindfulness-based practice training has been found to contribute to relationship satisfaction (Kozlowski, 2013). Empirically, mindfulness-based practice training aids participants in responding to romantic-relationship stress more skillfully, increases empathy and is associated with greater acceptance of one's partner as well as more secure attachment (Barnes, Brown, Krusemark, Campbell, & Rogge, 2007; Burpee & Langer, 2005; Jones, Welton, Oliver, & Thoburn, 2011; Wachs & Cordova, 2007). Other benefits of developing mindfulness skills in romantic relationships include increased autonomy, relatedness, and closeness, all the while decreasing relationship distress between romantic partners (Carson, Carson, Gil, & Baucom, 2004). Mindfulness-based practices are also noted to be beneficial for romantic relationships specifically for their effect on sexual satisfaction. Mindfulness-based practice training in relationship therapy is associated with significant increases in sexual satisfaction with one's partner (Khaddouma, Gordon, & Bolden, 2015). And, in situations of sexual trauma, mindfulness-based practice training

has been associated with reduction of associated negative symptoms (Gallegos, Cross, & Pigeon, 2015).

The benefits of enhancing relationship functioning in the social and romantic setting are many, but it is interesting to note that along with improving interindividual relationships, participants of mindfulness-based practices may also experience improvements in their relationship with themselves, as intensive mindfulness training is associated with increased self-compassion in test-retest studies (Orzech et al., 2009). Even with only evaluating these empirically-recognized potential relationship benefits of practicing mindfulness, there is no wonder why clinical, cognitive, and other psychologists and medical doctors are prescribing mindfulness practices more frequently than in the past (Baer, 2003).

Mindfulness-Based Programs

As evidence accumulates in support of the efficacy and applications of mindfulness-based practices, researchers in medical and psychological fields have been implementing mindfulness-based practice treatment programs, throughout which participants' progress is tracked. Facilitators of mindfulness-based programs train participants in a variety of mindfulness-based practices, including but not limited to meditation, hatha yoga, body scans, and journaling (Jensen, Vangkilde, Frokjaer, & Hasselbalch, 2012). These programs historically span several weeks or months yet programs lasting only a few days have begun surfacing (Zeidan et al., 2010). Abbreviated programs may increase accessibility of mindfulness-based practices, but researchers acknowledge that developing mindfulness through practice is intended to be a process

that requires time and patience, therefore concerns have been raised regarding the efficacy of abbreviated programs (Langer & Moldoveanu, 2000). Initial research on abbreviated programs demonstrates that a single 15-minute mindfulness practice intervention has a significant effect on participants' problem solving skills (Hafenbrack et al., 2014; Jha et al., 2010). Yet, despite the success of such programs, there is still concern that they may work initially but may not produce results that are as sustainable as prolonged programs (Chaskalson, 2011). Nonetheless, research suggests that both abbreviated and online programs are associated with positive outcomes (Klatt, Buckworth, & Malarkey, 2008; Wolever et al., 2012).

Throughout the world there are several mindfulness-based programs and centers. Within the United States, there are two prevalent, medically-recognized, national mindfulness-based programs that were created to improve the health and wellness of participants; Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT; Kabat-Zinn, 1982; and Segal, Teasdale, & Williams, 2002). The original, Western MBSR program was developed by Jon Kabat-Zinn and colleagues at the University of Massachusetts to aid patients with chronic pain and illness who had exhausted all other available medical means of treatment (University of Massachusetts Medical School, 2002). This program was designed to teach participants coping skills to reduce negative impacts of stress on treatment and quality of life. The MBSR program, as well as variations of the program, has been largely effective in reducing participants' perceived negative symptomology (Chaskalson, 2011). MBCT programs were developed by researchers to treat patients who suffer from depression, and utilize a combination of

mindfulness-based practices and well-supported cognitive behavioral therapy (CBT) techniques (Segal et al., 2002). Through MBCT programs, facilitators train patients to interrupt negative thought patterns and ruminative thought episodes through mindfulness-based practices, allowing participants to pass negative thoughts and emotions without investing and enhancing them or the associated negative impact (Felder, Dimidjian, & Segal, 2012).

The documented success of MBSR and MBCT programs has led to the development of numerous other clinically-oriented programs, including but not limited to Dialectical Behavioral Therapy and Acceptance and Commitment Therapy for treating clinical and subclinical disorders (Linehan, 2003; Hayes, 2012; Segal et al., 2002). Continued success of these program types led to the development of MBPs for the treatment of substance abuse, eating disorders, other clinically-recognized and treated problems, and prevention-based at-work programs (Bowen, Chawla, & Marlatt, 2011; Kristeller, 2003).

With regard to at-work MBPs, organizational researchers have found that training employees in mindfulness-based practices improves at-work social relationships, resiliency, task performance, task commitment, enjoyment, and memory (Glomb, et al, 2012; Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010; Levy, Wobbrock, Kaszniak, & Ostergren, 2012). Organizational MBPs are also associated with increased creativity, innovation, resilience, work engagement, productivity, task endurance, dedication, and communication; along with reduction in absenteeism and turnover in mindfulness-practicing groups compared to relaxation and control groups (Chakalson, 2011; Howell &

Buro, 2011; Levy et al., 2012). Participation in mindfulness-based practices was even found to promote job satisfaction and prevent burnout from emotional exhaustion (Hulsheger et al., 2013), as well as predict employee achievement and performance (Levy et al., 2012; Seligman, 2006). These effects are potentially due to the reduction in the negative effects of stress and negative task-related emotions and pessimism that participating employees experience (Levy et al., 2012; Meland et al., 2015; Seligman, 2006). Another potential cause could be that mindfully-trained employees are better able to attend to job tasks, and the ability to attend to job tasks reduces the likelihood of employees becoming bored at work (Fisher, 1998; Meland et al., 2015). Boredom in the workplace, although common, is associated with higher incidents of counterproductive work behaviors (Bruursema, Kessler, & Spector, 2011).

Aside from monetary implications, literature on these associated topics suggests that MBPs could have a significant impact on companies' employee make up, employee success, turnover, work environment, and effectiveness of organizational processes (Krasner et al., 2009; Lee, 2012; Oman, Richards, Hedberg, & Thoresen, 2008; Roeser et al., 2013). Just a few of the companies that utilize mindfulness-based programs to enhance employee well-being and effectiveness include Aetna, General Mills, and Google (Gelles, 2012; Kelly, 2012; Wolever et al., 2012).

Generally speaking, MBPs are beneficial when implemented by individuals and organizations. While mindfulness-based practice is typically continued over long time spans, years or lifetimes, even 15-minute practice segments have been associated with some of the same effects as longer-term practice (Hafenbrack et al., 2014; Jha et al.,

2010). The practicality of abbreviated trainings may make MBPs more accessible for organizations that would like to obtain the benefits associated with mindfulness-based practices but have limited resources. A few of the benefits of program implementation include employee reduction of perceived levels of work-related stress and negative emotions (Levy et al., 2012; Meland et al., 2015; Seligman, 2006), as well as reduction of counterproductive work behaviors (Bruursema et al., 2011). Both of these benefits would positively impact organizational outcomes and environment.

Present Study

The current study investigates the relationships between self-reported levels of mindfulness, boredom proneness, sexual satisfaction, basic needs satisfaction, positive and negative affect, and meaning in life. Pursuant to the body of research literature reviewed for this investigation, the following hypotheses were developed:

- H1: Mindfulness levels will be negatively correlated with levels of boredom proneness.
- H2: Mindfulness levels will be positively correlated with levels of positive affect.
- H3: Boredom proneness levels will be positively correlated with levels of negative affect.
- H4: Mindfulness levels will be positively correlated with levels of basic psychological needs satisfaction.
- H5: Boredom proneness levels will be negatively correlated with levels of basic psychological needs satisfaction.
- H6: Mindfulness levels will be positively correlated with levels of sexual

satisfaction.

- H7: Boredom proneness levels will be negatively correlated with levels of sexual satisfaction.

Chapter 2

METHOD

Participants

A sample of 265 students (173 women, 89 men, 3 declined to state, Mage= 21, Rage= 18-48, SD= 4.33) from the California State University, Sacramento Psychology Department participated in this research study. The sample was ethnically diverse (See Table 1).

Table 1

Ethnicity Identification

Ethnicity	
Identity	Percent
Asian/Asian American	19.2
African/ African American/ Black	7.2
Hispanic/ Latino(a)/ or of Spanish Origin	29.1
Middle Eastern	0.8
European/ European American/ White	24.9
Multi-Ethnic	15.1
Other	2.3
Total	98.5
Missing	1.5
Total	100

The participants identified as being part of several different religious ideologies. Approximately 26% of participants did not identify with any religion, 3.5% identified as having a Muslim background, 30.3% identified as having a Catholic background, 28.5%

identified as having a Christian background, 3.1% identified as having a Buddhist background, 4.4% identified as having an Atheist background, 1.8% identified as having an Agnostic background, and the rest of participants who selected a religion identified with a religion that was not listed. All participants received one hour of research credit to fulfill a research requirement mandated by the Psychology Department. Participants did not receive any other compensation for participation.

Materials and Procedures

Levels of mindfulness, boredom proneness, positive and negative affect, basic psychological needs satisfaction, meaning in life, and sexual satisfaction were investigated with self-report, paper and pencil questionnaires. The following scales were utilized to measure the aforementioned constructs.

Mindfulness

Two scales were utilized to measure levels of mindfulness in the present study: the Toronto Mindfulness Scale (Trait version) and the short version of the Freiburg Mindfulness Inventory. The trait version of the Toronto Mindfulness Scale was created by Davis, Lau, and Cairns (2009) to measure the relatively consistent level of mindfulness an individual exhibits across different life situations. The Toronto Mindfulness Scale contains two subscales, Curiosity and Decentering. The Curiosity subscale was designed to measure an individual's level of wanting to learn more about one's own experience and the Decentering subscale was designed to measure an individual's propensity toward identifying with her or his own thoughts and feelings. Both subscales are scored using a summative response scale that ranges from zero (*not at*

all) to four (*very much)*. The Curiosity subscale contains six items and the Decentering subscale contains seven items, with higher scores on each indicating a higher propensity to exhibit mindfulness with regard to expressing high curiosity and decentering, respectively. Internal consistency reliability (coefficient alpha) for the scales has been reported as .88 for the Curiosity subscale and .84 for the Decentering subscale (Davis et al., 2009).

Walach, Buchheld, Buttenmüller, Kleinknecht, and Schmidt (2001) created the short version of the Freiburg Mindfulness Inventory (FMIS) as a unidimensional measure of levels of mindfulness. The FMIS contains 14 items and is scored using a summative response scale that ranges from one (*rarely*) to four (*almost always*), with higher scores indicating higher levels of mindfulness. Internal consistency reliability for the scale has been reported at .86 (Walach et al., 2006).

Boredom Proneness

The present study utilized Farmer and Sundburg's (1986) Boredom Proneness Scale (BPS) to measure levels of boredom proneness. Farmer and Sundburg created the BPS to measure individuals' levels of boredom proneness. The BPS is a unidimensional scale that addresses different aspects of boredom such as internal and external stimulation, affective responses, perception of time, apathy, and inattention (Vodanovich & Kass, 1990). The BPS contains 28 items and is scored using a Likert-style, summative response scale ranging from one (*highly disagree*) to seven (*highly agree*) with higher scores indicating a higher tendency toward feeling bored across different life situations. Test-retest reliability for the scale was measured at .83 after a one-week study (Farmer &

Sundberg, 1986), and internal consistency reliability has been reported at levels between .79 and .84 (Sommers & Vodanovich, 2000).

Positive and Negative Affect

Positive and negative affect were measured in the present study with the Positive and Negative Affect Schedule - Expanded Form (PANAS-X) created by Watson and Clark (1994) to measure different emotional moods that individuals typically experience. The PANAS-X scale contains a total of 13 subscales, each of which is named after the specific affect it is intended to measure. There are two general subscales with 10 items each that measure positive and negative affect. There are four basic negative emotion subscales with five to eight items each, including fear, hostility, guilt, and sadness, and three basic positive emotion scales including joviality, self-assurance, and attentiveness. The final four scales contain three or four items each and evaluate other affective states, such as shyness, fatigue, serenity, and surprise. Each of the subscales is scored using a summative response scale ranging from one (*very slightly or not at all*) to five (*extremely*). This study evaluated responses for the Positive and Negative Affect subscales. Higher scores on the Positive Affect subscale are indicative of more pleasant moods and higher scores on the Negative Affect subscale are indicative of the opposite. Internal consistency reliability has been reported to range between .83 and .90 for the Positive Affect subscale and between .79 and .93 for the Negative Affect subscale (Watson & Clark, 1994).

Basic Psychological Needs Satisfaction

According to self-determination theory of basic psychological needs, there are

innate and universal needs that must be met on an ongoing basis in order for individuals to develop and function in a healthy and optimal way, as well as experience higher levels of well-being (Deci & Ryan, 2000). As the nature of this investigation is rooted in concepts associated with well-being, the Basic Need Satisfaction in Life Scale (BNS) was utilized in the present study. Gagné (2003) created the BNS by adapting another needs satisfaction scale, to evaluate the extent to which participants express satisfaction of basic needs. The BNS contains 21 items that comprise three subscales with six to eight items each, including Competence, Autonomy, and Relatedness. Competence is purported to measure the extent to which an individual feels as though she or he is capable of effectively interacting with her or his environment (Emery, Health, & Mills, 2016; Gagné, 2003). Autonomy is purported to measure the extent to which an individual feels as though she or he is acting out of her or his own volition and in accordance with her or his own personal values (Emery et al., 2016; Gagné, 2003). Relatedness is purported to measure the extent to which an individual experiences deep and meaningful connections with others (Emery et al., 2016; Gagné, 2003). Each item is scored on a summative scale ranging from one *(not at all true)* to seven *(very true)*, with higher scores on each subscale indicating higher satisfaction of each respective need. Internal consistency reliability has been reported as .71 for the Competence subscale, .69 for the Autonomy subscale, and .86 for the Relatedness subscale (Gagné, 2003).

Meaning in Life

Meaning in life is a construct that is often associated with well-being and mindfulness. The present study utilized Steger, Frazier, Oishi, and Kaler's Meaning in

Life Questionnaire (MILQ, 2006) to assess the relationship between participants' reported levels of meaning in life and mindfulness. The MILQ contains two subscales called Presence and Search for Meaning in Life, which were both found to significantly correlate with mindfulness. Specifically, research done by Bloch et al. (2016), found that mindfulness was positively correlated with the Presence subscale and negatively correlated with the Search subscale of the MILQ. The Presence subscale is purported to measure how full of meaning a respondent feels her or his life is and the Search subscale assesses how engaged and motivated a respondent is in efforts to find meaning or deepen her or his understanding of meaning in her or his life. The Search subscale sounds flowery but scores are typically negatively correlated with well-being and positively correlated with rumination, negative affect, depression, and neuroticism, while the Presence subscale is oppositely correlated to those and other similar constructs (Steger et al., 2006). Each of the subscales contains five items and is scored with a Likert-style, summative scale ranging from one (*absolutely untrue*) to seven (*absolutely true*). In studies performed by Steger et al., 2006, the internal reliability consistency for the Presence subscale was reported to be .82 and .86, while the Search subscale was reported as .86 and .87 (Steger et al., 2006). Individuals with scores above 24 on both scales are said to have a valued meaning and purpose in life but are also speculated to be willing to openly explore that meaning or purpose. It is purported that individuals who score below 24 on both scales feel as though they do not have a valued meaning or purpose in life and it is suspected that these individuals are not actively exploring or seeking meaning in their life. For the purposes of this study, individuals with higher scores on either subscale

are considered to have a higher level of what that respective scale is attempting to measure, while individuals with lower scores on either subscale are considered to have the opposite.

Sexual Satisfaction

Sexual satisfaction has been found to correlate positively with mindfulness and mindfulness training (Khaddouma et al., 2015). The present study utilized the Pinney Sexual Satisfaction Inventory (PSSI) as a measure of sexual satisfaction. The PSSI was created by Pinney, Gerrard, and Denney (1987) to assess women's levels of sexual satisfaction as well as sexual behaviors, attitudes, and experiences (Pinney et al., 1987). Pinney et al. performed a factor analysis on the original scale and found two factors, and therefore separated items on the PSSI into two subscales, General Sexual Satisfaction and Satisfaction with Partner. The names of the subscales are named after the construct they intend to assess. The General Sexual Satisfaction subscale assesses general level of sexual satisfaction and the Satisfaction with Partner subscale addresses how satisfied a respondent is with their current sexual partner(s). Both subscales are scored with a Likert-style, summative response scale ranging from one (*strongly disagree*) to seven (*strongly agree*). The first factor, General Sexual Satisfaction, contains 14 items with factor loadings ranging from .49 to .72 (Pinney et al., 1987). The second factor, Satisfaction with Partner, contains 10 items with factor loadings ranging from .36 to .80 (Pinney et al., 1987). The correlation between these two factors is .57 and combined they account for 42% of variance observed (Pinney et al., 1987).

Procedure

The questionnaires were sourced, printed, and compiled into packets, each packet in a randomized order. A demographic sheet was included at the end of each packet that requested participants to share personal information, such as gender identification, age, and ethnic and religious backgrounds. During research sessions, researchers gave participants verbal instructions from a script on how to complete and anonymously submit the packets once complete. Researchers then distributed one packet to each participant and allowed one hour for participants to finish. The vast majority of participants completed the packet in approximately 40-45 minutes. Data from packets that were completed by participants in less than 15 minutes were excluded from the study, as were packets with one or more entire page of responses missing. After research sessions were conducted, the researchers participating in the present study input survey data into an Excel spreadsheet and then transferred the data to IBM SPSS® for evaluation and analysis. The lead researcher reviewed and cleaned the data by ensuring that all responses for each scale were appropriate for that scale (e.g., if the response scale ranged from one to four all response values were reviewed to ensure there were no values given except one, two, three, and four), missing data was entered as the number nine, the data set was assessed for outliers, and problematic response patterns. Other than the cases that were originally excluded for participants taking 15 minutes or less to complete packets, or for failing to respond to one or more entire page of the packet, only two additional cases were excluded for missing large amounts of data. The data were then analyzed through exploratory factor analysis and structural equation modeling.

Chapter 3

RESULTS

Descriptive Statistics

The number of valid responses (*N*), average score (*M*), standard deviation (*SD*), and internal consistency reliability (α) descriptive statistics for each of the scales utilized in this study can be seen in Table 2. Each of the scales obtained internal consistency reliability levels that were consistent with research literature, except for the Toronto Mindfulness Decentering subscale. The internal consistency reliability for the Decentering subscale was .645, which is much lower than the .84 value reported in previous literature (Davis et al., 2009). Upon review of the Decentering subscale, it was determined that the low reliability may have been a product of the subject pool being confused by the items. For example, the Decentering subscale included items such as "I experience myself as separate from my changing thoughts and feelings," "I experience my thoughts more as events in my mind than as a necessarily accurate reflection of the way things 'really' are," "I am receptive to observing unpleasant thoughts and feelings without interfering with them," and "I approach each experience by trying to accept it, no matter whether it is pleasant or unpleasant." It is possible that the subject pool was largely mindfulness-based-practice-naive and that for this reason the items did not make explicit sense to participants. Therefore, it was excluded from further analyses.

Table 2

Scale Descriptive Statistics

Scale Name	*N*	*M*	*SD*	α
Basic Needs Satisfaction				
Autonomy	265	33.76	6.37	0.687
Competence	265	29.3	5.67	0.650
Relatedness	265	43.2	7.05	0.784
Boredom Proneness	265	85.04	14.82	0.797
Meaning in Life				
Presence	265	23.4	7.27	0.898
Search	265	25.84	6.15	0.852
Mindfulness				
Freiburg	264	38.24	7.35	0.856
Toronto Curiosity	265	16.73	4.6	0.849
Toronto Decentering	265	14.28	4.44	0.645
PANAS-X				
Positive Affect	264	35.82	7.18	0.856
Negative Affect	264	22.24	7.69	0.872
Pinney Sexual Satisfaction				
General Sexual Satisfaction	265	67.62	18.23	0.933
Satisfaction with Partner	265	42.46	12.22	0.876

Correlations

After Decentering was removed, participants' scores on each of the remaining scales, presented in Table 1, were analyzed for correlations. The scale correlations can be seen in Table 3.

Table 3

Scale Correlations

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.000											
2	-.570**	1.000										
3	.305**	-.142*	1.000									
4	-.476**	.472**	-.283**	1.000								
5	.187**	-.068	.166*	-.151*	1.000							
6	-.478**	.368**	-.354**	.444**	-.170*	1.000						
7	-.534**	.491**	-.302**	.450**	-.152*	.503**	1.000					
8	-.455**	.376**	-.252**	.419**	.009	.508**	.508**	1.000				
9	-.508**	.543**	-.261**	.523**	-.031	.419**	.498**	.392**	1.000			
10	-.250**	.258**	-.160*	.380**	-.119*	.216**	.262**	.269**	.336**	1.000		
11	-.110*	.135*	-.150*	.227**	-.235**	.200**	.235**	.119*	.150*	.496**	1.000	
12	-.195**	.243**	-.006	.189**	.223**	.133*	.199**	.170*	.354**	.106*	-.105*	1.000

Note. $N = 263$. * denotes significant correlations and ** denotes significant correlations at .001 or less. Numbers 1 - 12 each correspond with the name of a scale as follows: 1 = Boredom Proneness; 2 = Positive Affect; 3 = Negative Affect; 4 = Meaning in Life: Presence; 5 = Meaning in Life: Search; 6 = Basic Needs: Autonomy; 7 = Basic Needs: Competence; 8 = Basic Needs: Relatedness; 9 = Freiburg Mindfulness; 10 = General Sexual Satisfaction; 11 = Satisfaction with Partner; 12 = Mindfulness: Curiosity.

Table 3 demonstrates that lower levels of Boredom Proneness were associated with higher levels of Mindfulness (Freiburg), Positive Affect, Competence, Autonomy, Relatedness, and Presence. On the other hand, higher levels of Positive Affect were associated with higher levels of Mindfulness (Freiburg), Competence, and Presence, and higher levels of Autonomy were associated with higher levels of Relatedness, Mindfulness (Freiburg), and Competence.

Exploratory Factor Analysis with Principal Components Analysis

After reviewing the collinearity between the scales, it was suspected that there could be one or more latent variables represented by the observed variables. To address

this possibility, an exploratory factor analysis (EFA) was considered as a next step in the data analysis. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .856, indicating that the data were suitable for principal components analysis, and Bartlett's test of sphericity was significant ($p < .001$), supporting the initial notion that the variables correlate sufficiently enough to proceed with the EFA.

To assess for latent variables, a principal components analysis with promax rotation was conducted on all scales included in Table 2 except Toronto Decentering. A total of three components had eigenvalues greater than 1.00 and combined they were found to account for 58.939% of the total variance explained. The structure coefficients from the promax rotation are presented in Table 4. The first and second components in this model are correlated at .362, the second and third components are correlated at -.016, and the first and third components are correlated at .077.

Table 4

Initial EFA Structure Matrix

	Factor Loadings		
Scale Names	1	2	3
Boredom Proneness	**-0.783**	-0.200	-0.004
Basic Needs: Competence	**0.767**	0.298	-0.002
Freiburg Mindfulness	**0.742**	0.365	0.309
Basic Needs: Autonomy	**0.724**	0.198	-0.151
Meaning in Life: Presence	**0.711**	0.446	0.062
Positive Affect	**0.709**	0.296	0.242
Basic Needs: Relatedness	**0.693**	0.202	0.088
Negative Affect	**-0.473**	-0.085	0.377
General Sexual Satisfaction	0.379	**0.863**	0.071
Satisfaction with Partner	0.209	**0.830**	-0.264
Toronto Curiosity	0.333	0.059	**0.723**
Meaning in Life: Search	-0.173	-0.211	**0.701**

Note. Bold numbers indicate the highest factor loadings.

This structure seemed to be a viable solution for the scales included, except for Negative Affect. The cross-loading, or high correlation with more than one component, of Negative Affect with the first and third components together with its relatively weak correlation with its primary component was troublesome. Therefore, the analysis was repeated excluding Negative Affect. A total of three factors in this model had eigenvalues greater than one and combined they were found to account for 62.104% of the total variance, which increased from the previous model. The structure coefficients from the updated solution are presented in Table 5. The first and second components in this model are correlated at .382, the second and third at -.040, and the first and third at .140.

Overall, this three-component model (See Table 5) appears to be a more viable solution for analysis.

Table 5

Final Structure Matrix

	Factor Loadings		
Scale Names	1	2	3
Boredom Proneness	**-0.791**	-0.199	-0.022
Basic Needs: Competence	**0.772**	0.306	0.029
Freiburg Mindfulness	**0.742**	0.366	0.352
Positive Affect	**0.734**	0.262	0.206
Basic Needs: Autonomy	**0.719**	0.231	-0.087
Meaning in Life: Presence	**0.714**	0.453	0.096
Basic Needs: Relatedness	**0.693**	0.222	0.136
General Sex Satisfaction	0.379	**0.868**	0.095
Satisfaction with Partner	0.211	**0.840**	-0.257
Toronto Curiosity	0.328	0.051	**0.761**
Meaning in Life: Search	-0.190	-0.206	**0.748**

Note. Bold numbers indicate the highest factor loadings.

Of the three components distinguished by the model, the first component appears to represent mindful awareness of, attentiveness to, and presence-driven engagement in life, as well as positive feelings, competence, autonomy, and relatedness. This component is labeled Mindful Engagement. The second component appears to represent sexual satisfaction, both generally and with a specific partner. This component is labeled Sexual Satisfaction. The third component appears to represent curiosity and willingness to seek things out that may change or enhance perception in life. This component is labeled Exploration.

Conceptually, these pairings make sense. With regard to Mindful Engagement, this component depicts that low levels of Boredom Proneness are associated with high levels of Freiburg Mindfulness, Autonomy, Presence, Competence, Positive Affect, and Relatedness. As discussed in the introduction to this study, boredom proneness has been attributed to a lack of effortful attention (Pattyn et al., 2008), while mindfulness was previously summarized as intentional receptive and non-judgmental attention to, and awareness of, present-moment internal and external stimuli, events, and sensory experiences. These conceptualizations of boredom proneness and mindfulness logically relate to the concepts of Autonomy, Presence, Positive Affect, and Competence. Autonomy, used to describe the extent to which an individual feels as though she or he is acting out of her or his own volition, and Presence, as used to describe an individual's level of awareness of her or his own purpose with regard to actions in life, would ideally relate positively to mindfulness in that it is an intentional process of awareness created by focusing attention on the present moment.

Literature on the concept of flow supports the relationships between Positive Affect and Competence with this component. Flow is a mental state described by Csikszentmihalyi as the opposite of boredom, which is proposed to occur when an individual who is performing an activity is fully immersed in, focused on, and enjoying that activity (Csikszentmihalyi, 1992). Csikszentmihalyi describes that an individual cannot experience flow unless that individual perceives the activity as being challenging enough to be interesting and within a reasonable range of that individual's self-perceived ability (Csikszentmihalyi, 1992). As described in previous literature, flow encompasses

enjoyment of an activity, which could logically be related to Positive Affect, as it is likely that an individual who is enjoying an activity would more likely experience positive moods. If flow is achieved only when an individual perceives the activity as being within a reasonable range of her or his self-perceived ability, it follows that flow requires an individual to believe in her or his own ability to effectively interact with her or his environment, which can logically be related to the concept of Competence.

Although the previously mentioned concepts can be connected through logical jumps, Relatedness, or an individual's experience of deep and meaningful connections with others, is not quite as simple to explain. It is possible that Relatedness' relationship with this component follows concepts described by Maslow's Hierarchy of Needs, in that individuals cannot achieve higher levels of functioning (arguably mindfulness) without first satisfying basic needs such as that for belongingness and love (Thorne & Henry, 2005). If this is the case, it makes sense for high levels of Relatedness to load onto a component that describes mindful awareness of, attentiveness to, and presence-driven engagement in life, as well as positive feelings, competence, and autonomy.

Sexual Satisfaction, the second component, demonstrates that higher levels of General Sex Satisfaction, described as the current level of sexual satisfaction in general, are associated with higher levels of Satisfaction with Partner, which is described as an individual's expressed level of sexual satisfaction with her or his current or most recent sexual partner(s). The third component, Exploration, demonstrates that higher levels of Toronto Curiosity are associated with higher levels of Meaning in Life: Search. Toronto Curiosity represents an individual's level of wanting to learn more about her or his own

experiences and Meaning in Life: Search represents how engaged and motivated respondents are in efforts to find meaning or deepen their understanding of meaning in their lives.

Structural Equation Model

After the principal components analysis was used to fine-tune the observed variables that were associated with the latent variables, it was speculated that Mindful Engagement would both directly and indirectly predict the latent variable Exploration with the latent mediation variable of Sexual Satisfaction (See Figure 1). The hypothesized structural model was then evaluated. Cases with large amounts of missing data were excluded prior to the correlational analysis, so no further steps were required to address missing data.

The latent outcome variable in this model is Exploration (comprised of the Curiosity subscale of the Toronto Mindfulness Inventory and the Meaning in Life Inventory Search subscale). The latent predictor variable is Mindful Engagement (comprised of the Boredom Proneness Scale, the Basic Needs Satisfaction Competence, Relatedness, and Autonomy subscales, the Freiburg Mindfulness Scale, the PANAS-X Positive Affect subscale, and the Meaning in Life Inventory Presence subscale). The latent mediator of Sexual Satisfaction (comprised of the Pinney Sexual Satisfaction Inventory General Sexual Satisfaction and the Sexual Satisfaction with Partner subscales) were proposed to mediate the relationship between Mindful Engagement and Exploration.

The model was considered to be under-identified by Amos® despite a positive

value for degrees of freedom ($df = 39$). An under-identified model has too many free parameters to be estimated given the number of measured variables in the model. To rectify the situation and run the analysis, the number of free parameters was reduced by constraining both of the indicators of the latent variable Exploration rather than just one and weighting it at a value of '1'. After this was done, the model ran and the Amos® output suggested that the model could be improved by allowing the error parameters of Mindful Engagement to correlate.

The Amos® output suggestion was considered with regard to the characteristics of the indicators of Mindful Engagement. Mindful Engagement included all three aspects of Basic Needs Satisfaction (Autonomy, Competence, and Relatedness), Positive Affect, and Meaning in Life: Presence. When investigating Autonomy and Relatedness, it is possible that both are measuring an individual's perception of her or his social-relationship interactions. For example, the Autonomy subscale items include "People I interact with on a daily basis tend to take my feelings into consideration," and "I feel like I can pretty much be myself in my daily situations." While the Relatedness subscale includes items such as "I really like the people I interact with," "I get along with the people I come into contact with," and "I consider the people I regularly interact with to be my friends." Positive Affect is significantly correlated with Autonomy, Competence, and Relatedness, as well as Meaning in Life: Presence. The underlying factor of these indicators could be an unnamed feature of the latent variable they comprise, Mindful Engagement. After the theoretical review of the components of the Mindful Engagement indicators, the errors between the Mindful Engagement indicators were allowed to

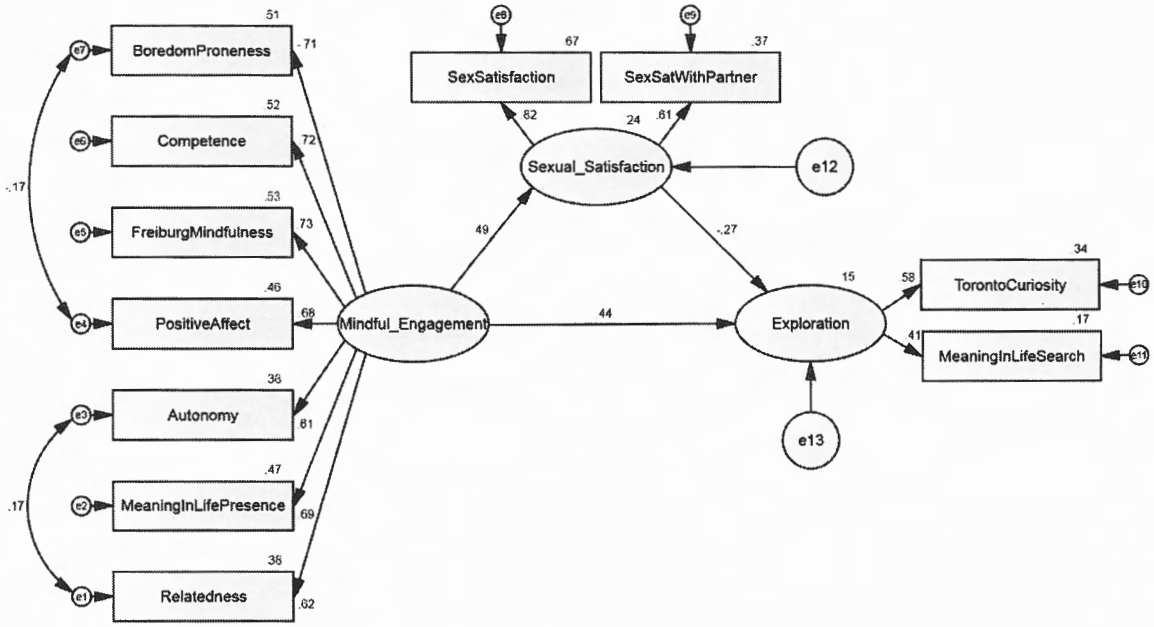
correlate and the model was run. Although the chi-square test was statistically significant, $\chi^2 = 112.691$ (40, $N = 265$), $p < .001$, the structural model yielded an acceptable level of fit as indexed by the GFI (.928), IFI (.918), CFI (.917), and RMSEA (.085).

In the full model, Mindful Engagement was a significant predictor of both Sexual Satisfaction (standardized path coefficient = .488, $b = 1.781$, $SE = .297$, $p < .001$) and Exploration (standardized path coefficient = .438, $b = .282$, $SE = .083$, $p < .001$); the model explained approximately 24% of Sexual Satisfaction and 15% of Exploration. However Sexual Satisfaction did not significantly predict Exploration (standardized path coefficient = -.272, $b = -.048$, $SE = .025$, $p = .056$) but was treated as a trend. An Aroian test demonstrated that the indirect path from Mindful Engagement through Sexual Satisfaction to Exploration ($z = -1.806$, $p = .071$) was not statistically significant, but once again, was treated as a trend so that the possibility of mediation could be explored.

In order to determine if Sexual Satisfaction acted as a mediator between Mindful Engagement and Exploration, the simple mediation structure was examined. In the full model, the direct path from Mindful Engagement to Exploration was statistically significant. In the unmediated model, the direct path from Mindful Engagement to Exploration was statistically significant in isolation (standardized path coefficient = .305, $b = .197$, $SE = .066$, $p = .003$). A Freedman-Schatzkin test showed that the strength of the path in the mediated model was significantly stronger [$t(263) = -2.182$, $p = .030$] than the corresponding path in the unmediated model, suggesting that Sexual Satisfaction acted as a suppressor variable enhancing the ability of Mindful Engagement to predict Exploration.

Figure 1

Structural Equation Model (SEM)



Note. Figure 1 displays the SEM evaluating Mindful Engagement's direct and indirect prediction the latent variable Exploration with the latent mediation variable of Sexual Satisfaction.

Chapter 4

DISCUSSION

Initial Speculations

The purpose of the present study was to investigate the relationships between mindfulness, boredom proneness, positive affect, negative affect, basic psychological needs satisfaction, meaning in life, and sexual satisfaction. To evaluate the relationships between these constructs, a correlational analysis, EFA, and SEM were run. Please review Table 6 for a summary of the proposed hypotheses.

Table 6

Study Hypotheses

	Hypothesis	Status	Note
H1	Mindfulness levels will be negatively correlated with levels of boredom proneness.	Supported	Freiburg Mindfulness with Boredom Proneness = -.508, Toronto Curiosity with Boredom Proneness = -195
H2	Mindfulness levels will be positively correlated with levels of positive affect.	Supported	Freiburg Mindfulness with Positive Affect = .543, Toronto Curiosity with Positive Affect = .243
H3	Boredom proneness levels will be positively correlated with levels of negative affect.	Supported	.305
H4	Mindfulness levels will be positively correlated with levels of basic psychological needs satisfaction.	Supported	Competence with Freiburg Mindfulness = .498, Relatedness with Freiburg Mindfulness = .392, Autonomy with Freiburg Mindfulness = .419, Competence with Toronto Curiosity = .199, Relatedness with Toronto Curiosity = .170, Autonomy with Toronto Curiosity = .133
H5	Boredom proneness levels will be negatively correlated with levels of basic psychological needs satisfaction.	Supported	With Competence = -.534, Relatedness = -.455, and Autonomy = -.478
H6	Mindfulness levels will be positively correlated with levels of sexual satisfaction.	Partially Supported	Freiburg Mindfulness with General Sexual Satisfaction = .336, Freiburg Mindfulness with Sex Satisfaction with Partner = .150, Toronto Curiosity with General Sexual Satisfaction = .106, Toronto Curiosity with Sex Satisfaction with Partner = -.105
H7	Boredom proneness levels will be negatively correlated with levels of sexual satisfaction.	Supported	Boredom Proneness with General Sexual Satisfaction = -.250, Boredom Proneness with Sex Satisfaction with Partner = -.110.

Note. The underlined correlation in the H6 note section is the portion of the hypothesis that was unsupported.

The correlational analysis demonstrated that all hypotheses were supported except for H6, which was partially supported. In H6 it was hypothesized that mindfulness levels, as

measured with Freiburg Mindfulness and Toronto Curiosity, would be positively correlated with levels of sexual satisfaction, as measured by General Sexual Satisfaction and Sex Satisfaction with Partner. Although there were positive correlations between Freiburg Mindfulness with General Sexual Satisfaction and Sex Satisfaction with Partner, the latter was relatively weak. With regard to Toronto Curiosity and sexual satisfaction, its correlation with General Sexual Satisfaction was weak and its correlation with Sex Satisfaction with Partner was weak and negative. Research on mindfulness training and sexual satisfaction has demonstrated that individuals who are trained in mindfulness-based practices report increased levels of sexual satisfaction and/or openness to sexual activities (Gallegos et al., 2015; Khaddouma et al., 2015). This empirically-supported relationship between mindfulness training and sexual satisfaction made it logical to hypothesize that the constructs would be positively correlated.

However, the notion that sexual satisfaction and mindfulness would be positively correlated is based upon literature regarding individuals in therapy either for a committed relationship and/or for recovery from sexual trauma. The present study did not evaluate whether or not participants identified with either of those groups (in therapy for a relationship or sexual trauma); therefore, it is not clear if the results may have been affected by inability to control for either condition. And it is possible that the increased sexual satisfaction experienced by individuals after mindfulness training through therapy is not necessarily poignant in non-therapy seeking individuals. Or, quite simply, it is possible that the individuals in the sample were not representative of the general sex-participating population of our society, as the mean age of participants in the study was

21 and it is not clear if all respondents were sexually active and answered surveys with complete honesty. Alternatively, it is possible that individuals who are more curious of experiences could be more likely to feel dissatisfied with one partner if that curiosity extends to their sexual experiences.

Exploratory Factor Analysis with Principal Components Analysis

Once the correlational analysis was complete the EFA was run. As mentioned in the results section, for the most part the scale loadings onto distinct components made logical sense per research literature on each of the constructs. Most interestingly, Boredom Proneness and Freiburg Mindfulness, a measure of mindfulness in general, both loaded onto the component labeled Mindful Engagement but in opposite directions. It was initially speculated that Boredom Proneness would be a predictor for levels of mindfulness and the results of the present study indicate that the variables may be representative of opposite ends of the same spectrum. This result is supported in research literature on boredom proneness and mindfulness as it was previously noted that the experience of boredom is highly associated with a lack of, and potentially a result of, poor attentional ability (Martin et al., 2012). Research also shows that individuals who can intentionally attend to specific stimuli are less likely to experience boredom, which may be a cause for the absence of boredom (Csikszentmihalyi, 1992; Fisher, 1993; Fisher, 1998; Hamilton, 1981; Hamilton et al., 1984; Meland et al., 2015; Seib & Vodanovich, 1998).

Although Freiburg Mindfulness loaded onto the same component as Boredom Proneness, Toronto Curiosity, a subscale of the trait version of the Toronto Mindfulness

Inventory, loaded onto a component with Meaning in Life: Search. While research literature on the Curiosity and Search subscales suggest that they would be negatively correlated, they both loaded high and in the same direction (.761 and .748, respectively) onto the third component of the model, which was subsequently labeled Exploration. When evaluating the scales, this makes sense that Curiosity and Search loaded onto the same component. For example, the Curiosity subscale included items such as "I remain curious about the nature of each experience as it arises," "I am curious about my reactions to things," and "I am curious about what I might learn about myself by just taking notice of what my attention gets drawn to" (Davis et al., 2009).

The Search subscale included items such as "I am always looking to find my life's purpose," "I am searching for meaning in my life," "I am looking for something that makes my life feel meaningful" (Steger et al., 2006). The scales appear to represent the same level of investigation, albeit one internal (Curiosity) and one external (Search).

Structural Model

The SEM was run with the purpose of evaluating the direction of the relationship between the latent variables Mindful Engagement, Sexual Satisfaction, and Exploration. Specifically, it was predicted that Mindful Engagement would both directly and indirectly predict the latent variable Exploration, with the latent mediation variable of Sexual Satisfaction. It was speculated that Mindful Engagement would predict Exploration, but that Sexual Satisfaction would account for some of the variance between the two. Subsequent to running the model, it was determined that the model yielded a suppression rather than mediation effect. This means that when evaluating Mindful Engagement as a

predictor of Exploration with Sexual Satisfaction as a link, the strength of the relationship actually increased rather than decreased.

The suppressor, Sexual Satisfaction, is not particularly useful in predicting the outcome variable, Exploration, but it correlates with Mindful Engagement in the prediction model and accounts for some of the non-predictive variance explained by that predictor. This relationship of Sexual Satisfaction in the model removes some of the error variance generated by using Mindful Engagement to predict Exploration, which in turn makes Mindful Engagement a more potent predictor. It is possible that the suppression effect could be explained by the relationship between Meaning in Life: Presence (one indicator of Mindful Engagement) with the indicators of Sexual Satisfaction (General Sexual Satisfaction and Sex Satisfaction with Partner) and Exploration (Toronto Curiosity and Meaning in Life: Search). The Meaning in Life: Presence subscale is correlated more strongly with both components of the suppressor, Sexual Satisfaction, than the weak correlations it has with both indicators of the outcome variable, Exploration. It is possible that this relationship may explain why including the suppressor in the model increased the amount of variance explained without actually being a strong predictor of Exploration on its own.

The Meaning in Life: Presence subscale is intended to measure whether or not an individual reports having a clear meaning in life. This subscale includes items such as "I understand my life's meaning," "my life has a clear sense of purpose," and "I have discovered a satisfying life purpose" (Steger et al., 2006). It is possible that the correlation exhibited between Sexual Satisfaction and Meaning in Life: Presence is

actually representative of a relationship between Sexual Satisfaction and one or more underlying constructs that are represented by the items included in the Presence subscale. For example, it is possible that higher scorers on Sexual Satisfaction facets are related to the Presence items because the Presence items represent certainty, confidence, or general satisfaction. It would make intuitive sense if the respondents with higher scores in Sexual Satisfaction feel surer of themselves or are more confident in general, as it can take quite a bit of confidence to fully enjoy sexual interactions. If higher scorers in Sexual Satisfaction are related to Presence items for these speculated underlying features the relationship between these respondents' Sexual Satisfaction scores and Exploration scores also make sense. For instance, certainty, confidence, and general satisfaction are not captured by either of the components of Exploration. Rather, endorsement of Exploration items such as "I am always searching for something that makes my life feel significant," "I remain curious about the nature of each experience as it arises," and "I am curious about my reactions to things," may actually be representative of dissatisfaction with current life, uncertainty, or a lack of confidence (Davis et al., 2009; Steger et al., 2006).

It is also interesting to note that the relationship between Sexual Satisfaction and Exploration is negative in this model. This negative relationship indicates that higher scores of Sexual Satisfaction are associated with lower scores of Exploration, and vice versa. It is possible that low scores on sexual satisfaction are associated with higher levels of curiosity because individuals who score this way are searching for more fulfillment, sexual or otherwise, in life. Or, the more sexually satisfied an individual is

the less likely they are to feel they need to search outside of themselves for more meaning and fulfillment. As discussed in Maslow's theory behind the Hierarchy of Needs (Thorne & Henry, 2005), this could indicate that sexual satisfaction in general is part of a basic set of needs that either contribute to or detract from overall well-being, meaning in life, and satisfaction.

Limitations

The present study was conducted with a sample of participants from California State University, Sacramento. As is the case with most research studies conducted with university students, there is a possibility that the data collected in the present study is not representative of the general, non-university population. The study may also have been limited by the choice of questionnaires included in the study. For example, the Pinney Sexual Satisfaction Inventory was created for use in female populations, yet here it was used for both males and females. It is not the first time that researchers have utilized the scale on populations of both female and male individuals (Shaw, Rogge, Shaw, & Rogge, 2016), so its inclusion may not have been as limiting of a factor as the exclusion of information that was potentially very important. Specifically, participants in this study were not asked if they were sexually inexperienced (a virgin). Unfortunately, the potential inclusion of individuals who are completely devoid of sexual experience could have contributed to more moderate (*neither agree nor disagree*) responses than would have otherwise been collected if the participants had been given the opportunity to identify as a virgin, opt out of responding to the survey, and skip to the next questionnaire without penalty.

Future Studies

Future studies of mindfulness and boredom may benefit from augmenting the sampled population and including experimental measures. With regard to the sample population, it may be beneficial to include a larger number of participants, including more male participants, participants who are outside of a university setting, as well as more participants over the age of 30. It would be interesting to observe if levels of mindfulness and boredom proneness are affected significantly by the age or gender of respondents. Although mindfulness was measured as a trait in this study it is recognized that over time mindfulness-based training can increase an individual's trait level of mindfulness. Therefore, it would also be beneficial to include a long-term experimental study in which participants in the experimental group are exposed to mindfulness training while control groups are not. The pre- and post-test measures of mindfulness and boredom proneness could be analyzed for statistically-significant differences to determine if there is a significant increase in levels of mindfulness and decrease in levels of boredom proneness in mindfulness-trained participants when compared to the control group.

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