RELATIONAL AND SEXUAL SATISFACTION AND MINDFULNESS IN MIDLIFE

A Dissertation in
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by
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ABSTRACT

Sexual health during midlife is not limited to physical wellbeing, but also includes aspects of mental and social wellbeing. This broad concept of sexual health may be best understood by using objective standards (e.g., sexual frequency) and subjective perceptions (e.g., relational and sexual satisfaction). A range of demographic, physical health, individual, relationship, and cultural factors contribute to sexual health. Recently, researchers have considered mindfulness as another contributor to relational and sexual health. Mindfulness may be one mechanism that enables midlife adults to experience healthy relational and sexual satisfaction. Research in this area has predominantly examined associations between trait mindfulness and relational and sexual satisfaction. However, even individuals who are mindful in daily activities, as assessed by trait mindfulness, may find it difficult to remain mindful during a sexual experience due to additional obstacles such as sexual anxiety, distraction, expectations of performance, sexual goals, inhibition, or self-criticism. Thus, it is important to consider associations between sexual mindfulness, a form of state mindfulness, and relational and sexual satisfaction.

The purpose of this dissertation was to examine factors that may contribute to midlife relational and sexual health by developing a new measure of sexual mindfulness, examining the contributions of mindfulness and desire discrepancy to relational and sexual satisfaction, and examining the roles of culture and gender in relational and sexual satisfaction. To address these questions, I collected data on 1445 midlife adults (ages 35 to 60, 45% female) from the U.S., Ukraine, and Turkey. In Paper 1, I developed a measure of mindfulness during sexual experiences, the Sexual Mindfulness Measure (SMM). The SMM proved to be a two-factor measure—observation and non-judgment of experience. The SMM showed reliability across
gender, age groups, and marriage lengths. The SMM also showed explanatory value above and beyond trait mindfulness. In Paper 2, I used this newly constructed measure to evaluate whether trait and sexual mindfulness moderate the association between sexual desire discrepancy and relational and sexual satisfaction. Being mindful by observing during sexual experiences moderated the association between desire discrepancy and sexual satisfaction. In Paper 3, I examined cross-cultural differences in sexual health in the U.S., Ukraine, and Turkey, as well as examined how cultural differences may interact with gender. I found that adults in the U.S. kissed more, had vaginal and oral sex less frequently, felt more satisfied with their romantic relationships and their sex lives, and were less judging of sexual experiences than adults in Ukraine and Turkey. Gender differences did not vary by country. Across the three studies, findings indicate that context is an important aspect of midlife relational and sexual health. Midlife adults are influenced by factors at both the macro and micro level. Sexual mindfulness may provide skills that encourage midlife adults to let go of sexual expectations or goals and judgments that diminish their satisfaction with sexual experiences. Future research should consider further cross-cultural validation of the SMM and continued examination of how sexual mindfulness contributes to both relational and sexual health.
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Chapter 1: Introduction

Scholars have recognized the need to define sexual health in midlife and later life using complex standards, describing sexual health as a combination of physical, mental, and social factors that may be objectively or subjectively measured (Laumann, Das, & Waite, 2008). This broad concept of sexual health may be best understood through a combination of objective standards (e.g., sexual frequency) and subjective perceptions of the individual’s experience (e.g., relational and sexual satisfaction). Alternatively, when objective measures are difficult to obtain, researchers might assess subjective perceptions of experiences with more complete measures. For instance, rather than the typical one question measures of sexual satisfaction, researchers might use multi-item scales to assess sexual satisfaction (McClelland, 2010). Although sexual satisfaction measures generally involve a standard description of satisfaction that participants rate using a Likert scale, these measures may be simplistic and may not capture additional aspects of satisfaction such as quality and frequency (McClelland, 2010). That is, sexual satisfaction measures that use only one question (e.g. how satisfied are you with your sexual relationship?) may not provide enough information to examine additional relationship dynamics such as satisfaction with frequency, quality of orgasm, and pleasure given and received from partners. Consequently, using both objective standards and/or more complex measures of an individual’s subjective perceptions will provide a more complete assessment of sexual health.

Because relational and sexual satisfaction both contribute to sexual health, I consider both relational and sexual satisfaction as outcomes. In addition, I use a more complex measure of sexual satisfaction (Štulhofer, Buško, & Brouillard, 2010). Relational and sexual satisfaction have a bidirectional association, in that individuals who are satisfied in their relationship are likely sexually satisfied and those who experience sexual satisfaction likely experience relational
satisfaction (Byers, 2005; Yeh, Lorenz, Wickrama, Conger, & Elder, 2006). Not only are these two factors associated with each other, together they provide a more complete picture of sexual health than just one of the variables. Relational satisfaction is important for both men and women, but may be especially salient to women. Although, marriage is associated with health benefits, including longer life, better self-rated physical health, and lower rates of chronic illness (Proulx & Snyder-Rivas, 2013; Waite & Gallagher, 2000), marriage may only provide protective factors for women when the marriage is of high quality (Donoho, Crimmins, & Seeman, 2013; Umberson, Williams, Powers, Liu, & Needham, 2006). In addition, poor quality relationships may negatively impact physical health (Umberson & Kroeger, 2015). Consequently, examining relational satisfaction provides a more accurate picture of sexual health than marriage alone.

**Physical health**

In addition to evidence that relational and sexual satisfaction contribute to physical health, evidence also suggests that physical health contributes to relational and sexual health. Lachman (2004) describes the wide variability and multidirectionality of midlife development, during the process of aging. Even though declines in physical functioning and associated declines in sexual ability were once accepted as an inevitable part of aging, physical and sexual declines are now viewed as a challenge to overcome. As midlife adults find ways to overcome these challenges, they may gain perspective that allows for greater relational and sexual satisfaction (Carpenter, Nathanson, & Kim, 2009). For example, a recent study indicates that, after controlling for sociodemographic factors, the periods of midlife and older adulthood may actually be associated with increased rather than decreased satisfaction (Forbes, Eaton, & Krueger, 2016). Midlife and older adults may gain a type of sexual wisdom that allows for greater sexual satisfaction despite other challenges (Forbes et al., 2016).
Although age-related physical health declines can contribute to sexual satisfaction, more generally, poor individual or partner health contributes to lower relational satisfaction (Galinsky & Waite, 2014). In addition, physical health is a stronger predictor of sexual satisfaction than is age in and of itself (Lindau et al., 2007). Midlife and older adults who report being in poor health are less likely than healthier adults to be sexually active and if sexually active, more likely to experience sexual dysfunction (Lindau et al., 2007). Poor health also contributes to experiencing less sexual pleasure and consequently lower sexual satisfaction (Lindau et al., 2007). Therefore, midlife adults who can focus on improving physical health concerns rather than accepting sexual decline as part of aging may experience greater relational and sexual satisfaction.

**Sexual Frequency**

Sexual frequency is commonly associated with greater sexual satisfaction in the U.S. and Finland (Brody & Costa, 2009; Haavio-Mannila, & Kontula, 1997; Nicolosi, Moreira, Villa, & Glasser, 2004). Sexual frequency directly contributes to both sexual and relational satisfaction (Brody & Costa, 2009; Haavio-Mannila, & Kontula, 1997). In addition to these direct associations, sexual frequency, sexual satisfaction and relational satisfaction have bidirectional associations (McNulty, Wenner, & Fisher, 2015; Yeh et al., 2006). Thus, sexual frequency is an important contributor to both relational and sexual satisfaction.

**Gender Differences in Relational and Sexual Satisfaction**

Gender is another important factor for relational and sexual satisfaction (Dempsey, 2002; Laumann et al., 2008). Although sexual frequency is associated with relational and sexual satisfaction (Nicolosi et al., 2004), women’s sexual satisfaction may rely more on relationship quality than on sexual frequency (Botto, Bitzer, Laan, Leiblum, & Luria, 2010; Herbenick et al., 2010; Nicolosi et al., 2004).
Men and women experience sexual problems differently. Women experience consistently higher rates of arousal and desire dysfunction than do men (Laumann, et al., 2008; Laumann, Paik, & Rosen, 1998). However, lower desire and arousal are not necessarily associated with lower sexual and relational satisfaction when women experience high quality relationships (Brotto et al., 2010; Cain et al., 2003; Rosen et al., 2009). In addition, although men’s sexual functioning decreases with age (specifically their ability to orgasm or their increased likelihood of experiencing erectile dysfunction), women do not show similar age-related declines in sexual functioning (Lindau et al., 2008). Consequently, the factors contributing to sexual satisfaction may be different for men and women.

Studies show that women are more likely than men to answer questions about their sexual satisfaction based on their partner’s rather than their own sexual satisfaction (McClelland, 2011). When women report their own sexual satisfaction based on their partner’s satisfaction, it can create bias in the relative measurement of men’s and women’s sexual satisfaction. To help address expectation biases in sexual satisfaction, researchers could use measures that include more than one question, instead of the typical measures that ask just one question. For example, sexual satisfaction could include satisfaction with aspects of the sexual relationship such as quality of orgasms, sexual communication, and pleasure given to and received from a partner (Štulhofer et al., 2010). Asking more complex sexual satisfaction questions could address some of the cultural biases found in women’s responses to sexual satisfaction questions (McClelland, 2010). For these reasons, the current studies will examine sexual satisfaction outcomes for men and women based on a more complex measure of sexual satisfaction.

**Mindfulness in relational and sexual satisfaction**
One additional contributor to relational and sexual satisfaction is mindfulness.

Mindfulness is the ability to stay present, without judgment (Kabat-Zinn, 1990; Kabat-Zinn, 1994). Mindfulness may be one mechanism that enables midlife adults to experience healthy relational and sexual satisfaction (Bronfenbrenner, 1995; Deci & Ryan, 2008; Lachman, 2004). Mindfulness may allow midlife adults to better adjust to the gains and losses experienced during this period of life. Individuals who practice mindfulness in their relationships are generally more satisfied with their relationships and experience lower relationship stress (Barnes, Brown, Krusemark, Campbell, & Rogge, 2007; Carson, Carson, Gil, & Baucom, 2004; Davis & Hayes, 2011). In addition, mindfulness is related to some aspects of sexual satisfaction (Khaddouma Gordon, & Bolden, 2015; Langer, 2004). Mindfulness may help to improve sexual satisfaction because mindfulness increases an individual’s ability to observe his/her thoughts and feelings without immediately reacting, which provides a mechanism for improved communication and interactions (Boorstein, 1996; Kabat-Zinn, 1990; Kabat-Zinn, 1994; Shaver, Lavy, Saron, & Mikulincer, 2007; Snyder, Shapiro, & Treleaven, 2011).

Mindfulness can be seen as either a trait characteristic, an inherent disposition to be mindful, or a state characteristic, the level of mindfulness during particular interactions in daily life (Brown & Ryan, 2004). Trait mindfulness describes an individual’s long-term, stable level of mindfulness. Trait mindfulness differs across individuals; in other words, individuals differ in their dispositional quality of mindfulness (Brown & Ryan, 2003; Davidson, 2015; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). In contrast, state mindfulness varies within an individual, fluctuating across contexts (Brown & Ryan, 2003; Reis et al., 2000). The context of mindfulness is important in that mindfulness may diminish during some interactions or situations where anxiety is elevated. For example, individuals who are mindful on a daily basis (trait mindfulness)
may feel heightened anxiety in a sexual situation and may therefore lose their ability to remain mindful in this specific context (state mindfulness). It is unlikely that an individual low in trait mindfulness would be high in sexual mindfulness. However, having high trait mindfulness does not guarantee sexual mindfulness. Therefore, trait mindfulness may be necessary but not sufficient for sexual mindfulness.

Both trait and state mindfulness may be necessary for positive outcomes in relational and sexual satisfaction. Research examining trait and state mindfulness in romantic relationships found that individuals with higher trait mindfulness reported better relational satisfaction and greater capacity to respond constructively during relationship stress (Barnes et al., 2007). In addition, individuals with higher state mindfulness had better communication quality during stressful conversations (Barnes et al., 2007). Sexual mindfulness, like state mindfulness, may assess the ability to remain mindful during a high anxiety context.

Research on anxiety is helpful in understanding the role of state and trait mindfulness in sexual situations. Individuals participating in mindfulness-based interventions experienced reduced state and trait anxiety. In addition, reductions in trait anxiety also reduced state anxiety, which led to greater spirituality (Shapiro, Schwartz, & Bonner, 1998). Although trait mindfulness may be sufficient to achieve a number of positive outcomes, being mindful during high anxiety contexts, a form of state mindfulness, may be required to produce positive results during sexual experiences. Studies on state mindfulness consistently indicate reduced anxiety levels across varying samples including children with social anxiety (Beauchemin, Hutchins, & Patterson, 2008), individuals with clinically treated anxiety disorders (Goldin & Gross, 2010), and individuals in the stressful role of caregiver (Shapiro, Brown, & Biegel, 2007). Thus, trait mindfulness may produce positive outcomes in lower stress situations, but state mindfulness may
be needed for high anxiety situations, such as sexual experiences, in order to achieve positive outcomes.

Sexual anxiety has a pernicious effect on sexual experience because it creates cognitive interference, which may affect arousal, sexual stimulation, and sexual distractibility (Barlow, 1986; Rosenbaum, 2013). However, mindfulness may provide a mechanism to reduce sexual anxiety and allow individuals to experience more awareness of their physical and emotional experience (Hofmann, Sawyer, Witt, & Oh, 2010; Kabat-Zinn, 1994; Miller, Fletcher, & Kabat-Zinn, 1995). Given the anxiety associated with sexuality, it is likely that state mindfulness may be more important than trait mindfulness for managing anxiety in this context. In particular, sexual mindfulness, a type of state mindfulness during a sexual experience, may account for anxiety or other distractions from mindfulness that occur specifically during sexual experiences. Because sexual mindfulness specifically addresses mindfulness within a sexual experience, a measure of sexual mindfulness may provide a more accurate understanding of how mindfulness is associated with relational and sexual outcomes than trait mindfulness measures.

The measurement of sexual mindfulness may provide additional information on how mindfulness contributes to relational and sexual satisfaction. Research indicates that mindfulness may benefit relationships by increasing positivity and decreasing negativity (Barnes et al., 2007). Mindful individuals experience open communication, feelings of interpersonal closeness, and lower anxiety, conflict, and negative emotion (Barnes et al., 2007). Sexual mindfulness examines mindfulness during a sexual experience and indicates the positivity (e.g. acceptance, nonjudgment) or negativity (emotional disconnection, judgment) during a sexual experience. A sexual mindfulness measure will benefit researchers and therapists in understanding and addressing factors that are associated with relational and sexual satisfaction. Examining
mindfulness within a sexual setting accounts for sexual anxiety, which may affect an individual’s state mindfulness.

The Present Studies

The study of mindfulness in sexual experiences is a new area of research. Studies examining mindfulness within sexual experiences have typically addressed women’s sexual dysfunction and how mindfulness may alleviate arousal or desire problems (Brotto, Basson, & Luria, 2008; Brotto, Seal, & Rellini, 2012). However, assessing trait mindfulness (e.g. The Five Facet Mindfulness Questionnaire, Baer et al., 2008; or Mindful Attention and Awareness Scale, Brown & Ryan, 2003) may not sufficiently evaluate state mindfulness, which may be important to consider for understanding mindfulness in sexual situations. Even individuals who exhibit high mindfulness in daily life may still have trouble demonstrating mindfulness during sexual experiences. Consequently, a better understanding of the connection between mindfulness and sexual experiences may require a specific sexual mindfulness measure that examines state mindfulness.

In the current three papers, I address the gap in how mindfulness is measured in sexual experiences. Specifically, I examine 1) the reliability and validity of the Sexual Mindfulness Measure, 2) how trait mindfulness and sexual mindfulness may moderate associations between desire discrepancies and relational and sexual satisfaction, and 3) cross-cultural differences of sexual health.

In this study I collect data from midlife, married, heterosexual samples for several reasons: (1) this study has relatively small samples and this restriction helps maintain similar demographics, such as age and relationship status across countries; (2) less is known about midlife sexuality than adolescent and young adult sexuality and midlife is a period of increased
sexual problems; and (3) cultural norms are such that cohabitation is highly controversial in Turkey, and same gender marriage is illegal in both Turkey and Ukraine. Therefore, the sample was limited to heterosexual, married individuals for consistency across culture.

**Paper one.** In the first paper, I examine the validity and reliability of a sexual mindfulness measure designed to evaluate mindfulness during sexual experiences. An individual may be mindful in his/her daily routine, yet the context of sex may present additional obstacles such as sexual anxiety, distraction, expectations of performance, sexual goals, inhibition, or self-criticism (McCabe et al., 2010). In other words, high trait mindfulness may be a necessary but not sufficient condition for exhibiting high sexual mindfulness. Consequently, a better understanding of the connection between sexual satisfaction and mindfulness may require a specific sexual mindfulness measure. I perform an exploratory factor analysis of the 28 sexual mindfulness items, which are based on the Five Facet Mindfulness Questionnaire. I determine the number of factors and remove any items that have strong cross-loadings. I also perform a confirmatory factor analysis to test for model fit for both men and women. I then test the construct and criterion validity and reliability of the measure.

**Paper two.** Desire discrepancy is the difference between how frequently an individual desires to have sex and how frequently the individual actually has sex. This mismatch represents how much *desire discrepancy* an individual experiences (Willoughby & Vitas, 2012). Individuals with greater desire discrepancy tend to be less satisfied with their relationships (Willoughby & Vitas, 2012). However, this association may vary based on an individual’s trait and/or state mindfulness. Mindful individuals use better emotional skills than less mindful individuals, and maintain a climate that allows for continued engagement in intimate emotional communication (Kozlowski, 2013; Wachs & Cordova, 2007). Therefore, in the second paper I
examine the moderating roles of trait and sexual mindfulness in the association between desire discrepancy and relational and sexual satisfaction.

Associations between sexual frequency and sexual satisfaction may differ by gender. For instance, the association between sexual frequency and sexual satisfaction may be stronger for men (Nicolosi et al., 2004; Simms & Byers, 2009). Women generally report less sexual desire than do men, which may lead to conflicts within the relationship (Basson, 2002). Therefore, I also examine potential gender differences in the association between desire discrepancy and relational satisfaction and sexual satisfaction.

**Paper three.** Broad aspects of culture such as individualism or collectivism, traditional and egalitarian gender dynamics, and religion may influence relational and sexual satisfaction. This third paper provides a descriptive, exploratory analysis to examine differences in sexual health across three cultures. I examine mean differences in sexual health variables in the U.S., Ukraine, and Turkey, as well as how these cultural differences may interact with gender. Specifically, I consider differences in kissing frequency, vaginal sex frequency, oral sex frequency (both giving and receiving), sexual communication, sexual mindfulness, relational satisfaction, and sexual satisfaction. This paper will provide a foundational understanding of differences between these three countries and can be used in future research to better understand relational and sexual satisfaction cross-culturally.

In cross-cultural cluster analysis examining sexual well-being of mid-life and older adults, Turkey fell into a group of countries with male-centered sexual practices, whereas the U.S. was considered to have gender equal sexual practices (Laumann et al., 2006). Turkish men and women reported lower physical and emotional pleasure than U.S. men and women (Laumann et al., 2006). Little is known about the sexual well-being of Ukrainian men and
women. Ukrainian men and women claim equality. However, the appearance of equality is generally considered a public façade; and, privately, attitudes toward women are profoundly sexist (Attwood, 1996). Ukrainian individuals report being generally satisfied with the frequency of their sexual experiences and feel that sex is important (Dean et al., 2013). These cultural and gender differences may impact sexual health.

These three papers contribute to the literature on relational and sexual satisfaction and mindfulness. Papers 1 and 2 examine the contributions of mindfulness and sexual mindfulness to relational and sexual satisfaction and Paper 3 examines means differences in sexual health variables cross-culturally. The Sexual Mindfulness Measure provides a useful tool for researchers and therapists by providing better measurement of mindfulness during a sexual experience than trait mindfulness. Across the three studies, I will demonstrate the SMM’s psychometric properties, examine how it contributes to relational and sexual satisfaction, and, in the context of a larger paper, examine how it varies by culture. Using the Sexual Mindfulness Measure, future researchers will be able to examine mindfulness within sexual contexts. Individuals who are sexually mindful may be equipped to attenuate the typically negative association between desire discrepancy and relational and sexual satisfaction. My research on desire discrepancy may inform therapists who work with individuals experiencing differences in desire and actual sex and provides a means to help moderate negative consequences. The cross-cultural research improves our understanding of cultural differences in sexual health for men and women in the U.S., Eastern Europe, and the Middle East, and expands our understanding of how culture may influence relationships and sexual experiences.
References


Chapter 2: Measuring Sexual Mindfulness in U.S. Men and Women

This paper will be a multiple-authored work. Chelom E. Leavitt will be the first author, and will fully draft the manuscript. Dr. Eva Lefkowitz will be co-author, and will help revise the final manuscript. We will submit this paper to Assessment.
Abstract

This study examined the reliability and validity of the Sexual Mindfulness Measure (SMM), which examines mindfulness within a sexual context. Midlife U.S. men and women (N = 194 married, heterosexual individuals; 50.7% female; 94% Caucasian, age range 35-60 years) participated in an online survey. The items in the SMM were based on the wording and the 5 factors of the Five Facet Mindfulness Questionnaire (FFMQ). Exploratory and confirmatory factor analysis indicated that the SMM is a two-factor measure (observation and non-judgment of experience). Both factors demonstrated acceptable reliability (Cronbach’s alpha) when examined separately by gender, age group (35-48 years old and 49-60 years old), relationship length (married < 10 years and married ≥ 10 years). The SMM factors were moderately correlated with trait mindfulness scales. In regression models, the SMM was significantly associated with relational and sexual satisfaction, above and beyond the associations of similar measures of trait mindfulness. The SMM provides a measure for researchers and clinicians to assess sexual mindfulness.
Measuring Sexual Mindfulness in a U.S. Sample of Men and Women

Maintaining a satisfying romantic relationship positively predicts physical and mental health (Braithwaite, Delevi, & Fincham, 2010; Williams, 2003). Sexual satisfaction is associated with relational satisfaction, general well-being, and stress management (Conger & Elder, 2006; Davison, Bell, LaChina, Holden, & Davis, 2009; Ein-Dor & Hirschberger, 2012; Yeh, Lorenz, Wickrama, Conger, & Elder, 2006). One recent consideration in the study of sexual satisfaction is mindfulness, or the ability to stay present, without judgment (Kabat-Zinn, 1990; Kabat-Zinn, 1994). Because sexual satisfaction is an important element of mutually satisfying relationships, researchers have begun to examine how mindfulness may contribute to individuals’ sexual functioning and satisfaction (e.g. Brotto & Heiman, 2007; Brotto, Seal, & Rellini, 2012), and couples’ relational satisfaction (Carson, Carson, Gil, & Baucom, 2004). Specifically, mindfulness may be a means for enhancing healthy sexual relationships through greater closeness (Lucus, 2012; McCarthy & Metz, 2008). Researchers and therapists use mindfulness to examine and address sexual problems such as desire, arousal, pain, and anxiety (Mize, 2015; Rosenbaum, 2013).

Mindfulness may be seen as a trait characteristic, an inherent disposition to be mindful, or a state characteristic, the level of mindfulness during particular interactions in daily life (Brown & Ryan, 2004). Research examining both trait and state mindfulness in romantic relationships demonstrates that individuals with higher trait mindfulness report better relational satisfaction and greater capacity to respond constructively during relationship stress (Barnes, Brown, Krusemark, Campbell, & Rogge 2007). In addition, individuals with higher state mindfulness have better communication during stressful conversations (Barnes et al., 2007). Sexual mindfulness, like state mindfulness, may provide a measure of the ability to remain mindful
during high anxiety contexts.

Researchers have used trait mindfulness measures, such as the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2008) and the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) to evaluate the association between mindfulness and sexual satisfaction. However, being mindful during a sexual experience may be more difficult to achieve than being mindful in other day-to-day experiences. Even individuals who are mindful in daily activities (such as while walking or in everyday conversations) may find it difficult to remain mindful during a sexual experience. That is, trait mindfulness may be necessary but not sufficient for achieving mindfulness during sexual experiences. Assessments of mindfulness specific to a sexual experience may be more useful for demonstrating associations between mindfulness and sexual and relational satisfaction than trait mindfulness measures. Therefore, in the current study we tested a measure of sexual mindfulness in a sample of adult men and women in the U.S.

**Mindfulness and Relationships**

Understanding what contributes to relational satisfaction is important for both researchers and clinicians. One such effort to identify features of satisfied couples is the work of Gottman. Gottman (2011) describes two features of long-term, satisfied couples: *turning toward* (e.g., being present, attentive, and available) and *not turning away* (e.g., remaining engaged, not allowing quick reaction or judgment). These two features are similar to the mindfulness domains of observation (turning toward) and non-judgment (not turning away). By practicing mindfulness, individuals can engage in an open, receptive attention to and awareness of the present, both internally and externally (Atkinson, 2013; Brown & Ryan, 2003; Kozlowski, 2013; Pruitt & Collum, 2010; Silverstein, Brown, Roth, & Britton, 2013). Much like the features Gottman describes, a mindful individual observes and makes no comparisons or judgment of the
present experience (Grossman, Niemann, Schmidt, & Walach, 2004). Individuals who engage in observation can give focused, moment-to-moment attention to their environment, feelings, and thoughts (Kabat-Zin, 1994). Similarly, when individuals engage in non-judgment they may interpret their environment through an uncritical or more approving lens instead of focusing on past or future activities or goals. Consequently, individuals who are mindful in their relationships are generally more satisfied with their relationships and experience less relationship stress (Barnes et al., 2007; Carson et al., 2004; Davis & Hayes, 2011).

Gottman’s (2011) features of turning toward and not turning away address relational satisfaction. In addition to relational satisfaction, at the individual level, mindfulness contributes to healthy psychological outcomes. Mindful individuals report better emotional intelligence, relationship acceptance, social skills, and perspective taking; and less conflict, stress, anxiety, distraction, inhibition, judgment, and self-criticism (Brown & Ryan, 2003; Carson, 2004; McCabe et al., 2010; Schutte, Malouff, & Bobik, 2001). Boorstein (1996) theorized that mindfulness skills encourage individuals to observe their thoughts and feelings without immediately reacting, which may be one mechanism for how mindfulness positively influences relationships. Thus, mindfulness supports healthier individual functioning.

**Mindfulness and Sexual Satisfaction**

Researchers have examined associations between mindfulness and relational satisfaction (e.g., Atkinson, 2013; Barnes et al., 2007; Carson et al., 2004; Davis & Hayes, 2011; Kozlowski, 2013; Pruitt & Collum, 2010). However, researchers have only begun to examine mindfulness within sexual experiences, and thus, measures specific to sexual mindfulness are not well established. Instead, most researchers have predicted relational and sexual satisfaction from trait mindfulness. Although trait mindfulness measures capture an individual’s use of mindfulness in
daily routines, these measures may not effectively evaluate mindfulness during a sexual experience. For instance, an individual may be mindful in his or her daily routine, yet sex may present additional obstacles such as sexual anxiety, sexual goals, or self-criticism (McCabe et al., 2010). Even individuals who are mindful in daily life may struggle to be mindful during a sexual experience. Consequently, a better understanding of the connection between mindfulness and sexual satisfaction may require a specific sexual mindfulness measure.

Anxiety is one of the most consistent sexual functioning issues for both men and women, affecting arousal, sexual stimulation, and distractibility (Barlow, 1986; Hofmann, Sawyer, Witt, & Oh, 2010; Kabat-Zinn, 1994; Laumann et al., 1999; Miller, Fletcher, & Kabat-Zinn, 1995; Rosenbaum, 2013). However, mindfulness may provide a mechanism to reduce anxiety and allow individuals to experience more awareness of their physical and emotional experience (Hofmann et al., 2010; Kabat-Zinn, 1994; Miller et al., 1995). Individuals’ practice of mindfulness may break cognitive interference and thereby reduce anxiety and stress in sexual relationships (Barnes et al., 2007; Brown & Ryan, 2003; Carson et al., 2007).

Research on associations between mindfulness and sexual experiences largely examines women’s sexual functioning, and generally their sexual dysfunction (e.g. Brotto & Barker, 2014; Brotto, Basson, & Luria, 2008; Brotto & Heiman, 2007; Brotto et al., 2012; Brotto & Woo, 2010). For instance, a twelve-week mindfulness intervention for women with sexual desire and arousal disorders lead to improved physical and psychological sexual functioning and decreased sexual distress (Brotto et al., 2008; Brotto et al., 2012; Mize, 2015; Rosenbaum, 2013; Silverstein et al., 2011). To our knowledge, no research has examined associations between mindfulness and men’s sexual functioning, although some non-empirical literature suggests that learning mindfulness may work to treat men’s erectile dysfunction (Baker & Absenger, 2013;
McCarthy & Metz, 2008).

A few studies examine how trait mindfulness relates to sexual experiences. For example, observe and non-judgment are the only two of the five factors of the FFMQ that are associated with sexual satisfaction (Khaddouma, Gordon, & Bolden, 2015). Another trait mindfulness measure (Langer, 2004) shows association with sexual motivation and sexual consciousness, yet is not related with other aspects of sexuality, including sexual satisfaction (Lazaridou & Kalogianni, 2013). These studies indicate that trait mindfulness may be associated with some, but not all, aspects of sexual experiences.

Using trait mindfulness measures to assess mindfulness during sex is limited because these measures cannot capture the socialized tendencies or anxieties that men and women may experience during sexual activities. For example, women often take a submissive sexual role by being more attentive to their partner’s pleasure than to their own (Sanchez, Kiefer, & Ybarra, 2006). Women who adhere to these gender norms may experience diminished arousal or heightened anxiety (Brotto et al., 2008; Sanchez et al., 2006). Women tend to be less aware of their physical arousal than men are, which may indicate fewer tendencies toward sexual mindfulness (Chivers, Seto, Lalumiere, Laan, & Grimbos, 2010). Consequently, even individuals who strive for mindful daily living may find mindful sexuality challenging. Women may struggle to remain attentive to their own sexual experience, and instead become overly focused on their partner’s sexual expectations (McCarthy & Wald, 2013). Men, too, are sexually socialized, and thus may feel pressure to be the more aggressive sexual partner. These tendencies and expectation could lead to reduced sexual mindfulness and increased performance anxiety (Siann, 2013; Waite, Laumann, Das, & Schumm, 2009). Trait mindfulness measures cannot capture these elements of sexual socialization that may impact mindfulness during a sexual experience.
In contrast, a sexual mindfulness measure could capture how observant or judgmental an individual is about his/her sexual arousal, sexual behaviors, desires, or thoughts.

**Developing a Sexual Mindfulness Measure**

Two commonly used trait mindfulness measures are the MAAS (Brown & Ryan, 2003) and the FFMQ (Baer et al., 2008). Both measures examine mindfulness within daily life experiences, such as walking, eating, or thinking. Although the MAAS is generally thought of as a one-factor measure, the FFMQ has five factors of mindfulness: observe, describe, aware, non-judgment, and non-reactivity.

It is possible that a measure of sexual mindfulness could assess five factors, like the FFMQ. On the other hand, a sexual mindfulness measure may only have two factors given that researchers have found that only two factors of the FFMQ, observe and non-judgment, are associated with sexual satisfaction (Khaddouma et al., 2015). Observation refers to the ability to notice and attend to internal and external sensations, feeling, and thoughts (Khaddouma et al., 2015). Non-judgment of experiences refers to the ability to take a non-evaluative attitude toward sensations, feelings, and thoughts (Khaddouma et al., 2015). Consequently, a sexual mindfulness measure may have five factors similar to the FFMQ, or may have only two factors: observation and non-judgment of experiences.

Recently, a team of researchers created a mindfulness measure with a sexual focus, the FFMQ-S (Adam, Heeren, Day, & de Sutter, 2015). Adam and colleagues (2015) used a French, college-aged, female sample to test their measure, demonstrating that the FFMQ-S had good psychometric properties and a structural validity comparable to the FFMQ. They also found that the FFMQ-S was associated with female sexual distress.

Adam and colleagues’ (2015) research also presents some questions, such as the number
of factors in the final measure and whether asking goal oriented questions captures a mindful state. Although they concluded that the FFMQ-S can be used as a five-factor model based on the FFMQ, the authors acknowledge that the subscales of non-judgment and non-reactivity exhibited lower reliability. They chose to maintain a 5-factor model similar to the FFMQ for conceptual reasons. However, it is also possible that an alternative solution to the FFMQ five-factor model would be a better fit for a sexual mindfulness measure. In addition, the FFMQ-S contains three questions that refer to reaching orgasm. The specific goal of orgasm may be contrary to a sexual experience high in mindfulness. Therefore, asking about reaching orgasm may compete with capturing mindfulness during sex and instead measure goal-oriented behavior.

A sexual mindfulness measure also needs to address sexual mindfulness across gender, age, and relationship length. In terms of gender, men may be oriented toward being the sexual aggressor or goal oriented (Siann, 2013), and women may focus on their partner’s pleasure rather than their own (Brotto & Barker, 2014; Sanchez et al., 2006). Thus, an important goal of understanding sexual mindfulness is to examine which factors of mindfulness are associated with relational and sexual satisfaction for men and women.

Other aspects to consider in assessing sexual mindfulness are participant age and marital length. Sexual experiences change as men and women age. Men experience increasing sexual problems with age (Waite et al., 2009). Some research also suggests that as people age they may become more mindful (Moushegian, 2015). Consequently, age may be an important factor to consider when developing a sexual mindfulness measure. In terms of marital length, research has long suggested a curvilinear association between length of marriage and relational satisfaction (VanLaningham, Johnson, & Amato, 2001). In fact, after the first 2 years of marriage, many individuals experience a steep decline in marital satisfaction until approximately 10 years of
marriage. Although satisfaction may continue to decline with marriage duration, the decline is less pronounced than in this earlier part of marriage (VanLaningham et al., 2001).

**The Present Study**

In the present study, we evaluate a brief sexual mindfulness measure, the Sexual Mindfulness Measure (SMM), based on the FFMQ. As much as possible, we maintained the wording of items from the FFMQ in developing the SMM. The SMM contains questions from each of the five factors of mindfulness (observe, describe, aware, non-judgment, and non-reactivity). Our aims were to examine the reliability and validity of the SMM. Specifically, we predicted:

1. **Reliability:** The SMM would have a five-factor structure similar to the FFMQ. Alternatively, the SMM would have a two-factor structure, with the two factors representing observation and non-judgment of experience.

2. **Sub-group reliability:** The SMM would demonstrate acceptable reliability across sub-groups that vary by gender, age, and relationship length.

3. **Convergent validity:** The SMM would be moderately correlated with trait mindfulness.

4. **Criterion validity:** The SMM would be associated with relational and sexual satisfaction, self-esteem, and emotional regulation above and beyond the associations of trait mindfulness.

**Methods**

**Participants and Procedures**

Midlife men and women (N = 320 married, heterosexual individuals) accepted invitations to participate in a study through a survey link on the authors’ and colleagues’ Facebook pages or were recruited through paid advertisements on Facebook. We also used snowball sampling;
individuals who completed the survey could share the survey with others. Participation was voluntary and required informed consent. As compensation, participants could enter their name in a drawing for one of four $50 gift certificates. Screening questions asked if the participant was in the target age range of 35-60, married for at least 2 years, not pregnant, lived in the U.S., and spoke English. Despite these screening questions, four participants who completed the survey reported ages outside the target range and we therefore excluded them from the study. Because not all participants answered all questions, data on key variables were missing for some participants. Rates of missing data were higher on questions about sexual behavior.

Participants’ ages ranged from 35 to 60 years old ($M = 45.3, SD = 6.01$). Ninety-four percent of participants were Caucasian. Approximately half of the participants were female (50.70%); 79.9% of participants reported being Christian, 4.4% Jewish, 2.3% another religion (Hindu, Muslim, and Pagan), and 13.4% reported not being religious. Individuals reported their household income in the following categories: less than $30,000 (2.3%), $30,000 to $60,000 (9.8%), $60,001 to $120,000 (35.7%), and over $120,000 (52.2%). When asked to rate their general health, 82.6% of participants rated their health as quite good or very good, 14.4% as neither good nor poor, and 3.0% as quite poor or very poor. Ratings of partner’s health were similar, with 79.9% as very good or quite good, 16.1% as neither good nor poor, and 4.0% as quite poor or very poor. Participants reported being married between 2 and 42 years and the average reported marriage length was 18.4 years ($SD = 8.69$).

We tested for differences between the analytic sample ($N= 194$) and participants excluded from analyses due to missing data ($N= 122$) to compare participants who finished the survey and participants who did not using independent $t$-tests of age, income, marriage length, and health. The groups did not significantly differ on any variables. We also performed a $\chi^2$ test comparing
the groups by gender, which was not significant.

**Measures**

**Trait Mindfulness.** The Five Facet Mindfulness Questionnaire (FFMQ, Baer et al., 2008) is a 39-item scale that measures five factors of mindfulness. The FFMQ includes questions such as “I pay attention to sounds such as clocks ticking, birds chirping or cars passing.” Participants respond using a 5-point scale ranging from 1 (*never or rarely true*) to 5 (*very often or always true*). Reliability in the current sample was good for women/men (observe, $\alpha = .78/.83$; describe $\alpha = .88/.89$; aware $\alpha = .83/.82$; non-judgment $\alpha = .90/.88$; non-reactivity $\alpha = .69/.72$).

The Mindful Attention Awareness Scale (MAAS, Brown & Ryan, 2003) contains 15 items and is considered a one-factor measure of mindfulness. The MAAS includes questions such as “I do jobs or tasks automatically, without being aware of what I’m doing.” The response options are coded with higher scores indicating higher mindfulness. Participants respond using a 6-point scale ranging from 1 (*almost always*) to 6 (*never*). The MAAS demonstrated good reliability in this sample ($\alpha = .87$ women, .79 men).

**Sexual Satisfaction.** The New Sexual Satisfaction Scale (NSSS, Štulhofer, Buško, & Brouillard, 2010) is a 12-item measure of how satisfied an individual is with his/her sexual experience. The stem question for all items is “Thinking about your sex life during the last six months, please rate your satisfaction with the following aspects.” An example item is “The quality of my orgasms.” Participants respond using a 5-point scale from 1 (*not at all satisfied*) to 5 (*extremely satisfied*). Reliability in the current sample was good ($\alpha = .94$ women, .91 men).

**Relational Satisfaction.** The Couple Satisfaction Index (CSI, Funk, & Rogge, 2007) is a 4-item measure designed to assess individual satisfaction within relationships. Scales vary by
item. An example question is “Please indicate the degree of happiness, all things considered, in your relationship.” This question uses a 7-point scale, from 0 (extremely unhappy) to 6 (perfect). The CSI demonstrated good reliability (α = .82 women, .79 men).

**Emotional Regulation.** The Emotional Regulation Questionnaire (ERQ, Gross & John, 2003) is a 10-item scale of two aspects of regulation of emotions: cognitive reappraisal and expressive suppression. An example question is “When I am feeling positive emotions, I am careful not to express them.” Participants answer using a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Both dimensions of the ERQ demonstrated good reliability for women/men (cognitive reappraisal, αs = .84/.83; expressive suppression, αs = .75/.81).

**Self-Esteem.** The Rosenberg Self-Esteem scale (RSE, Rosenberg, 1979) is a 10-item scale designed to measure self-esteem. An example question is “On the whole, I am satisfied with myself.” Participants answer on a 4-point scale ranging from 1 (strongly agree) to 4 (strongly disagree). The reliability of the RSE was good (α = .92 women, .89 men).

**Sexual Mindfulness Measure.** We developed the Sexual Mindfulness Measure (SMM) based on the FFMQ and using similar wording, but specifically focused on mindfulness within a sexual experience. To allow for a 5 factor structure, we included questions from each of the 5 factors of the FFMQ in the 28 original SMM questions (see Table 2.1). Participants respond using a 5-point scale ranging from 1 (never or rarely true) to 5 (very often or always true).

**Analysis Plan** To address our research aims, we first perform an exploratory factor analysis to evaluate the number of factors in the SMM. Next, we perform a confirmatory factor analysis based on the exploratory factor analysis to assess model fit based on these factors. We then examine Cronbach’s alphas for each factor separately by gender, age group, and marriage length group. Next, we examine construct validity by examining the correlation between the SMM and
the two trait mindfulness measures, the MAAS and the FFMQ. To examine criterion-related validity we examine whether the SMM demonstrates similar magnitude of association as the MAAS and the FFMQ with relational and sexual satisfaction, self-esteem, and emotional regulation. Lastly, we test whether the SMM has explanatory power above trait mindfulness using a series of regressions predicting relational and sexual satisfaction, self-esteem, and emotional regulation.

Results

Table 2.1 presents the initial list of items and the original questions from the FFMQ. To test the first hypothesis, whether the SMM had a two-factor structure, we performed exploratory factor analysis. We initially used Varimax rotation. Varimax assumes the factors are orthogonal, but to allow for realistic occurrence of some correlation in factors, we then used Promax rotation with Kaiser normalization (Matsunaga, 2011). The rotations converged in three iterations. The loadings were similar when using both Varimax and Promax rotation. The scree plot indicated two strong factors for sexual mindfulness (see Figure 2.1). We then constrained the items to load onto two factors. Table 2.2 presents the loadings for each item. Items that had crossloadings above .15 on both factors were eliminated. We based our decisions to eliminate items on suggestions from previous research indicating large differences in primary and secondary factor loading discrepancies are best (Matsunaga, 2011). Research indicates that a loading of .40 is the lowest acceptable loading and .50 to .60 is preferred (Matsunaga, 2011). We used a loading threshold of .55 as a midpoint between the preferred loading ranges.

To examine model fit, we used a Structural Equation Model (SEM) to measure the strength of each loading separately by gender, by age group, and by marital length. Based on the gender SEM, we identified which items did not contribute to the strength of the overall model
(observation 1, 7, 14, 15, 16, 18, 19; non-judgment of experience 22, 23, 26) and could be removed. We used modification indices on the gender SEM to help determine items that could be eliminated to maintain model fit and acceptable reliability. The items with acceptable loadings and model fit for the factor observation were items 3, 8, 9, and 11 and for non-judgment of experience were items 25, 27, and 28. Model fit was acceptable, \( \chi^2 = 40.816, p = .056; \) RMSEA = .038, CFI = .956. Standardized and unstandardized estimates for each item are found in Table 2.3. The model fit did not significantly worsen when we constrained the estimate paths to be equal across gender (change in \( \chi^2 = 6.676, p = .246, df \) change = 5). The path for item 3 was significantly stronger for women (B = .699) than for men (B = .398) (z = 1.97, p < .05), although both are significant. This statistic indicates that although item 3 is an important indicator of observation for both men and women, it is more strongly weighted for women. In two subsequent models we constrained the estimate paths to be equal across age (change in Chi-square = 1.996, p = .850, df change = 5), and relationship length (change in \( \chi^2 = .897, p = .970, df \) change = 5) and found no significant differences. The appendix provides a final list of items in the SMM.

To test Hypothesis 2, we calculated alpha separately by gender, age group (35-48 years old and 49-60 years old), and relationship length (married < 10 years and married \( \geq 10 \) years) (see Table 2.4). We chose the division of relationship length at 10 years because declines in relational satisfaction and risk of divorce significantly flatten or decrease around 10 years of marriage (Bramlett & Mosher, 2001; VanLaningham et al., 2001) Alphas for gender, age, and marriage category indicated acceptable reliability in all sub-groups (\( \alpha s = .69 \) to .81; see Table 2.4).

To test Hypothesis 3, construct validity, we examined how associations between the SMM
factors and two measures of trait mindfulness, the FFMQ and the MAAS (see Table 2.5). The SMM factor of observation was positively associated with the FFMQ factors of observe and describe. The SMM factor of non-judgment of experience was positively associated with the MAAS, and the FFMQ factors describe, aware, non-judge, non-reactivity. Overall, these correlations were small to moderate, in the range of $r = .16 -.44$. Thus, there was support for construct validity of the SMM.

Hypothesis 4 examined criterion-related validity. We tested criterion-related validity in two ways. First, we examined correlations of the SMM, FFMQ, and MAAS with relational and sexual satisfaction, self-esteem, and emotional regulation. The SMM has similar positive correlations with relational and sexual satisfaction, self-esteem, and cognitive reappraisal as the FFMQ and MAAS (Table 2.6). The SMM has similar negative correlations with expressive suppression as the FFMQ and MAAS.

To test whether the SMM explained variance in these constructs above and beyond trait mindfulness, we performed a regression. In Step 1, we entered the observe and non-judgment factors from the FFMQ, and the MAAS. In Step 2, we entered the SMM factors observation and non-judgment of experience. In 3 of the 5 regressions, one of the SMM factors was associated with the measures of individual and relational functioning after accounting for trait mindfulness (Table 2.7). Specifically, individuals higher in sexual mindfulness reported being more satisfied with their sexual relationships, having better self-esteem and less expression suppression.

**Discussion**

The main goal of this research was to develop and evaluate a measure of sexual mindfulness, the SMM. As predicted, we found that the SMM had a two-factor structure. We also found the SMM demonstrated acceptable reliability for varying age categories, gender and
relationship lengths. The SMM was positively associated with relational satisfaction, sexual satisfaction, self-esteem, and emotional regulation. Finally, as predicted, we found that the SMM was associated with individual and relational outcomes above and beyond the FFMQ and MAAS.

**SMM Reliability**

Like the FFMQ, the SMM showed acceptable reliability. However, the SMM had only a two-factor structure: observation and non-judgment of experience. In earlier work, Khaddouma and colleagues (2015) found that observe and non-judgment, two of the five factors of the FFMQ, were associated with sexual satisfaction, but other FFMQ factors were not. These two sexual mindfulness factors help us better conceptualize how mindfulness contributes to positive relational and sexual satisfaction. The two factors, observation and non-judgment of experience, had similar features to Gottman’s (2011) two features of a healthy relationship: *turning toward* (e.g. being present, attentive, and available) and *not turning away* (e.g. remaining engaged, not allowing quick reaction or judgment). Observation, like *turning toward*, encourages individuals to remain engaged in and aware of their relationship and sexual experience, whereas, non-judgment of experience, like *not turning away*, curtails behavior that is reactive or disapproving. Identifying these two factors allows researchers to examine the two aspects of sexual mindfulness, observation and non-judgment of experiences, and their associations with relational and sexual outcomes. Clinicians may emphasize the need for these skills with clients and explore how to practice being more aware and attentive to sexual arousal or sensations, while also letting go of judgmental assessments or goals.

In prior work, Adams and colleagues (2015) tested a measure of sexual mindfulness on college-aged women. To the best of our knowledge, the SMM is the first measure of sexual
mindfulness tested with both men and women, and across different age groups and marital lengths. The two factors of the SMM demonstrated acceptable reliability for both men and women, across the midlife years, and at longer and shorter marital lengths. It is important for a sexual mindfulness measure to demonstrate reliability in midlife populations because mindfulness may affect many of the sexual problems, such as erectile dysfunction and female arousal problems (Leavitt & Lefkowitz, ahead of print; Rosenbaum, 2013), which are particularly relevant during midlife.

**SMM Validity**

The SMM also demonstrated convergent validity, in that both factors of the SMM were positively associated with two different trait mindfulness measures. These associations, however, were rather modest, suggesting that sexual mindfulness is associated with, but distinct from, trait mindfulness. Although mindfulness measures may overlap they also provide unique contributions due to how they are conceptualized and what specific elements of mindfulness they emphasize (Brown & Ryan, 2003; Langer, 2004). Thus, the measure of sexual mindfulness is not redundant with existing measures of trait mindfulness, but instead, measures a distinct construct.

Past research indicates that trait mindfulness is associated with higher self-esteem, relational and sexual satisfaction, and emotional regulation, (Arch & Craske, 2006; Brown & Ryan, 2003; Carson et al., 2004; Khaddouma et al., 2015). In this study, we demonstrate that sexual mindfulness provides additional explanatory power in these individual and relationship outcomes above and beyond trait mindfulness. Specifically, individuals who report more sexual mindfulness tend to be more satisfied with aspects of their individual functioning and their sexual lives. This finding suggests that individuals’ ability to stay focused on their sexual experience and avoid self-judgment or partner-judgment is uniquely associated with their sexual
satisfaction.

Prior work indicates that state mindfulness is associated with improved communication, lower anxiety, and greater relational satisfaction (Barnes et al., 2007; Brown & Ryan, 2004; Carson et al., 2004). Thus, sexual mindfulness, a type of state mindfulness, is likely associated with less anxiety during sex and better relational and sexual satisfaction. This is particularly useful for clinicians who are trying to treat romantic or sexual relationships. Clinicians can teach the skills of observation and non-judgment of experiences. As individuals eliminate the need for goal-oriented sex or the tendency to criticize or disapprove of their thoughts or behaviors during sex, they will likely feel less sexual anxiety and more satisfaction in their sexual lives. Therefore, interventions aiming to improve relational and/or sexual satisfaction may benefit from employing the sexual mindfulness skills of observation and non-judgment of experience.

**Limitations and future directions**

Although this study helped to identify the two aspects of sexual mindfulness, observation and non-judgment of experience, this study has some limitations. First, our sample included midlife adults who were heterosexual, married, predominantly white, high SES, physically healthy, and generally satisfied in their relationships. Research needs to examine whether these findings are generalizable to more diverse samples that include cohabiting individuals, LGBT individuals, racially/ethnically diverse couples, couples in early and late adulthood, or couples who have additional stressors such as lower SES, higher conflict in their relationship, or poor health. Mindfulness in these samples may moderate differently due to higher stress levels.

Second, we collected data from online self-report measures, which is not demographically representative (Szolnoki & Hoffmann, 2013). Future research should examine the reliability and validity of the SMM in representative samples with different participant
recruitment methods.

Third, our sample included only one person per relationship, but future research could collect couple-level data. In that sex is a partnered activity, a partner’s level of mindfulness may also be associated with the individual’s improved relational and sexual functioning. Dyadic data could examine the connection of the partner’s mindfulness on an individual’s relational and sexual functioning.

Although we demonstrated reliability, construct, and criterion-related validity, future steps in testing the SMM could include both collecting data on the same sample multiple times to assess test-retest reliability, and measuring physical outcomes. Given that sexual mindfulness is likely a state, not trait indicator of mindfulness, a test-retest design would help establish the stability of state mindfulness. The SMM could also be used in conjunction with physical aspects of sexual arousal such as lubrication or vaginal pulse monitor for women, or a plethysmograph for men, which would allow for more objective measures. For example, interventions that taught sexual mindfulness could examine changes in SMM and correlated changes in objective physical arousal measurements.

Future research should also consider the use of sexual mindfulness in interventions. Individuals trained in trait mindfulness are more aware of their sexual arousal and desire, and feel less sexual distress (Brotto & Basson, 2014; Brotto et al., 2012). Consequently, training individuals in the sexual mindfulness aspects of observation and non-judgment of experience may improve their mindfulness skills and allow them to remain sexually mindful despite anxiety or other distractions that occur during sexual activity. Addressing an individual’s sexual mindfulness will contribute to interventions aimed at improving relationships or sexual functioning or sexual satisfaction.
In conclusion, this study demonstrated the reliability and validity of a new measure of sexual mindfulness. The SMM has two factors, observation and non-judgment of experiences. Maintaining mindfulness within a sexual experience may not be as simple as improving meditation skills within a daily context and instead may require a more specific focus on mindfulness in sexual situations. Thus, the SMM could help researchers and/or clinicians identify whether people struggle with the sexual mindfulness aspects of observation and non-judgment of experiences during sex. Identification of these factors may then allow clinicians to help individuals improve these mindfulness skills.
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Behavior, 44, 470-487.
Table 2.1

**Sexual mindfulness items, original FFMQ questions, and factors**

<table>
<thead>
<tr>
<th>Sexual Mindfulness Measure items</th>
<th>Original FFMQ question</th>
<th>FFMQ factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When I have a sexual sensation in my body, it’s difficult for me to describe it because I can’t find the right words.</td>
<td>1. When I have a sensation in my body, it’s difficult for me to describe it because I can’t find the right words.</td>
<td>D</td>
</tr>
<tr>
<td>2. It seems I am “running on automatic” when I have sex without much awareness of what I’m doing.</td>
<td>2. It seems I am “running on automatic” without much awareness of what I’m doing.</td>
<td>A</td>
</tr>
<tr>
<td>3. I pay attention to sexual sensations.</td>
<td>3. I pay attention to sensations, such as the wind in my hair or sun on my face.</td>
<td>O</td>
</tr>
<tr>
<td>4. I have trouble thinking of the right words to express how I feel about sex.</td>
<td>4. I have trouble thinking of the right words to express how I feel about things.</td>
<td>D</td>
</tr>
<tr>
<td>5. I find it difficult to stay focused when I’m having sex.</td>
<td>5. I’m easily distracted</td>
<td>A</td>
</tr>
<tr>
<td>6. When I have distressing thoughts about my sexual performance during sex, I “step back” and am aware of the thought without getting taken over by it.</td>
<td>6. When I have distressing thoughts or images, I “step back” and am aware of the thought or image without getting taken over by it.</td>
<td>NR</td>
</tr>
<tr>
<td>7. My natural tendency is to put my sexual experience into words.</td>
<td>7. My natural tendency is to put my experiences into words.</td>
<td>D</td>
</tr>
<tr>
<td>8. I pay attention to how sex affects my thoughts and behavior.</td>
<td>8. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.</td>
<td>A</td>
</tr>
<tr>
<td>9. I can usually describe how I feel sexually at the moment in considerable detail.</td>
<td>9. I can usually describe how I feel at the moment in considerable detail.</td>
<td>D</td>
</tr>
<tr>
<td>10. I find myself having sex without paying attention.</td>
<td>10. I find myself doing things without paying attention.</td>
<td>O</td>
</tr>
<tr>
<td>11. I pay attention to my emotions during sex.</td>
<td>11. I pay attention to how my emotions affect my thoughts and behavior.</td>
<td>O</td>
</tr>
<tr>
<td>12. During sex, I make judgments about whether my sexual performance or thoughts are good or bad.</td>
<td>12. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.</td>
<td>NJ</td>
</tr>
<tr>
<td>13. When I have sex my mind wanders off and I am easily distracted.</td>
<td>13. When I do things, my mind wanders off and I’m easily distracted.</td>
<td>A</td>
</tr>
<tr>
<td>14. I pay attention to my sexual arousal.</td>
<td>14. I pay attention to sensations, such as the wind in</td>
<td>O</td>
</tr>
<tr>
<td>Sexual Mindfulness Measure items</td>
<td>Original FFMQ question</td>
<td>FFMQ factor</td>
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<tr>
<td>---------------------------------</td>
<td>------------------------</td>
<td>-------------</td>
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<tr>
<td>15. I purposely try to slow down my arousal during sex so that I can be more aware of my feelings.</td>
<td>my hair or sun on my face.</td>
<td>A</td>
</tr>
<tr>
<td>16. I like to describe my sexual arousal to my partner.</td>
<td>15. I watch my feelings without getting lost in them.</td>
<td></td>
</tr>
<tr>
<td>17. During sex, I enjoy paying attention to all the sensations in my body.</td>
<td>16. I have trouble thinking of the right words to express how I feel about things.</td>
<td></td>
</tr>
<tr>
<td>18. During sex, I notice how my partner feels, smells, or tastes.</td>
<td>17. I pay attention to sensations, such as the wind in my hair or sun on my face.</td>
<td></td>
</tr>
<tr>
<td>19. I try to eliminate distractions before engaging in sex.</td>
<td>18. I notice the smells and aromas of things.</td>
<td></td>
</tr>
<tr>
<td>20. I notice when my mind wanders during sex and bring it back to the moment.</td>
<td>19. When I do things, my mind wanders off and I’m easily distracted.</td>
<td></td>
</tr>
<tr>
<td>21. When I feel anxious about sex I am able just to notice my feelings without reacting.</td>
<td>20. When I do things, my mind wanders off and I’m easily distracted.</td>
<td></td>
</tr>
<tr>
<td>22. I believe some of my sexual thoughts are abnormal or bad and I shouldn't think that way.</td>
<td>21. In difficult situations, I can pause without immediately reacting.</td>
<td></td>
</tr>
<tr>
<td>23. I make judgments about whether my sexual thoughts are good or bad.</td>
<td>22. I tell myself that I shouldn’t be thinking the way I’m thinking.</td>
<td></td>
</tr>
<tr>
<td>24. When I have anxious sexual thoughts, I just notice them and let them go.</td>
<td>23. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.</td>
<td></td>
</tr>
<tr>
<td>25. During sex, I sometimes get distracted by evaluating myself or my partner.</td>
<td>24. When I have distressing thoughts or images, I just notice them and let them go.</td>
<td></td>
</tr>
<tr>
<td>26. I often wonder what others would think about my sexual behaviors.</td>
<td>25. I think some of my emotions are bad or inappropriate and I shouldn’t feel them.</td>
<td></td>
</tr>
<tr>
<td>27. During sex, I sometimes get tense when I have a thought I'm not comfortable with.</td>
<td>26. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.</td>
<td></td>
</tr>
<tr>
<td>28. Sometimes when I get a certain thought in my head, it ruins the whole sexual experience.</td>
<td>27. When I have distressing thoughts or images I am able just to notice them without reacting.</td>
<td></td>
</tr>
<tr>
<td>29. Sometimes when I get a certain feeling in my head, it ruins the whole sexual experience.</td>
<td>28. When I have distressing thoughts or images, I just notice them and let them go.</td>
<td></td>
</tr>
</tbody>
</table>

Note: O = Observe, D = Describe, A = Aware, NR = Non-reactive, NJ = Non-judgment
Table 2.2

*SMM factor loadings*

<table>
<thead>
<tr>
<th>SMM Items</th>
<th>Observation</th>
<th>Non-Judgment of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When I have a sexual sensation in my body, it’s difficult for me to</td>
<td>.473</td>
<td>.145</td>
</tr>
<tr>
<td>describe it because I can’t find the right words.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. ^ It seems I am “running on automatic” when I have sex without much</td>
<td>.586</td>
<td>.244</td>
</tr>
<tr>
<td>awareness of what I’m doing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. ✓ I pay attention to sexual sensations.</td>
<td>.633</td>
<td>.013</td>
</tr>
<tr>
<td>4. ^ I have trouble thinking of the right words to express how I feel</td>
<td>.495</td>
<td>.216</td>
</tr>
<tr>
<td>about sex.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. ^ I find it difficult to stay focused when I’m having sex.</td>
<td>.460</td>
<td>.318</td>
</tr>
<tr>
<td>6. ^ When I have distressing thoughts about my sexual performance during</td>
<td>.159</td>
<td>- .226</td>
</tr>
<tr>
<td>sex, I “step back” and am aware of the thought without getting taken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>over by them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. ✓ My natural tendency is to put my sexual experience into words.</td>
<td>.621</td>
<td>-.159</td>
</tr>
<tr>
<td>8. ✓ I pay attention to how sex affects my thoughts and behavior.</td>
<td>.743</td>
<td>-.320</td>
</tr>
<tr>
<td>9. ✓ I can usually describe how I feel sexually at the moment in</td>
<td>.734</td>
<td>-.090</td>
</tr>
<tr>
<td>considerable detail.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. ^ I find myself having sex without paying attention</td>
<td>.474</td>
<td>.381</td>
</tr>
<tr>
<td>11. ✓ I pay attention to my emotions during sex.</td>
<td>.679</td>
<td>-.083</td>
</tr>
<tr>
<td>12. ^ During sex, I make judgments about whether my sexual performance</td>
<td>-.383</td>
<td>.526</td>
</tr>
<tr>
<td>or thoughts are good or bad.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. ^ When I have sex my mind wanders off and I am easily distracted</td>
<td>.341</td>
<td>.416</td>
</tr>
<tr>
<td>14. I pay attention to my sexual arousal.</td>
<td>.535</td>
<td>.040</td>
</tr>
<tr>
<td>15. I purposely try to slow down my arousal during sex so that I can</td>
<td>.416</td>
<td>-.086</td>
</tr>
<tr>
<td>be more aware of my feelings.</td>
<td></td>
<td></td>
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<tr>
<td>16. I like to describe my sexual arousal to my partner.</td>
<td>.517</td>
<td>-.032</td>
</tr>
<tr>
<td>17. ✓ During sex, I enjoy paying attention to all the sensations in my</td>
<td>.680</td>
<td>.059</td>
</tr>
<tr>
<td>body.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. During sex, I notice how my partner feels, smells, or tastes.</td>
<td>.527</td>
<td>.171</td>
</tr>
<tr>
<td>19. I try to eliminate distractions before engaging in sex.</td>
<td>.452</td>
<td>-.022</td>
</tr>
<tr>
<td>20. ^ I notice when my mind wanders during sex and bring it back to the</td>
<td>.470</td>
<td>-.230</td>
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<tr>
<td>moment.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
21. When I feel anxious about sex I am able just to notice my feelings without reacting.
   \( r = .337 \)  \(- .190 \)

22. I believe some of my sexual thoughts are abnormal or bad and I shouldn't think that way.
   \( r = .023 \)  \(.531 \)

23. I make judgments about whether my sexual thoughts are good or bad.
   \( r = -.116 \)  \(.616 \)

24. When I have anxious sexual thoughts, I just notice them and let them go.
   \( r = .296 \)  \(- .201 \)

25. During sex, I sometimes get distracted by evaluating myself or my partner.
   \( r = -.067 \)  \(.645 \)

26. I often wonder what others would think about my sexual behaviors
   \( r = -.110 \)  \(.641 \)

27. During sex, I sometimes get tense when I have a thought I'm not comfortable with
   \( r = -.022 \)  \(.733 \)

28. Sometimes when I get a certain thought in my head, it ruins the whole sexual experience.
   \( r = .006 \)  \(.575 \)

Note: ^Items eliminated for cross-loading. ✓ items loading above .55 with large differential between crossloadings on factor 1 and factor 2 for observation, from the EFA. +Items loading above .55 with large differential between crossloadings on factor 1 and factor 2 for non-judgment of experience from the EFA.
Table 2.3

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unstandardized</th>
<th>Standardized</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Observation -&gt; item 3</strong></td>
<td>0.49 (.15)</td>
<td>.40</td>
<td>.001</td>
</tr>
<tr>
<td><strong>Observation -&gt; item 8</strong></td>
<td>1.00</td>
<td>.70</td>
<td>.001</td>
</tr>
<tr>
<td><strong>Observation -&gt; item 9</strong></td>
<td>1.18 (.24)</td>
<td>.80</td>
<td>.001</td>
</tr>
<tr>
<td><strong>Observation -&gt; item 11</strong></td>
<td>0.86 (.19)</td>
<td>.57</td>
<td>.001</td>
</tr>
<tr>
<td><strong>Observation -&gt; item 3</strong></td>
<td>0.96 (.18)</td>
<td>.70</td>
<td>.001</td>
</tr>
<tr>
<td><strong>Observation -&gt; item 8</strong></td>
<td>1.00</td>
<td>.64</td>
<td>.001</td>
</tr>
<tr>
<td><strong>Observation -&gt; item 9</strong></td>
<td>1.09 (.21)</td>
<td>.69</td>
<td>.001</td>
</tr>
<tr>
<td><strong>Observation -&gt; item 11</strong></td>
<td>1.05 (.19)</td>
<td>.76</td>
<td>.001</td>
</tr>
<tr>
<td><strong>Non-judgment -&gt; item 25</strong></td>
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<td>.53</td>
<td>.001</td>
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<tr>
<td><strong>Non-judgment -&gt; item 27</strong></td>
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<td>.87</td>
<td>.001</td>
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<tr>
<td><strong>Non-judgment -&gt; item 28</strong></td>
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<td>.62</td>
<td>.001</td>
</tr>
<tr>
<td><strong>Non-judgment -&gt; item 25</strong></td>
<td>1.00</td>
<td>.68</td>
<td>.001</td>
</tr>
<tr>
<td><strong>Non-judgment -&gt; item 27</strong></td>
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<td>.85</td>
<td>.001</td>
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<tr>
<td><strong>Non-judgment -&gt; item 28</strong></td>
<td>0.92 (.20)</td>
<td>.58</td>
<td>.001</td>
</tr>
</tbody>
</table>

*Note: N = 194; $\chi^2 (28) = 40.82, p = .06; CFI = .96; RMSEA = .04*
Table 2.4

*Cronbach’s alpha scores by, gender, age group, and marriage length group (N = 194)*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>SMM observation</th>
<th>SMM non-judgment of experience</th>
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</thead>
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<td>Male</td>
<td>95</td>
<td>.71</td>
<td>.70</td>
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<tr>
<td>Female</td>
<td>99</td>
<td>.78</td>
<td>.74</td>
</tr>
<tr>
<td>Age 35-48</td>
<td>130</td>
<td>.73</td>
<td>.72</td>
</tr>
<tr>
<td>Age 49-60</td>
<td>64</td>
<td>.77</td>
<td>.73</td>
</tr>
<tr>
<td>Married &lt;10</td>
<td>37</td>
<td>.81</td>
<td>.69</td>
</tr>
<tr>
<td>Married ≥10</td>
<td>157</td>
<td>.73</td>
<td>.73</td>
</tr>
</tbody>
</table>
### Table 2.5

**Construct validity. Correlations of SMM Factors with MAAS and FFMQ**

<table>
<thead>
<tr>
<th></th>
<th>Observation</th>
<th>Non-judgment of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAAS</td>
<td>.13</td>
<td>.38**</td>
</tr>
<tr>
<td>FFMQ observe</td>
<td>.46**</td>
<td>.01</td>
</tr>
<tr>
<td>FFMQ describe</td>
<td>.33**</td>
<td>.17*</td>
</tr>
<tr>
<td>FFMQ aware</td>
<td>.05</td>
<td>.32**</td>
</tr>
<tr>
<td>FFMQ non-judgment</td>
<td>-.02</td>
<td>.49**</td>
</tr>
<tr>
<td>FFMQ non-reactivity</td>
<td>.07</td>
<td>.15*</td>
</tr>
</tbody>
</table>

*N=193-194 variation is due to missing data; *p < .05; **p < .01*
Table 2.6

*Criterion validity: Correlations of trait and sexual mindfulness with relational and sexual satisfaction, self-esteem, and emotional regulation.*

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Relational satisfaction</th>
<th>Sexual satisfaction</th>
<th>Self-esteeom</th>
<th>Emotional regulation-cognitive reappraisal</th>
<th>Emotional regulation-expressive suppression</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMM observation</td>
<td>-.03</td>
<td>.19**</td>
<td>-.01</td>
<td>.16*</td>
<td>-.22**</td>
</tr>
<tr>
<td>SMM non-judgment of experience</td>
<td>.19**</td>
<td>.31**</td>
<td>.34**</td>
<td>.05</td>
<td>-.05</td>
</tr>
<tr>
<td>MAAS</td>
<td>.13</td>
<td>.22**</td>
<td>.32**</td>
<td>.16*</td>
<td>-.11</td>
</tr>
<tr>
<td>FFMQ observe</td>
<td>-.01</td>
<td>.18*</td>
<td>.09</td>
<td>.12</td>
<td>-.22**</td>
</tr>
<tr>
<td>FFMQ describe</td>
<td>.00</td>
<td>.14*</td>
<td>.19**</td>
<td>.06</td>
<td>-.45**</td>
</tr>
<tr>
<td>FFMQ aware</td>
<td>.10</td>
<td>.12</td>
<td>.22**</td>
<td>.11</td>
<td>-.06</td>
</tr>
<tr>
<td>FFMQ non-judgment</td>
<td>.12</td>
<td>.22**</td>
<td>.38**</td>
<td>-.02</td>
<td>-.15**</td>
</tr>
<tr>
<td>FFMQ non-react</td>
<td>-.01</td>
<td>.09</td>
<td>.26**</td>
<td>.23**</td>
<td>.16*</td>
</tr>
</tbody>
</table>

*N=189-194 variation is due to missing data; * p < .05; ** p < .01.*
Table 2.7

Regressions to examine criterion-related validity

<table>
<thead>
<tr>
<th>Model</th>
<th>Relational satisfaction</th>
<th>B(SE)</th>
<th>β</th>
<th>R²</th>
<th>Δ R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td>.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FFMQ observe</td>
<td>-0.01(0.01)</td>
<td>.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FFMQ non-judgment</td>
<td>0.01(0.01)</td>
<td>.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MAAS</td>
<td>0.14(0.10)</td>
<td>.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td>.05</td>
<td>.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FFMQ observe</td>
<td>0.00(0.02)</td>
<td>-.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FFMQ non-judgment</td>
<td>0.00(0.01)</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MAAS</td>
<td>0.08(0.11)</td>
<td>.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SMM observation</td>
<td>-0.06(0.11)</td>
<td>-.05</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>SMM non-judgment to experience</td>
<td>0.23(0.11)</td>
<td>.17**</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Sexual satisfaction</th>
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<th>β</th>
<th>R²</th>
<th>Δ R²</th>
</tr>
</thead>
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<tr>
<td>Step 1</td>
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</tr>
<tr>
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<td>.15*</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>FFMQ non-judgment</td>
<td>0.02(0.01)</td>
<td>.16*</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>MAAS</td>
<td>0.14(0.08)</td>
<td>.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td>.16***</td>
<td>.07***</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>FFMQ observe</td>
<td>0.02(0.01)</td>
<td>.12</td>
<td></td>
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<td>0.06(0.08)</td>
<td>.06</td>
<td></td>
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<td>SMM observation</td>
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<td>.10</td>
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<td>SMM non-judgment to experience</td>
<td>0.27(0.08)</td>
<td>.27***</td>
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</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Self-esteem</th>
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<th>β</th>
<th>R²</th>
<th>Δ R²</th>
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<td>Step 1</td>
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<td>MAAS</td>
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<td>Step 2</td>
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<td>.03*</td>
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</table>

<table>
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<th>β</th>
<th>R²</th>
<th>Δ R²</th>
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<td></td>
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<td>$R^2$</td>
<td>$\Delta R^2$</td>
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</tr>
<tr>
<td>SMM non-judgment to experience</td>
<td>0.32(.54)</td>
<td>.05</td>
<td></td>
<td></td>
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</table>

Model 5: Expressive suppression

|                          |          |       |       |             |             |
|--------------------------|----------|-------|-------|--------------|
| Step 1                   |          | .07** | --    |              |
| FFMQ observe             | -0.20(.07) |       |       |              |
| FFMQ non-judgment        | -0.10(.06) |       |       |              |
| MAAS                     | -0.14(.48) |       |       |              |

|                          |          |       |       |             |             |
| Step 2                   |          | .10** | .03* |              |
| FFMQ observe             | -0.12(.07) |       | -.12  |              |
| FFMQ non-judgment        | -0.15(.06) |       | -.19* |              |
| MAAS                     | -0.23(.49) |       | -.04  |              |
| SMM observation          | -1.15(.49) |       | -.19* |              |
| SMM non-judgment to experience | 0.73(.52) | .11   |       |              |

* $p < .05$; ** $p < .01$; *** $p < .001$
Figure 2.1

_The Exploratory Factor Analysis of the SMM using Promax_
Appendix

Final factors and items for SMM

Factor 1: Observation
1. I pay attention to sexual sensations.
2. I pay attention to how sex affects my thoughts and behaviors.
3. I can usually describe how I feel sexual at the moment in great detail.
4. I pay attention to my emotions during sex.

Factor 2: Non-judgment of experience
1. During sex, I sometimes get distracted by evaluating myself or my partner.
2. During sex, I sometimes get tense when I have a thought I'm not comfortable with.
3. Sometimes when I get a certain thought in my head, it ruins the whole sexual experience.
Chapter 3: Mindfulness and Desire Discrepancy During Midlife

This paper will be a multiple-authored work. Chelom E. Leavitt will be the first author, and will fully draft the manuscript. Dr. Eva Lefkowitz will be co-author, and will help revise the final manuscript. We will submit this paper to *Archives of Sexual Behavior*. 
Abstract

In this study we examined (1) associations of trait and sexual mindfulness with relational and sexual satisfaction and (2) how trait and sexual mindfulness moderate the associations between desire discrepancy and relational and sexual satisfaction. Midlife U.S. men and women ($N = 191$ married, heterosexual individuals; 50.3% female; 94% Caucasian, age range 35-60 years) participated in an online survey. Individuals who were more sexually mindful felt more sexually satisfied even after accounting for trait mindfulness. Being mindful by observing during sex moderated the association between desire discrepancy and sexual satisfaction. For individuals higher in this aspect of mindfulness, the association between desire discrepancy and sexual satisfaction was stronger than for individuals lower in sexual mindfulness. We discuss the implications of including mindfulness and sexual mindfulness in future research and clinical work.
Mindfulness and Desire Discrepancy During Midlife

Regular engagement in sexual behavior is an important contributor to relationship well-being (Butzer & Campbell, 2008; Byers, 2005; Christopher & Sprecher, 2000; Yeh, Lorenz, Wickrama, Conger, & Elder, 2006). Healthy sexual relationships contribute to couples’ stability, relational health, and sexual satisfaction (Nicolosi, Moreira, Villa, & Glasser, 2004; Simms & Byers, 2009; Yeh et al., 2006). However, women typically feel less sexual desire than men (Basson, 2002), which may lead to relationship conflict (Willoughby, Farero, & Busby, 2014).

The construct of desire discrepancy represents the difference between how frequently an individual desires to have sex and how frequently an individual actually has sex (Willoughby & Vitas, 2012). Individuals with larger desire discrepancy tend to be less satisfied with their relationships than individuals with smaller discrepancies (Willoughby & Vitas, 2012). Early in relationships, a discrepancy in the individual’s expected and actual sexual frequency may not negatively impact relational satisfaction as individuals recognize the developing nature of the relationship (Willoughby & Vitas, 2012). However, as relationships lengthen and sexual intercourse becomes more normative, a discrepancy between actual and desired sexual frequency may indicate dissatisfaction with the relationship, especially for men (Willoughby & Vitas, 2012).

One factor that may mitigate the negative associations between desire discrepancy and relational and sexual satisfaction is mindfulness. Mindfulness is the ability to stay present, without judgment (Kabat-Zinn, 1990; Kabat-Zinn, 1994). Mindfulness facilitates healthy interpersonal relationships (Carson, Carson, Gil, & Baucom 2004; Kozlowski, 2013; Wachs & Cordova, 2007) and is associated with better relational satisfaction and communication during stressful conversations (Barnes, Brown, Krusemark, & Rogge, 2007; Carson et al., 2004). The
association between mindfulness and relational functioning is attributed to better emotional skills that help alleviate judgment and anxiety (Kozlowski, 2013). Mindfulness during sexual experiences, called sexual mindfulness, helps individuals release presumptions of goals or expectation that may diminish relational and sexual satisfaction (Leavitt, Lefkowitz, & Waterman, 2017).

In the current study, we build on past research that identified a negative association between desire discrepancy and relational and sexual satisfaction. Desire discrepancy is associated with more thoughts of divorce, less positive communication, and more frequent relationship conflict (Willoughby et al., 2014). Although these negative outcomes are tied to desire discrepancy, little research has examined what moderates this association. Mindfulness theory suggests that mindfulness reduces anxiety and improves interpersonal connection (Carson, et al., 2004; Kabat-Zinn, 1990; Kabat-Zinn, 1994; Kozlowski, 2013; Wachs & Cordova, 2007), both of which may moderate the associations between desire discrepancy and relational and sexual satisfaction. Additionally, this research may have implications for future research and clinical practice. Although researchers have identified desire discrepancy’s negative association with relational and sexual satisfaction (Davies, Katz, & Jackson, 1999; Willoughby & Vitas, 2012), research has not provided potential solutions to improve satisfaction for individuals who experience desire discrepancy. In the current study we examine how trait and sexual mindfulness moderate the negative associations between desire discrepancy and relational and sexual outcomes.

**Desire and Sexual Frequency**

Although both sexual desire and sexual frequency are linked to relational satisfaction, the discrepancy between the two may indicate an important aspect of the relationship (Willoughby &
An individual may experience a discrepancy in desired and actual sexual frequency because the partners in the relationship have different desire levels. If an individual desires sex once a month, and his/her partner desires sex daily, there will be a discrepancy between actual and desired frequency for at least one partner.

**Mindfulness**

**Trait mindfulness.** Researchers have theorized that trait mindfulness skills encourage individuals to observe their thoughts and feelings without immediately reacting, which may be one mechanism for how mindfulness facilitates relational satisfaction (Boorstein, 1996; Kabat-Zinn, 1990; Kabat-Zinn, 1994; Shaver, Lavy, Saron, & Mikulincer, 2007). More mindful individuals tend to be more satisfied with their relationships and experience better marital communication (Barnes et al., 2007; Carson et al., 2004). Individuals who use mindfulness experience better relational functioning due to skilled emotional responses (Kozlowski, 2013; Wachs & Cordova, 2007). Mindful individuals are less judgmental and reactive, which allows couples to engage in more intimate emotional communication, even when discussing difficult problems (Wachs & Cordova, 2007).

Karremans, Schellekens, and Kappen (2015) further explained three ways in which the use of mindfulness may diminish negative outcomes in challenging relationship contexts. First, mindful individuals increase attention and awareness to their feelings, which may result in better congruence between their internal feelings and their external behavior (Brown & Ryan, 2003). Second, mindfulness encourages recognition that emotions and thoughts are transient and thereby more easily tolerated. Third, mindfulness allows individuals to better identify when self-regulation is necessary, and therefore individuals are more likely to inhibit automatic, negative responses (Karremans et al., 2015). Thus, trait mindfulness may alleviate some of the negative
relational outcomes for individuals who deal with desire discrepancy in their relationship.

**Sexual Mindfulness.** Sexual mindfulness is an ability to be observant and non-judgmental during sexual experiences (Leavitt et al., 2017). Individuals who are sexually mindful do not set expectations for orgasm or other pre-determined goals that stem from societal influences. When unpleasant thoughts or emotions arise, a sexually mindful individual pauses, refrains from judging, and instead focuses on his/her breath or the sensations of his/her body. Although many of these skills are taught through a mindfulness practice or are present for individuals with trait mindfulness, sexual mindfulness skills may take additional focus, understanding, and practice to overcome socialized or self-imposed attitudes and behaviors.

Anxiety is a common problem in sexual experiences (Barlow, 1986; Leavitt & Lefkowitz, in press) and practicing sexual mindfulness may help in overcoming the socialized tendencies or anxieties that may occur during sexual activities. For example, women are often encouraged to take a submissive sexual role by being more attentive to their partner’s pleasure than to their own pleasure (Sanchez, Kiefer, & Ybarra, 2006). Women who adhere to these gender norms may experience diminished arousal or heightened anxiety. In fact, women’s acceptance of a submissive sexual role predicts arousal problems (Brotto, Basson, & Luria 2008; Sanchez et al., 2006).

Whereas sexually anxious individuals would ruminate on goals and expectations, sexually mindful individuals would practice releasing expectations for intercourse, orgasm, or other pre-determined goals, and observing his/her thoughts and feelings without immediately reacting. This process may be one mechanism for how sexual mindfulness positively influences a couple’s interactions and expectations in their sexual relationship (Boorstein, 1996; Kabat-Zinn, 1990; Kabat-Zinn, 1994; Shaver et al., 2007).
The component of sexual mindfulness can be captured by two factors—observation and non-judgment of experience (Leavitt et al., 2017). These two factors are useful in describing how individuals can control automatic responses, and let go of predetermined goals during sexual experiences. The ability to observe sensations and arousal, while also remaining non-judgmental about performance, thoughts or expectations, is an essential part of sexual mindfulness.

Observation and non-judgment of experience may contribute to relational and sexual satisfaction differently. Individuals who carefully observe during sexual behavior may be able to sense arousal and maintain connection with their partner. Individuals who avoid judging during sexual behaviors may release expectations or judgment of themselves or their partner. Additionally, maintaining an attitude of non-judgment may decrease sexual anxiety, which is a frequent obstacle to sexual enjoyment (Leavitt & Lefkowitz, in press).

Sexual mindfulness may moderate the association between desire discrepancy and relational and sexual satisfaction. As individuals are better able to regulate physiology and emotions, they may be able to engage in more sustained intimate conversations and sexual behavior (Atkinson, 2013). However, individuals who are more mindful by observing during sex may experience a stronger association between desire discrepancy and relational and sexual satisfaction than less mindful individuals. Individuals experiencing more unmet sexual expectations may experience diminished satisfaction in their romantic and sexual relationships as they are more observant. In contrast, individuals who are more non-judgmental during sexual experiences may experience a weaker association between desire discrepancy and relational and sexual satisfaction than less mindful individuals. Non-judgmental individuals may realize desire discrepancy is temporary or may focus on more positive aspects of the relationship, thereby minimizing the potential negative impact of desire discrepancy on relational and sexual satisfaction.
satisfaction. Individuals who refrain from judging during sex may be more capable of emotional regulation or redirection of emotions to more positive aspects of the relationship.

**Gender**

Men and women differ in how they describe desire; women define desire more often as motivation for relational satisfaction, whereas men define desire more often as leading to sexual satisfaction (Regan & Bersched, 1996). Therefore, the associations between desire discrepancy and relational and sexual satisfaction may also differ by gender. Some research indicates that women who experience more desire discrepancy are more dissatisfied with their relationships than are men (Willoughby & Vitas, 2012). However, other research shows that men who experience more desire discrepancy feel less satisfied with their relationships than men who experience less desire discrepancy (Santtila et al, 2008). In addition, for married men, experiencing more desire discrepancy is associated with poor marital communication, which could impact relational and sexual satisfaction (Willoughby et al., 2014).

Sexual frequency is generally thought to be associated with sexual satisfaction within heterosexual couples (Brody & Costa, 2009). However, this association may also be moderated by gender. Sexual frequency is shown to be important for men’s sexual satisfaction (Nicolosi et al., 2004). However, even though women show consistently higher rates of dysfunction in arousal and desire than do men (Laumann, Das, & Waite, 2008), most women who report low sexual desire also report being satisfied with their relationship (Brotto, Bitzer, Laan, Leiblum, & Luria, 2010). In fact, women who report desiring sex less than once a week also report feeling emotionally satisfied (Cain et al., 2003) and satisfied with their relationship (Rosen et al., 2009). Consequently, although desire discrepancy may result in diminished sexual satisfaction for men, it may be less important for women’s sexual satisfaction.
The Present Study

In the current study, we examine how trait mindfulness and sexual mindfulness moderate the associations between desire discrepancy and relational and sexual satisfaction in heterosexual individuals who are in committed relationships. In addition, we explore possible gender differences in how trait and sexual mindfulness moderate this association. Specifically, we predict:

1. Desire discrepancy will be negatively associated with relational and sexual satisfaction.
2. Trait mindfulness will be positively associated with relational and sexual satisfaction.
3. Sexual mindfulness will be positively associated with relational and sexual satisfaction.
4. Trait mindfulness will moderate the association between desire discrepancy and relational satisfaction. That is, the association between desire discrepancy and relational satisfaction will be stronger for individuals with lower trait mindfulness than for individuals with higher trait mindfulness.
5. Sexual mindfulness will moderate the association between desire discrepancy and relational and sexual satisfaction, but the form of moderation will depend on type of mindfulness. Specifically, the association between desire discrepancy and relational and sexual satisfaction will be stronger for individuals who are lower on non-judgment of experiences, than for individuals who are higher on nonjudgment of experience. However, the association between desire discrepancy and relational and sexual satisfaction will be stronger for individuals who are higher on observation than for individuals lower on observation.
6. There will be a 3-way interaction between desire discrepancy, mindfulness and gender. That is, mindfulness will moderate the association between desire discrepancy and relational and sexual satisfaction for women more than for men.
Methods

Participants and Procedures

Midlife men and women \((N = 320)\) accepted invitations to participate in a study through a survey link on the authors’ and colleagues’ Facebook pages or were recruited through paid advertisements on Facebook. We also used snowball sampling; individuals who completed the survey could share the survey with others. Because of our interest in gender differences, we limited the sample to heterosexual individuals. Participation was voluntary, and we followed all IRB consent requirements. Participants were eligible to enter their name in a drawing for one of four $50 gift certificates. Screening questions asked if the participant was in the target age range of 35-60, married for at least 2 years, not pregnant, living in the U.S., and spoke English. Despite these screening questions, four participants who completed the survey reported ages outside the target range, and we therefore excluded them from the study. Because not all participants answered all questions, data on key variables were missing for some participants. Rates of missing data were higher on questions about sexual behavior. Thus, the final analytic sample was 191.

We compared the participants in the analytic sample \((n = 191)\) to participants excluded from the analytic sample \((n = 125)\). We used t-tests to compare these two groups on age, income, marriage length, and self-reported health. The groups did not significantly differ on any of these variables \((p < .05)\). We also performed a \(\chi^2\) test comparing the groups by gender, which also was not significant.

Participants’ ages ranged from 35 to 60 years old, with a mean of 46 \((SD = 6.56)\). Ninety-four percent of participants were Caucasian. Approximately half of the participants were female \((50\%)\). Eighty-one percent of participants reported being Christian, 14% not being religious, 4%
Jewish, and 1% another religion (Muslim or Pagan). Self-reported household income included less than $30,000 (3%), $30,000 to $60,000 (11%), $60,001 to $120,000 (36%), and over $120,000 (50%). When asked to rate their general health, 82% of participants rated their health as *quite good* or *very good*, 16% as *neither good nor poor*, and 3% as *quite poor* or *very poor*. Ratings of partner’s health were similar, with 81% as *very good* or *quite good*, 17% as *neither good nor poor*, and 3% as *quite poor* or *very poor*. Participants reported being married between 2 and 42 years with an average marriage length of 19 years (*SD = 8*).

**Measures**

**Trait mindfulness.** The Mindful Attention Awareness Scale (MAAS, Brown & Ryan, 2003) contains 15 items and is considered a one-factor measure of mindfulness. The MAAS includes questions such as “I do jobs or tasks automatically, without being aware of what I’m doing.” Participants respond using a 6-point scale ranging from 1 (*almost always*) to 6 (*never*). The MAAS demonstrated good reliability in this sample (*α* = .87 for women, .79 for men).

**Sexual mindfulness.** The Sexual Mindfulness Measure (SMM, Leavitt et al., 2017) is a 7-item measure that examines mindfulness within a sexual context. It is a two-factor measure that includes observation (e.g., “I pay attention to sexual sensations”) and non-judgment of experience (e.g., “During sex, I sometimes get distracted by evaluating myself or my partner”). Non-judgment of experience questions are reverse scored. Participants respond using a 5-point scale ranging from 1 (*never or rarely true*) to 5 (*very often or always true*). Reliability in the current sample was acceptable (observation *α* = .79 for women, .71 for men; non-judgment *α* = .74 for women, .70 for men).

**Sexual satisfaction.** The New Sexual Satisfaction Scale (NSSS, Štulhofer, Buško, & Brouillard, 2010) is a 12-item measure that examines how satisfied an individual is with the
quality of his/her sexual experience. The stem question for the items is “Thinking about your sex life during the last 6 months please rate your satisfaction with the following aspects.” An example item is “The quality of my orgasms.” Participants respond using a 5-point scale from 1 (not at all satisfied) to 5 (extremely satisfied). Reliability in the current sample was good ($\alpha = .91$ for women, $.86$ for men).

**Relational satisfaction.** The Couple Satisfaction Index (CSI, Funk, & Rogge, 2007) is a 4-item measure derived from a 32-item scale designed to measure individual satisfaction within a relationship. Response options varied depending on the item. An example question is “Please indicate the degree of happiness, all things considered, in your relationship,” with a 7-point scale, from 0 (extremely unhappy) to 6 (perfect). The CSI showed good reliability ($\alpha = .82$ for women, $.79$ for men).

**Desire discrepancy.** Participants answered a question about sexual desire (“In the last 12 weeks, on average, how often did you desire to have vaginal sex with your partner?”) using a scale from 0 (never) to 6 (more than once a day). They also answered a question about sexual frequency (“In the last 12 weeks, on average, how often did you have vaginal sex with your partner?”) using a scale from 0 (never) to 6 (more than once a day). We calculated desire discrepancy by subtracting actual sexual frequency from desired sexual frequency (e.g. Davies et al., 1999; Santtila et al., 2008; Willoughby & Vitas, 2012). We then calculated the absolute value of desire discrepancy, which we used in all analyses. The absolute value of desire discrepancy measures any discrepancy, positive or negative, an individual may experience.

**Analysis Plan**

We perform two multiple regressions to examine the proposed direct effects of trait and sexual mindfulness on relational and sexual satisfaction, and the moderating effects of trait and
sexual mindfulness on the association between desire discrepancy and relational and sexual satisfaction. Relational and sexual satisfaction are the outcome variables. In the first step, we include marriage length, gender, desired sexual frequency, and actual sexual frequency as controls. To test Hypothesis 1, we added desire discrepancy in the second step. To test Hypothesis 2, we added trait mindfulness in the third step. To test Hypothesis 3, we added both sexual mindfulness factors in the fourth step. To test Hypothesis 4, we added the interaction between desire discrepancy and trait mindfulness in the fifth step. To test Hypothesis 5, we added the interactions between desire discrepancy and both sexual mindfulness factors in the sixth step. To test Hypothesis 6, we added three 3-way interactions between gender, desire discrepancy, and [sexual] mindfulness in the seventh step (i.e. gender x desire discrepancy x trait mindfulness; gender x desire discrepancy x observation; gender x desire discrepancy x non-judgmental sexual mindfulness). To reduce multicollinearity with the interaction terms, all independent variables, except for gender, were centered at the mean (Aiken & West, 1991). A two-way significant interaction demonstrates that mindfulness moderates the association between desire discrepancy and relational or sexual satisfaction. A three-way significant interaction demonstrates that gender moderates the moderation effect of mindfulness on the association between desire discrepancy and relational and sexual satisfaction.

Results

Preliminary and Descriptive Analyses

Table 3.1 presents the descriptive statistics for all study variables. Participants reported being generally satisfied in their romantic and sexual relationships. On average men reported desiring sex about 2-4 times a week and women about once a week. On average, both men and women reported actually having sex about 1-4 times a month. Men and women reported
exhibiting trait mindfulness somewhat frequently or very frequently. For sexual mindfulness, men and women reported that they were sometimes observant and often non-judgmental during sex.

As a preliminary step, we examined bivariate associations among desire discrepancy, actual sexual frequency, and desired sexual frequency (see Table 3.2). Desire discrepancy was highly correlated with both men’s and women’s actual sexual frequency and desired sexual frequency, which indicated possible multicollinearity issues. Our planned regression models included marriage length, actual sexual frequency, and desired sexual frequency as controls. However, these models resulted in high multicollinearity of sexual frequency and desired sexual frequency for men (VIF values ranged from 27-62). To decrease these multicollinearity issues, we removed actual and desired sexual frequency from the regression models.

**Hypothesis testing**

As described, we ran two regressions, each with seven steps, to test hypotheses 1-6. Step 7, in which we added 3-way interactions between gender, desire discrepancy, and mindfulness (trait and sexual mindfulness), was never significant, and therefore, for the sake of parsimony, we do not include this step in the tables.

We predicted that desire discrepancy would be negatively associated with relational and sexual satisfaction (Hypothesis 1). For both relational (Table 3.3) and sexual satisfaction (Table 3.4), the change in R² in Step 2 was significant. Desire discrepancy was significant in both models, indicating that individuals who reported greater desire discrepancy were less satisfied with their relationships and less sexually satisfied.

We predicted that trait mindfulness would be positively associated with relational and sexual satisfaction (Hypothesis 2). In the regression model for relational satisfaction, the change
in $R^2$ in Step 3 was not significant, indicating that trait mindfulness did not explain additional variance in relational satisfaction (see Table 3.3). In the sexual satisfaction model (see Table 3.4), the change in $R^2$ in Step 3 was significant. Trait mindfulness was significantly associated with sexual satisfaction, indicating that individuals who practiced more trait mindfulness were more sexually satisfied.

We predicted that sexual mindfulness would be positively associated with relational and sexual satisfaction (Hypothesis 3). In the regression model for relational satisfaction, the change in $R^2$ for Step 4 was not significant, indicating that sexual mindfulness did not explain additional variance in relational satisfaction (see Table 3.3). For sexual satisfaction, the change in $R^2$ for Step 4 was significant (see Table 3.4). Both aspects of sexual mindfulness, observation and non-judgment of experience were significant. Individuals who were more observant and less judgmental during sexual experience were more sexually satisfied.

We predicted that trait mindfulness would moderate the association between desire discrepancy and relational and sexual satisfaction (Hypothesis 4). In the regression models for relational and sexual satisfaction, Step 5 was not significant, indicating that trait mindfulness did not moderate these associations (see Tables 3.3 and 3.4).

We predicted that sexual mindfulness would moderate the association between desire discrepancy and relational and sexual satisfaction (Hypothesis 5). In the regression model for relational satisfaction, Step 6 was not significant, indicating that sexual mindfulness did not moderate this association (see Table 3.3). In the regression model for sexual satisfaction, Step 6 was significant. Specifically, the observation aspect of sexual mindfulness moderated the association between desire discrepancy and sexual satisfaction (see Table 3.4). In support of our hypothesis, the association between desire discrepancy and sexual satisfaction was stronger for
individuals who were more observant during sexual experiences compared to individual who were less observant (see Figure 3.1).

**Discussion**

Although other studies have examined trait mindfulness and relational and sexual satisfaction, to our knowledge this study is the first to examine the direct association between sexual mindfulness and relational and sexual satisfaction. Furthermore, we examined how trait and sexual mindfulness moderate the associations between desire discrepancy and relational and sexual satisfaction. More mindful individuals were more sexually satisfied, but not necessarily more satisfied with their romantic relationships. In addition, more sexually mindful individuals were more satisfied with both their romantic and sexual relationships. Although trait mindfulness did not moderate these associations, sexual mindfulness had a moderating effect on the association between desire discrepancy and sexual satisfaction.

In support of our predictions and consistent with previous research (Davies et al., 1999; Santtila et al., 2008; Willoughby et al., 2014; Willoughby & Vitas, 2012), individuals who experienced more desire discrepancy were less satisfied with their romantic and sexual relationships. Unmet sexual expectations in long term relationships lead to poor communication and more discussions or thoughts about divorce (Willoughby et al, 2014), which likely contribute to diminished relational and sexual satisfaction.

**Mindfulness matters for relational and sexual satisfaction**

Our findings supported some of our predictions about direct associations between mindfulness and relational and sexual satisfaction. When only trait mindfulness was considered, mindful individuals were more sexually satisfied, which is supported by previous research (Atkinson, 2013; Barnes et al., 2007; Carson et al., 2007; Leavitt et al., 2017). However, with the
inclusion of sexual mindfulness as a predictor, trait mindfulness was no longer associated with sexual satisfaction. Instead, both aspects of sexual mindfulness were associated with sexual satisfaction. Thus, sexual mindfulness may be more useful in helping individuals feel sexually satisfied than trait mindfulness. Individuals who develop sexual mindfulness likely gain better emotional and physical regulation in the process of becoming more sexually mindful (Atkinson, 2013; Barker, 2017). Sexually mindful individuals may be able to observe their arousal, let go of predetermined goals, and maintain an attitude of acceptance during sexual experiences. These qualities likely result in an enjoyable sexual experience.

Sexual mindfulness may present solutions similar to sensate focus. Sensate focus provides a series of structured opportunities for desensitizing touch, which provides a potential mechanism to neutralize anxieties around sex (Avery-Clark & Weiner, 2016). Both mindfulness and sensate focus may encourage letting go of expectations and goals, attention to physical response, and acceptance of self and partner. However, unlike sensate focus, sexual mindfulness focuses on the individual, not the partnership. Sexual mindfulness allows an individual to internally examine goals and expectations, provides an opportunity to slow down thoughts, and requires no partner participation, which may broaden its application.

Therapists may use mindfulness to address individuals’ sexual satisfaction. It may be that sexual mindfulness provides a more useful tool than trait mindfulness, in that it specifically addresses the ability to remain mindful during a sexual experience, which may be more difficult than being mindful in daily activities. Additionally, it may provide a mechanism for individuals to work on sexual anxiety even without their partner’s participation.

**Sexual mindfulness moderates between desire discrepancy and sexual satisfaction**

Although trait mindfulness did not moderate the association between desire discrepancy
and satisfaction, we did find partial support for the moderating effect of sexual mindfulness. Specifically, the observation aspect of sexual mindfulness moderated this association. For individuals higher in this aspect of mindfulness, the association between desire discrepancy and sexual satisfaction was stronger than for individuals lower in sexual mindfulness. Another interpretation of this finding is that for individuals high in desire discrepancy, sexual satisfaction was similar regardless of sexual mindfulness. In contrast, for individuals low in desire discrepancy, being more mindful by observing during sex was associated with being more sexually satisfied. This finding is helpful in understanding when sexual mindfulness may be a useful tool for individuals in relationships. High levels of desire discrepancy may present additional problems and may need to include efforts from both partners. Addressing high levels of desire discrepancy may require more attention than simply observing sexual arousal and physical sensation.

We found no gender differences in the moderation of mindfulness on the association between desire discrepancy and relational and sexual satisfaction. Studies are mixed on whether men and women experience mindfulness in differing ways (Katz & Toner, 2013). Despite the finding that these midlife men and women experienced mindfulness moderation similarly, including gender as a variable is important until we better understand the gender differences in mindfulness.

Mindfulness, particularly sexual mindfulness, provides an additional tool for researchers and therapists to better examine an individual’s state of mindfulness during a sexual experience. The ability to create calmness, reduce or diminish expectations and goals, and eliminate judgment allows an individual to adjust an area of his/her life where they have control (e.g., thoughts, expectations), which may in turn help an area of his/her life where they do not have
control (e.g., arousal, anxiety). Sexual mindfulness does not depend on a partner’s involvement and thereby affords more flexibility than sensate focus. Consequently, sexual mindfulness may provide a way for prevention scientists to develop individual-based interventions for sexual problems, and may provide therapists a way to address sexual concerns at an individual-level.

**Limitation and Future Directions**

This work provides an initial step in understanding how mindfulness may benefit an individual’s romantic and sexual relationship through moderation. However, this study has several limitations. First, there are a number of known gender differences in relational and sexual health (Frederick, Lever, Gillespie, & Garcia, 2016; Jackson, Miller, Oka, & Henry, 2014), but we found no gender moderation. Women typically experience lower satisfaction in their marriage than men (Jackson, Miller, Oka, & Henry, 2014), and women generally feel lower desire for sex than men (Laumann, Das, & Waite, 2008). Men experience greater sexual desire discrepancy than women (Willoughby et al., 2014). In addition, sexual frequency is more important for men’s satisfaction with sex, whereas, the quality of the relationship may be more important for women (Brotto et al., 2010; Nicolosi et al., 2004). Research has also shown gender differences in mindfulness. In a review of 36 studies two showed no gender differences, but most indicated that women may experience more benefit from mindfulness than men. Despite these known gender differences, we found no gender moderation in this sample. Although most gender differences are often small (Oliver & Hyde, 1993), gender is likely an important moderator. Future research could examine other populations and gather a more representative sample of midlife adults.

Second, as mentioned, this sample included midlife adults who were heterosexual, married, predominantly White, higher SES, physically healthy, and generally happy in their
relationships. The results from this study may differ in other populations. For instance, individuals who experience financial stress experience lower marital quality than individuals without financial stress (Lincoln & Chae, 2010). Thus, for these individuals additional relationship stressors, such as desire discrepancies, may contribute even more strongly to relationship dissatisfaction. Although mindfulness training improves the well-being of low SES people (Van der Gucht, Takano, Van Broeck, & Raes, 2015), the combined influence of poverty and desire discrepancy on relational and sexual satisfaction may be less likely to be mitigated by mindfulness.

Third, we could not control for desired sex and actual sex due to multicollinearity problems. Thus, the associations with relational and sexual satisfaction may be due to an individual’s desired sex or actual sex rather than his/her desire discrepancy. Future research may consider different measures of these three constructs in order to include all three in the same model. For instance, desire discrepancy could be measured with a series of questions, rather than with a difference score. In addition, research could use longitudinal data to control for earlier desired or actual sex with current desire discrepancy.

It is important to note that although our conceptual model considers relational and sexual satisfaction as the outcomes, our cross-sectional data do not allow us to determine causality or even temporal ordering. For instance, it may be that individuals who are more satisfied with their sexual lives have sex more frequently and therefore experience less desire discrepancy. Similarly, experiencing sex more frequently may lead to more satisfaction, which may in turn lead to increased ability to observe and be non-judgmental during sex.

In addition to addressing these limitations, future research may examine whether mindfulness moderates other associations within relationships. For example, research could
examine whether mindfulness moderates the association between couple conflict and relational and sexual satisfaction. Couples who experience negative interactions also experience less relational and sexual satisfaction (Haning et al., 2007; Stanley, Markman, & Whitton, 2002). Mindfulness skills may moderate this association by allowing couples to slow down their thought processes and approach the conflict with less judgment.

Another important direction for future research would be to examine both partners in the same relationship. A dyadic approach may be especially important for couple-level issues such as desire discrepancy. For example, researchers could examine the individual’s desire discrepancy, as well as the partner’s desire discrepancy and relational and sexual satisfaction. Using a dyadic approach would allow researchers to examine whether an individual’s relational and sexual satisfaction is associated with their partner’s desire discrepancy and their partner’s mindfulness.

Researchers could also examine the moderating effect of mindfulness for individual who are trained or have a regular practice of mindfulness. As couples continue a mindfulness practice they likely would experience less judgment and more ability to let go of unhealthy expectations. The continued practice of mindfulness would likely create incremental improvements over time. Consequently, individuals who have a skilled practice of mindfulness may experience more benefit from mindfulness than those who are unskilled in mindfulness. Future interventions could examine whether increases in mindfulness and sexual mindfulness skills lead to decreases in the association of desire discrepancy and relational and sexual satisfaction.

Mindfulness is a skill that requires practice and long periods of time may be required to detect improvement in sexual mindfulness. Longitudinal data would allow researchers to track improvements in mindfulness and possible improvements in other outcomes such as relational
and sexual satisfaction and sexual functioning. As couples become more mindful, and specifically more aware or observant of their anxiety, arousal, or other personal expectations, they may initially experience a decrease in satisfaction or other outcome measures. However, as couples continue a mindfulness practice they likely would experience less judgment and more ability to let go of unhealthy expectations. Thus, multiple assessments over time could provide more information about the processes involved.

**Conclusion**

Prior research on desire discrepancy has identified its negative implications for relational and sexual health. Our findings indicate that individuals who are more mindful and more sexually mindful are more sexually satisfied. We also found that sexual mindfulness moderated the association between desire discrepancy and sexual satisfaction, which may provide a useful tool for therapists treating individuals experiencing low desire discrepancy.
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repertoires in intimate relationships. *Journal of Marital and Family Therapy, 33*, 464–81.


Table 3.1

**Descriptive statistics**

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<tr>
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<th>Women</th>
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<tr>
<td>Desire Discrepancy</td>
<td>1.07 (1.23)</td>
<td>1.19 (1.11)</td>
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<tr>
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<td>3.87 (0.82)</td>
<td>3.91 (0.82)</td>
</tr>
<tr>
<td>Sexual Mindfulness</td>
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</tr>
<tr>
<td>Observation</td>
<td>3.48 (0.80)</td>
<td>3.47 (0.81)</td>
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<tr>
<td>Non-judgment</td>
<td>4.02 (0.67)</td>
<td>3.91 (0.83)</td>
</tr>
<tr>
<td>Relational Satisfaction</td>
<td>3.84 (1.02)</td>
<td>3.76 (1.11)</td>
</tr>
<tr>
<td>Sexual Satisfaction</td>
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<td>3.49 (0.86)</td>
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<tr>
<td>Sexual Desire</td>
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</tr>
<tr>
<td>Sexual Frequency</td>
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<td>2.54 (1.35)</td>
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*n = 95 men and 96 for women.*
Table 3.2

**Correlations among sexual frequency measures**

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<td>3. Desired Sexual Frequency</td>
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*Note:* Women \((n = 96)\) above the diagonal, men \((n = 95)\) below the diagonal; * \(p < .05\); ** \(p < .01\); *** \(p < .001\).
Table 3.3

Regression model for relational satisfaction

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<th>Δ R²</th>
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Note: N= 191; DD = Desire discrepancy, SMM = Sexual Mindfulness Measure * p < .05; ** p < .01; *** p < .001.
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</table>

**Note:** $N= 191$; DD = Desire discrepancy, SMM = Sexual Mindfulness Measure * $p < .05$; ** $p < .01$; *** $p < .001$.  

Figure 3.1

Moderating effect of sexual mindfulness aspect observation

![Graph showing the moderating effect of sexual mindfulness aspect observation. The graph plots sexual satisfaction against desire discrepancy, with lines for high and low SMM observations. The graph indicates a trend where sexual satisfaction decreases as desire discrepancy increases, with higher SMM associated with lower satisfaction in low discrepancy and higher satisfaction in high discrepancy.]
Chapter 4: A Cross Cultural Study of Midlife Relational and Sexual Health

This paper will be a multiple-authored work. Chelom E. Leavitt will be the first author, and will fully draft the manuscript. Dr. Eva Lefkowitz will be co-author, and will help revise the final manuscript. We will submit this paper to *Journal of Cross Cultural Psychology*. 

Abstract

In the current study, we examined cross-cultural differences in relational and sexual health in the U.S., Ukraine, and Turkey. These countries present clear differences in societal structures such as individualism and collectivism, religion, and gender role attitudes. Midlife, married, heterosexual men and women (N = 315 Americans, 335 Ukrainians, 567 Turks; ages 36 – 60 years old) participated in an Internet survey. We examined mean differences in frequency of relational and sexual satisfaction, sexual behaviors, sexual communication, and sexual mindfulness. Adults in the U.S. felt more satisfied with their romantic relationships and their sex lives than adults in Ukraine and Turkey. U.S. adults also kissed more often than adults in Ukraine and Turkey. However, U.S. adults had vaginal and oral sex less frequently than Ukrainian or Turkish adults. U.S. adults were less judging of sexual experiences, an aspect of sexual mindfulness, than adults in Ukraine or Turkey. We found two gender differences; women felt less satisfied in relationships and more satisfied with their sexual communication than men did.
A Cross-Cultural Study of Midlife Relational and Sexual Health

Relational and sexual health contribute not only to physical and mental health, but also to overall quality of life (Fincham & Beach, 1999; Krueger & Forbes, 2016; Robles, Slatcher, Trombello, & McGinn, 2014). For example, individuals who are dissatisfied with their relationships are more likely to divorce (Gottman, 2014) and experience depression (Fincham & Beach, 1999; Kiecolt-Glaser & Newton, 2001) than satisfied individuals. Healthy sexual relationships also contribute to mental and physical well-being (Brody, 2007; Brody & Costa, 2009). For instance, sexual dissatisfaction is associated with depression and precedes relational distress (Mitchell et al., 2013; Yeh, Lorenz, Wickrama, Conger, & Elder, 2006).

Broad aspects of culture such as individualism or collectivism, religion, and traditional or egalitarian gender roles may also influence relational and sexual health, yet little research examines relational and sexual health cross-culturally (for exceptions see Dean et al., 2013; Heiman et al., 2011; Laumann et al., 2005; Nicolosi et al., 2004a). In the current study, we examine cross-cultural differences in relational and sexual health during midlife in three countries: The U.S., Ukraine, and Turkey. These countries vary in their emphasis on individualism vs. collectivism, religion, and traditional or egalitarian gender roles. Specifically, we tested for cultural differences in sexual behaviors, sexual communication, sexual mindfulness, and relational and sexual satisfaction.

Cultural differences between the U.S., Ukraine, and Turkey

The U.S., Ukraine, and Turkey differ culturally in several ways, each with implications for relational and sexual health. First, a culture’s emphasis on individualism or collectivism may impact relational or sexual health. Generally, individualistic cultures emphasize the needs of the individual over the needs of society, whereas collectivistic cultures value the needs of society
over the individual (Chung, 2016; Grimm, Church, Katigbak, & Reyes, 1999; Hofstede, 1984). For example, people in individualistic cultures may be more concerned with their own sexual pleasure and feelings of satisfaction than the pleasure and satisfaction of their partner (Dion & Dion, 1993). In contrast, in collectivistic cultures individuals may be less concerned with their own feelings of relational or sexual intimacy within marriage and be less likely to emphasize relational satisfaction of the individual (De Munck, Korotayev, & McGreevey, 2016; Goodwin, 2013; Hsu, 1981; Lee & Stone, 1980). Second, the cultural presence of religion may also be associated with relational and sexual health. More religious individuals tend to be more satisfied in their relationships than less religious individuals (Bradbury, Fincham, & Beach, 2000; Call & Heaton, 1997; Fard, Shahabi, & Zardkhaneh, 2013). Lastly, traditional or egalitarian gender attitudes may be associated with relational and sexual health. Men and women often internalize dominant societal discourses on gender equality (Sani & Quaranta, 2016). In the U.S., individuals with egalitarian attitudes toward gender roles tend to feel more satisfied in their relationships (Amato, Johnson, Booth, & Rogers, 2003), whereas individuals with traditional attitudes toward gender roles tend to have sex more frequently (Gager & Yabiku, 2010; Kornrich, Brines, & Leupp, 2013). Consequently, we chose to compare individuals from these three countries on relational and sexual health, given their variation in focus on individualism vs. collectivism, religious orientation, and attitudes toward gender.

The U.S. has a culture of independence and religiosity. The U.S. is considered an individualistic culture and emphasizes individual progress and satisfaction (Grimm et al., 1999). Although the U.S. is considered a highly religious culture, some studies indicate a decrease in religious affiliation over the last decade (Brown, Taylor, & Chatters, 2015). However, about 70% of individuals in the U.S. identify as Christian (Pew, 2015) and 44% report attending services at
least weekly (Swanbrow, 2007). Christian religions vary widely, but generally promote marriage. However, Christian morality may promote negative attitudes toward sexual behavior, especially for women (Cahill, 1996). The United Nations Gender Inequality Index ranks countries based on gender attitudes, with higher ranks indicating more egalitarian attitudes. The U.S. ranked 8th of 135 countries scored (UNDP, 2015), indicating that the U.S. is considered more egalitarian than Ukraine or Turkey. The U.S. has made strides toward more gender equality (Barreto, Ryan, & Schmitt, 2009) and is among the most egalitarian countries of the world (Inglehart & Norris, 2003).

Ukraine may be considered a collectivist society because of its membership in the former Soviet Union. However, more recent research indicates Ukraine may lean toward an individualistic society (Shafiro, Himelein, & Best, 2003; Spector et al., 2001). Ukraine was largely secular before its separation from the USSR. However, since independence in 1991, Ukraine has adopted a more religious identity. In 1999, just eight years after independence, 63% of Ukrainians reported belonging to a religion (the majority Russian or Ukrainian Orthodox Church) and approximately 14% reported attending services at least weekly (Panina & Golovakha, 1999). Despite this increase in religious affiliation, Ukrainians are considered more secular than Americans or Turks. Ukraine ranked 81st of 135 countries on the United Nation’s Gender Inequality Index (UNDP, 2015). Ukraine, under the Soviet system, was heavily influenced by Marxist and Leninist theory, which publicly emphasized women’s equality in status and position. However, the appearance of equality was only a public facade, and privately, the attitudes toward women were profoundly sexist (Attwood, 1996; Yakushko, 2005). These traditional gender attitudes were exacerbated during the efforts for independence after the breakup of the Soviet States and in many ways promoted by women themselves to reject the
androgynous worker focus promoted in Soviet times (Jost & Banaji, 1994; Kay, 1997; Sperling 1999).

Turkey is generally considered a collectivist society, but research indicates Turks likely have a mix of individualistic and collectivistic ideals (Göregenli, 1997). Turkey officially reports that 99.8% of its citizens are Muslim (UNHCR, 2007). Other reports state that Muslims make up 96% (UN, 2016). Both statistics emphasize the strong religious ties present in Turkey. Forty-three percent of Turks report attending services at least once a week (Swanbrow, 2007). Muslim religion promotes marriage, but sexual inequality is a prominent feature of Islamic society (Mernissi, 1987). Women’s sexual nature is not denied (as in some Christian religions), but instead feared as a temptation to men (Mernissi, 1987). Turkey ranked 72nd out of 135 countries on the United Nations Gender Inequality Index (UNDP, 2015). Much like Ukraine, Turkey is a culture of honor, which defines a man’s ability to control his wife as an important part of social status and masculine reputation (Cohen, Nisbett, Bowdle, & Schwarz, 1996). Turkey’s social and political structure is male dominated and affords greater power to men than to women (United Nations Development Programme, 2015).

**Cross-cultural differences in relational and sexual health**

Relational and sexual health are important for individuals’ mental and physical well-being (Brody, 2007; Brody & Costa, 2009; Robles, Slatcher, Trombello, & McGinn, 2014). However, little research has examined cross cultural differences in relational and sexual health. In this study, we examine differences in relational and sexual health between the U.S., Ukraine, and Turkey, chosen because of their differences in orientation toward individualism vs. collectivism, religion, and gender roles.

**Relational Satisfaction.** Relational satisfaction is an important element of relational and
sexual health, contributing to the stability of marriage (Gottman, 2014), and to mental and physical well-being (Fincham & Beach, 1999; Robles et al., 2014). In addition, individuals who are satisfied with their relationships likely feel sexually satisfied (Yeh et al., 2006). Relational satisfaction is particularly important to women’s sexual satisfaction (Brotto, Bitzer, Laan, Leiblum, & Luria, 2010).

Gender role attitudes vary between cultures and may be one aspect of culture that contributes to relational satisfaction. Women with egalitarian attitudes are more likely to be satisfied with their marriages than are women with traditional attitudes (Amato et al., 2003). The U.S. is individualistic and more egalitarian in its gender roles than Ukraine or Turkey. These two cultural elements are more likely to emphasize the individual’s satisfaction with the relationship than collectivistic countries such as Ukraine and Turkey. Consequently, we predict that U.S. individuals will feel more satisfied with their relationships than individuals in Ukraine or Turkey.

**Sexual Satisfaction.** Sexual satisfaction also contributes to relational and sexual health (Haavio-Mannila, & Kontula, 1997; Laumann et al., 2006; Nicolosi, Moreira, Villa, & Glasser, 2004b). U.S. men and women report feeling more physical and emotional pleasure and satisfaction with sexual functioning than individuals in many other countries, including Turkey (Laumann et al., 2006). The lower rates of pleasure reported by Turkish men and women may contribute to their higher rates of sexual dysfunction than individuals in Western countries (Laumann et al., 2005). There is little research on Ukrainian sexual satisfaction. However, cross-cultural data including Russia, Poland, Hungary, Czech Republic, Slovakia, Israel, and Turkey indicate that Ukrainians report being generally satisfied with the frequency of their sexual experiences and feel that sex is very important or absolutely essential (Dean et al., 2013). U.S. individuals with traditional attitudes have more frequent sex, which is associated with sexual
satisfaction (Gager & Yabiku, 2010; Kornrich et al., 2013). Consequently, on one hand, some evidence suggests that individuals in the U.S. would be more satisfied with their sex lives than Ukrainian or Turks. One the other hand, there is competing evidence that due to more egalitarian gender attitudes, U.S. individuals would have lower sexual frequency and thereby lower sexual satisfaction than Ukrainian or Turkish individuals. Despite a lack of clear evidence for either side, we predict that individuals in the U.S. will report feeling more satisfied with their sex lives than individuals in Ukraine or Turkey.

**Sexual Frequency.** Although most research on sexual behavior within marriage focuses on vaginal sex (e.g. Dean et al., 2013; Nicolosi, Moreira, Villa, & Glasser, 2004b), research indicates that a range of sexual behaviors are valued within intimate relationships (Haavio-Mannila, & Kontula, 1997; Heiman et al., 2011). Kissing is one sexual behavior that begins earlier in life and remains important into midlife and beyond (Heiman et al., 2011). Cross cultural research on midlife adults indicates that couples who engage in kissing are likely to also report relational and sexual satisfaction (Heiman et al., 2011). Like kissing, vaginal sex frequency is also positively associated with both relational and sexual satisfaction (Brody & Costa, 2009; Haavio-Mannila, & Kontula, 1997; Nicolosi, Moreira, Villa, & Glasser, 2004b). Similarly, individuals who engage in oral sex are also likely to feel satisfied in their sexual experiences (Haavio-Mannila, & Kontula, 1997). Kissing, vaginal sex, and oral sex frequency may indicate how well individuals have learned to create pleasurable experiences for themselves and their partners (Haavio-Mannila, & Kontula, 1997; Heiman et al., 2011).

Cross cultural research indicates that men in Western and Eastern countries report similar rates of sexual frequency (Nicolosi et al., 2004a). However, women in Eastern countries report engaging in sexual activity less frequently than women in Western countries (Nicolosi et al.,
Although we know of no published data on kissing, vaginal sex, or oral sex frequency in Ukraine, Ukrainians do report that vaginal sex is important (Dean et al., 2013). Both Ukraine and Turkey promote more traditional gender attitudes, which may socialize individuals to have sex more frequently. However, U.S. individuals experience more emotional and physical pleasure from sex than do Turkish individuals, which may be connected to frequency of sexual activity (Laumann et al., 2006). Therefore, we predict that U.S. adults will engage in more frequent sexual behaviors than adults in Ukraine or Turkey.

**Sexual Communication Satisfaction.** Effective sexual communication includes talking about sexual expectations, preferences, and attitudes. Sexual communication satisfaction is associated with greater relational and sexual satisfaction in the U.S. (Cupach & Comstock, 1990). Although we know of no research examining associations between sexual communication satisfaction and relational and sexual satisfaction in Ukraine or Turkey, couples in Iran experienced greater marital intimacy after communication training (Farbod, Ghamari, & Majd, 2014). Cross cultural research on general communication within marriage found that couples in both the U.S. and Pakistan who engaged in more positive marital communication were more likely to report marital satisfaction than couples with less positive communication (Rehman & Holtzworth-Munroe, 2007). It is likely that sexual communication allows individuals to express their desire and feel greater connection, thereby increasing relational and sexual satisfaction (Mark & Jozkowski, 2013). Because U.S. individuals are more individualistic and focused on their own pleasure they may feel more satisfaction in their sexual communication. Therefore, we predict that U.S. individuals will report feeling more satisfied with their sexual communication than individuals in Ukraine or Turkey.

**Sexual Mindfulness.** Sexual mindfulness is an individual’s ability to stay aware and
nonjudgmental during sexual experiences (Leavitt et al., 2017). Individuals who practice mindful sex would release expectations for orgasm or other pre-determined goals that stem from societal influences or that are self-imposed. When unpleasant thoughts or emotions arise, a sexually mindful individual would pause, refrain from judging and instead focus on his or her breath or the sensations of his or her body.

Although limited research has considered sexual mindfulness, research on trait mindfulness suggests that mindful individuals experience less sexual distress and are more satisfied with their romantic and relationships and sex lives than less mindful individuals (Adam, Heeren, Day, & de Sutter, 2015; Leavitt et al., 2017). Although Turkey has a regular practice of religious meditation or prayer, research with college students indicates that U.S. college students report more trait mindfulness than Turkish college students (Özyeşil, 2012). Research also suggests that a sense of autonomy is needed for the implementation of mindfulness and that Turkey’s collectivistic society is less encouraging of autonomy, which may account for lower mindfulness (Özyeşil, 2012). Although we know of no research that compares adult levels of mindfulness in the U.S., Ukraine, and Turkey, based on prior research, U.S. adults may also experience more mindfulness than Ukrainian or Turkish adults. If U.S. individuals are more generally mindful they may also be more sexually mindful. Thus, we predict that U.S. adults will be more sexually mindful than Ukrainian or Turkish adults.

**Gender Differences in Relational and Sexual Health**

Men and women differ on a number of dimensions of relational and sexual health, which may manifest in two different ways. First, men’s participation in sexual behavior may be encouraged and women’s participation may be discouraged. Second, social norms encourage men to over report their participation in sexual behavior and women to underreport their
participation in sexual behavior (Petersen & Hyde, 2010). Past work has identified numerous
gender differences in men’s and women’s relational and sexual health, including satisfaction
with relationship (Jackson, Miller, Oka, & Henry, 2014), frequency of sex, masturbation, and
number of sexual partners (Oliver & Hyde, 1993).

In the current study, we focus not on gender differences per se, given that they have been
established in the literature, but instead, on cross-cultural differences in gender differences.
Given Turkey’s collectivistic cultural and traditional gender role attitudes, the difference
between men’s and women’s romantic and sexual satisfaction, sexual communication
satisfaction, and sexual mindfulness may be amplified in Turkey compared to the U.S. For
example, women in Turkey may experience even less sexual satisfaction because traditional
gender attitudes and strongly held religious beliefs are prevalent. One study showed that among
men and women in the U.S. and Turkey, Turkish women reported the lowest sexual satisfaction
of all four groups (Laumann et al., 2006). We know of little research that examines sexual
attitudes and behaviors of Ukrainian men and women. However, although traditional gender
attitudes are prevalent among Ukrainians, Ukrainians are less religious and are likely more
accepting of more liberal sexual attitudes and behaviors than Turks.

Turkey is a collectivistic culture, which de-emphasizes the pleasure of the individual
(Hsu, 1981; Lee & Stone, 1980). Women generally feel less satisfied with their relationships
than do men (Jackson et al., 2014), and because of Turkey’s collectivistic culture Turkish women
might experience additional diminished relational satisfaction. The de-emphasis on personal
pleasure may also diminish Turkish women’s sexual satisfaction, sexual communication
satisfaction, and sexual mindfulness.

It is important to note that we do not predict gender differences in frequency of sexual
behaviors because gender differences in heterosexual married individuals would likely be due to reporting errors and not meaningful differences. That is, heterosexual married men would predominantly be having sex with heterosexual married women, and so we would expect similar rates of behavior for men and women. However, we do predict cross-cultural differences in the magnitude of gender differences in relational and sexual satisfaction, sexual communication satisfaction, and sexual mindfulness.

Present Study

In the current study we examine cross-cultural differences in relational and sexual health in midlife marriage in the U.S., Ukraine, and Turkey. We control for age, education, and marital length because these factors are associated with relational and sexual health (Dakin, & Wampler, 2008; Haavio-Mannila, & Kontula, 1997; VanLaningham, Johnson, & Amato, 2001). Based on differences between these three cultures, we predicted:

1. Cross-cultural differences in relational and sexual health:
   a. U.S. adults would report being more satisfied with their romantic relationships and sex lives than Ukrainian or Turkish adults.
   b. U.S. adults would more frequently engage in kissing, vaginal, and oral sex than Ukrainian or Turkish adults.
   c. U.S. adults would report being more satisfied with their sexual communication than Ukrainian and Turkish adults.
   d. U.S. adults would report being more sexual mindful than Ukrainian and Turkish adults.

2. Gender differences in relational and sexual health would differ by culture:
   a. There would be larger gender differences in relational and sexual satisfaction in
Turkey than in the U.S or Ukraine, with men more satisfied with their romantic relationships and sex lives than women.
b. There would be larger gender differences in sexual communication satisfaction in Turkey than in the U.S or Ukraine, with women more satisfied with their sexual communication than men.
c. There would be larger gender differences in sexual mindfulness in Turkey than in the U.S or Ukraine, with men more sexually mindful than women.

Method

Participants and Procedures

Midlife men and women (N = 320 American, 389 Ukrainian, 740 Turkish, married, heterosexual individuals) accepted invitations to participate in the Sexual Relationship Project (SRP) through a survey link on the author’s and colleagues’ Facebook pages or accepted invitations through paid advertisements on Facebook. We also used snowball sampling, in that individuals who completed the survey could share it with others. Participation was voluntary and we followed all IRB consent requirements. Participants were eligible to enter their name in a drawing for one of four $50 gift certificates. Screening questions confirmed the participant was in the target age range of 35-60, married for at least 2 years, and not pregnant. Despite these screening questions, four participants in the U.S. and 6 participants in Turkey who completed the survey reported ages outside the target range and we therefore excluded them from the study. In addition, because cohabitation is controversial in Turkey, and same gender marriage is illegal in both Turkey and Ukraine, we limited the sample to heterosexual, married individuals for consistency across culture.

Because not all participants completed the online survey, data on key variables were
missing for some participants. Rates of missing data were higher on questions about sexual behaviors and attitudes. We tested for differences between participants within our analytic sample (U.S. \( n = 315 \), Ukraine \( n = 335 \), Turkey \( n = 567 \)) and those who were missing all relational and sexual health variables within the analytic sample (U.S. \( n = 5 \), Ukraine \( n = 54 \), Turkey \( n = 173 \)). We used independent t-tests to compare these groups on age, education, and marriage length. The U.S. had so few missing participants that we could not test group differences. In the Ukrainian sample, there were no significant differences (\( ts < 1.62, ps > .05 \)). In the Turkish sample, there was only one significant difference, for age (\( t = 2.20, p < .05 \)), with those who answered the questions older than those who did not. We performed a \( \chi^2 \) test, comparing the groups by gender, which also was not significant (\( p > .05 \)). We also compared the rates of missing data for the three countries, which indicated significant differences in the rates of missing data for the three countries \( F(2, 1442) = 47.9, p < .001 \).

Table 4.1 details the participants’ demographic characteristics by country. Participants were on average in their mid-forties and predominantly Caucasian. Approximately half of the participants were female and a majority of participants in each country identified with a religion.

**Measures**

**Age.** Participants answered the question, “How old are you?”

**Gender.** Participants reported their gender, coded as 0 = *female*, 1 = *male*.

**Education.** Participants responded to the question, “What is your highest level of education completed?” using a scale from 1 = *completed grade school or less* to 7 = *completed graduate degree*.

**Relationship length.** Participants responded to the question, “How many years have you and your partner been married?”
**Relational satisfaction.** The Couple Satisfaction Index (CSI, Funk, & Rogge, 2007) is a 4-item measure designed to assess individual satisfaction within a relationship. Scales vary by item. One question, “Please indicate the degree of happiness, all things considered, in your relationship,” uses a 7-point scale, from 0 (*extremely unhappy*) to 6 (*perfect*). The other three questions use a 6-point scale from 0 (*not at all true*) to 5 (*completely true*). Reliability was as follows: U.S. $\alpha = .95$, Ukraine $\alpha = .94$, and Turkey $\alpha = .92$.

**Sexual satisfaction.** The New Sexual Satisfaction Scale (NSSS, Štulhofer, Buško, & Brouillard, 2010) is a 12-item measure that examines an individual’s satisfaction with the quality of his/her sexual experience. The stem question for all items is “Thinking about your sex life during the last 6 months, please rate your satisfaction with the following aspects.” An example item is “The quality of my orgasms.” Participants respond using a 5-point scale from 1 (*not at all satisfied*) to 5 (*extremely satisfied*). Reliability in the current sample was: U.S. $\alpha = .92$, Ukraine $\alpha = .93$, and Turkey $\alpha = .95$.

**Sexual frequency.**

**Kissing.** Participants answered one question about kissing frequency, “In the last 12 weeks, on average, how often did you kiss your partner?,” using a 7-point scale from 0 (*never*) to 6 (*more than once a day*).

**Vaginal sex.** Participants answered one question about vaginal sex frequency, “In the last 12 weeks, on average, how often did you have vaginal sex with your partner?” using a 7-point scale from 0 (*never*) to 6 (*more than once a day*).

**Oral sex (performing).** Participants answered one question about frequency of performing oral sex, “In the last 12 weeks, on average, how often did you perform oral sex on your partner? (oral sex refers to a person putting his/her mouth on a partner's genitals)” using a
7-point scale from 0 (never) to 6 (more than once a day).

**Oral sex (receiving).** Participants answered one question about frequency of receiving oral sex, “In the last 12 weeks, on average, how often did your partner perform oral sex on you? (oral sex refers to a person putting his/her mouth on a partner's genitals),” using a 7-point scale from 0 (never) to 6 (more than once a day).

**Sexual communication.** The sexual communication satisfaction scale (Wheeless, Wheeless, & Baus, 1984) is a 12-item measure designed to assess satisfaction about sexual communication. An example question is “I am pleased with the manner in which my partner and I communicate with each other about sex.” Participants answer on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree). Reliability in the current sample was: U.S. α = .94, Ukraine α = .95, Turkey α = .94.

**Sexual Mindfulness.** The Sexual Mindfulness Measure (SMM, Leavitt et al., 2017) measures mindfulness during sexual activity. The SMM contains 10 items and is a two-factor measure of mindfulness during sexual behavior. The SMM observation factor examines the attention the individual gives to his/her sexual experience and includes questions such as “I pay attention to how sex affects my thoughts and behavior.” The SMM non-judgment of experience factor examines the individual’s judgment of his/her own sexual thoughts or behaviors or assessments of his/her partner and includes questions such as “I make judgments about whether my sexual thoughts are good or bad.” Participants respond using a 5-point scale ranging from 1 (never or rarely true) to 5 (very often or always true). Reliability in the current sample was: Observation, U.S. α = .75, Ukraine α = .68, Turkey α = .79; and Non-judgment of experience, U.S. α = .72, Ukraine α = .68, Turkey α = .84.

**Results**
We performed a series of nine 3 (country) X 2 (gender) ANCOVAs to examine differences by country and gender (see Table 4.2). We controlled for age, education, and marital length. We used Tukey post hoc tests to compare the U.S. to Ukraine and the U.S. to Turkey because more prior research has examined sexual behaviors in U.S. samples, providing a point of comparison. We found significant country differences in eight of the nine ANCOVAs.

Specifically, we predicted that U.S. adults would be more satisfied with their romantic relationships and sex lives than Ukrainian and Turkish adults (Hypothesis 1a). As predicted, U.S. adults were more satisfied with their relationships than Ukrainian or Turkish adults ($ps < .001$). U.S. adults were more satisfied with sex than Turkish adults ($p < .001$).

We predicted that U.S. adults would more frequently engage in kissing, oral, and vaginal sex than Ukrainian and Turkish adults (Hypothesis 1b). In support of our hypothesis, U.S. adults reported more frequent kissing than Ukrainian or Turkish adults ($ps < .001$). However, contrary to our hypothesis, U.S. adults reported receiving and performing oral sex and engaging in vaginal sex less frequently than Ukrainian or Turkish adults ($ps < .001$).

We predicted that U.S. adults would feel more satisfied with their sexual communication than Ukrainian or Turkish adults (Hypothesis 1c). Contrary to our hypothesis, U.S. adults reported feeling less satisfaction in their sexual communication than Ukrainian ($p = .051$), or Turkish adults ($p < .001$).

We predicted that U.S. adults would be more sexually mindful than Ukrainian or Turkish adults (Hypothesis 1d). We found no significant country differences for the sexual mindfulness observation sub-scale. However, as predicted, we did find a difference in the non-judgment of experiences sub-scale. Specifically, U.S. adults reported being less judging of sexual experiences than Ukrainian ($p < .05$) or Turkish adults ($p < .001$).
Although not one of our hypotheses, we found significant gender main effects in two of the analyses. Specifically, men were more satisfied with their relationships and less satisfied with their sexual communication than women were \((p = .001)\).

Finally, we predicted that there would be country by gender interactions for relational and sexual satisfaction, sexual communication satisfaction, and sexual mindfulness (Hypotheses 2a, 2b and 2c). However, we found no country by gender interactions.

**Discussion**

This study provided a comparison of relational and sexual health between the U.S., Ukraine, and Turkey. Midlife relational and sexual health differed by country, though not always as predicted. The findings indicate that culture is an important consideration when examining aspects of relational and sexual health. To our knowledge this research is also the first to examine cross cultural differences in sexual mindfulness and thereby helps to establish these measures in the context of these three cultures.

**Cultural differences**

As predicted, U.S. adults reported being more satisfied in their romantic relationships than Ukrainian and Turkish adults. U.S. adults also reported being more satisfied with their sex lives than Turkish adults. Individuals who hold more egalitarian gender role attitudes are more likely to feel satisfied in their relationships (Amato et al., 2003). U.S. culture is more egalitarian than Turkish culture, which may explain these findings. Sexual satisfaction may also be culturally influenced in that individualistic cultures emphasize the individual’s sexual pleasure, which may contribute to feelings of sexual satisfaction (Dion & Dion, 1993), whereas collectivistic cultures, such as Turkey, place less emphasis on the importance of intimacy within marriage, which may impact both relational and sexual satisfaction (Hsu, 1981; Lee & Stone,
As predicted, U.S. adults reported kissing more frequently than Ukrainian and Turkish adults. In U.S. research kissing is an important element of both new and long-term relationships, and is especially important for women (Wlodarski & Dunbar, 2013). Individuals who frequently kiss are also likely to feel satisfied in their relationships (Floyd et al., 2009; Wlodarski & Dunbar, 2013). However, it is possible that kissing does not play the same important role in other countries as it does in the U.S. There is some evidence that kissing is especially important for women’s feelings of satisfaction with the relationship and sex (Hughes, Harrison, & Gallup, 2007; Wlodarski & Dunbar, 2013). It may be that in a more egalitarian culture kissing is more valued as women’s sexual pleasure is taken into account. Contrary to our hypothesis, U.S. adults engaged in less frequent vaginal and oral sex than Ukrainian and Turkish adults. Although we expected to find that U.S. adults would report more frequent vaginal and oral sex, some research indicates that more, not less traditional gender roles attitudes are associated with more frequent vaginal sex (Gager & Yabiku, 2010; Kornrich et al., 2013). Because the U.S. promotes more egalitarian gender role perspectives, and both Turkey and Ukraine promote more traditional gender role perspectives, more frequent vaginal and oral sex in Ukraine and Turkey is consistent with this research. Egalitarian cultures, such as the U.S., likely focus on the sexual pleasure of both partners. Therefore, kissing frequency is emphasized and vaginal and oral sex frequency is less emphasized in an egalitarian culture than in a traditional gender attitude culture.

Our hypothesis that U.S. adults would feel more satisfied with their sexual communication than Ukrainian or Turkish adults was not supported. In fact, U.S. adults were less satisfied with their sexual communication than Ukrainian and Turkish adults. Cultural comparisons between Americans and Chinese posited that people in individualistic cultures such
as the U.S. are more likely to self-disclose. These cultural differences may reflect the fact that U.S. culture encourages an independent self-concept, an ability to speak one’s mind, and an attitude of openness. However, Chinese individuals may be less likely to disclose because the culture encourages an interdependent self-concept and a fear of hurting others’ feelings (Tang, Bensman, & Hatfield, 2013). We know of no work that has examined cultural differences in self-disclosure between the U.S., Ukraine, and Turkey. However, our findings provide a first step in examining how Ukrainians and Turks experience sexual communication. Some research suggests that Americans may disclose more information than non-Americans, but that non-Americans disclose more in-depth information than Americans (Wheeless, Wheeleless, & Baus, 1984). It may be that living in a collectivistic culture curtails some communication. However, talking about sexual experiences within marriage may be an acceptable context and provide a needed outlet for Ukrainians and Turks to sexually disclose and therefore feel greater sexual communication satisfaction than do U.S. adults. This finding may also be a reflection of particular religious beliefs. Whereas Christian beliefs often reflect negative attitudes toward sexual behavior, especially for women (Cahill, 1996), Islam does not deny a woman’s sexual nature, but instead fears it as a temptation to men (Mernissi, 1987). Within marriage, Islamic Turks may embrace sexual communication more than Christian U.S. adults due to particular religious beliefs.

Our hypothesis that U.S. adults would be more sexually mindful than Ukrainian and Turkish adults was partially supported. U.S. adults reported being less judgmental of sexual experiences, but did not differ from Ukrainians and Turks in being sexually mindful through observation. Research indicates that collectivistic cultures do not encourage a sense of autonomy, which is needed for the implementation of mindfulness (Özyeşil, 2012). Being non-judgmental of sexual experiences may also be more likely with egalitarian gender role attitudes rather than
traditional gender role attitudes. U.S. adults may internalize general messages of gender equality, which may allow for a less judgmental perspective on sexual experiences. However, adults in Ukraine and Turkey may feel more comfortable insisting on sexual behavior that maintains traditional gender roles and thus may be more judgmental of sexual behaviors that do not conform with these traditional gender roles (Coller & Resick, 1987; Sani & Quaranta, 2016). Non-judgment of experience is a basic element of mindfulness and is likely influenced by culture (Kabat-Zinn, 1994; Özyeşil, 2012). Thus, being non-judgmental of sexual experiences may be more challenging for Ukrainians and Turks.

Overall, U.S. adults are more satisfied with their relationships and sex lives, kiss more frequently, and are less judgmental during sexual experiences, whereas Ukrainians and Turks engage in more frequent vaginal and oral sex and feel more satisfied with their sexual communication. Thus, U.S. adults report being more satisfied with their relationships and sex lives than Ukrainians and Turks, while at the same time they are engaging in less frequent oral and vaginal sex. It may be that egalitarian gender attitudes in the U.S. provide more freedom to explore sexual roles for both men and women, which likely results in a satisfying sexual experience. However, Turks and Ukrainians may feel more constrained to conform to traditional gender roles, which socializes more frequent vaginal and oral sex than cultures with egalitarian gender attitudes. But traditional gender roles likely do not provide the necessary freedom to explore sexual roles, which may be needed for greater satisfaction in relationships and sexual experiences.

**Gender differences**

Replicating prior U.S. work (Jackson, Miller, Oka, & Henry, 2014), in general, women were less satisfied in their romantic relationships than were men. In contrast, we found that
women were more satisfied with their sexual communication than men were. Prior research indicates that women communicate more frequently than men on non-sexual and sexual topics (Byers & Demmons, 2010; Lefkowitz & Espinosa-Hernandez, 2007), and this experience may lead to differential satisfaction with communication. Although traditional gender roles may limit women’s sexual behaviors, attitudes, and expectations, it may be that within marriage, sexual communication is acceptable or even encouraged. If sexual communication is acceptable within marriage and women communicate more than men, women may feel more satisfied with their sexual communication than men.

We had predicted that gender differences in relational and sexual satisfaction, and sexual mindfulness would be more pronounced in Turkey than in the U.S. or Ukraine. However, we found no significant country by gender interactions. The lack of cross-cultural differences in gender differences in this research does not indicate that gender by county interactions do not exist. Instead, future research may need to include a representative sample from each country to better evaluate the gender by culture differences.

**Limitations and Future Directions**

This research makes a clear contribution to cross cultural work on relational and sexual health. However, this study has several limitations. First, data were not missing at random, which may indicate response bias. Other cross cultural work on sexual health has also faced this concern (Laumann et al., 2005). Laumann et al. (2005) propose that modest response rates may still be broadly inclusive, but may not present a representative sample from each country’s adult population. Although this study helps identify differences in relational and sexual health in these three countries, additional research with random sampling or nationally representative samples will be an important next step. In addition to missing data, we recruited participants from the
Internet, which samples from a more educated and wealthier population than average (Szolnoki & Hoffmann, 2013). This convenience sample allowed us to examine differences in relational and sexual health, but likely has some biases toward individuals who have access to Internet and computers and who are willing to discuss sexual issues. Areas outside of large cities in both Turkey and Ukraine have limited access to Internet services. It is possible that individuals in more rural areas would differ even more than U.S. experiences of relational and sexual health, especially if they have less access to socialization from U.S. culture.

A second limitation is that our sample included midlife adults who were heterosexual, married, predominantly White, well educated, and generally happy in their relationships. Relational and sexual health is likely influenced by other stress factors such as conflict within the relationship, poverty, and the presence of children. Future research should consider cross cultural comparisons with populations that include individuals from these varied backgrounds. For example, future research might examine cross-cultural differences in how relational stress is associated with relational and sexual health. Stress may be increased or decreased depending on the country in which individuals reside. War or general economic instability can impact individuals’ stress levels (Boss, 2014). Cross cultural research could also explore differential associations between religiosity and sexual health in the U.S., Ukraine, and Turkey. The diversity of religious adherence within these countries provides an important contrast. Ukraine was atheist under the Soviet Union and still has low religious attendance, whereas nearly half of U.S. and Turkish adults still attend religious services.

Future cross-cultural work should consider comparisons with additional countries, especially countries in South America, Central Asia, and Scandinavia. There is little sexual health research in South America and Central Asia, where countries are largely developing
(Global Perspective, 2002; Ho, Singam, Hong, & Zainuddin, 2011) and may provide insight into sexual attitudes and behaviors in these regions. Scandinavian countries in particular, would provide a healthy contrast as countries with more liberal sexual attitudes.

Future research can examine whether kissing, vaginal sex, and oral sex frequency in each country is associated with relational and sexual satisfaction, which are important outcomes in determining relational health and stability. Examining sexual health requires researchers to consider large cultural issues that may impact individuals’ sexual attitudes and behaviors.

**Conclusion**

This study establishes a basic understanding of differences in relational and sexual satisfaction, sexual behaviors, sexual communication satisfaction, and sexual mindfulness in the U.S., Ukraine, and Turkey. We found country differences in eight of the nine variables and also found gender differences in relational satisfaction and sexual communication. Compared to adults in Ukraine and Turkey, individuals in the US were more satisfied with their relationships and sex lives, were more sexually mindful in the aspect of non-judgment, and reported having vaginal and oral sex less frequently and feeling less satisfied with their sexual communication. These findings support the need to consider culture as an important consideration when examining aspects of relational and sexual health.
References


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Inglehart, R., & Norris, P. (2003). *Rising tide: Gender equality and cultural change around the*


Table 4.1

Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>U.S. ((n = 315))</th>
<th>Ukraine ((n = 335))</th>
<th>Turkey ((n = 567))</th>
</tr>
</thead>
<tbody>
<tr>
<td>% female</td>
<td>50.8</td>
<td>47.2</td>
<td>39.2</td>
</tr>
<tr>
<td>Age in years</td>
<td>45.4 ((6.01))</td>
<td>44.7 ((7.03))</td>
<td>44.0 ((6.29))</td>
</tr>
<tr>
<td>Years married</td>
<td>18.4 ((8.66))</td>
<td>16.2 ((9.32))</td>
<td>16.8 ((8.22))</td>
</tr>
<tr>
<td>Education(^1)</td>
<td>6.0 ((1.14))</td>
<td>5.5 ((1.16))</td>
<td>5.0 ((2.11))</td>
</tr>
<tr>
<td>Race</td>
<td>91.4% Caucasian</td>
<td>100% Caucasian</td>
<td>100% Caucasian</td>
</tr>
<tr>
<td></td>
<td>6.4% Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.9% Asian</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.3% Black</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td>79.3% Christian</td>
<td>75.0% Christian</td>
<td>0.2% Christian</td>
</tr>
<tr>
<td></td>
<td>13.3% Atheist</td>
<td>12.5% Atheist</td>
<td>12.0% Atheist</td>
</tr>
<tr>
<td></td>
<td>4.4% Jewish</td>
<td>1.2% Jewish</td>
<td>0.4% Jewish</td>
</tr>
<tr>
<td></td>
<td>0.9% Muslim</td>
<td>0.0% Muslim</td>
<td>85.7% Muslim</td>
</tr>
<tr>
<td></td>
<td>2.1% Other</td>
<td>11.3% Other</td>
<td>1.7% Other</td>
</tr>
</tbody>
</table>

Note: \(^1\)Education 1 = Completed grade school or less (e.g., 8\(^{th}\) grade or less) to 7 = Graduate degree.
### Table 4.2

**ANCOVAs by Country and Gender Controlling for Age, Education, and Marriage Length**

<table>
<thead>
<tr>
<th></th>
<th>U.S. M (SE)</th>
<th>Ukraine M (SE)</th>
<th>Turkey M (SE)</th>
<th>$F$ (Country)</th>
<th>$F$ (Gender)</th>
<th>$F$ (Country X Gender)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relationship Satisfaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>3.87 (1.02)</td>
<td>3.15 (1.10)</td>
<td>2.79 (1.16)</td>
<td>60.90***</td>
<td>5.11*</td>
<td>0.20</td>
</tr>
<tr>
<td>Women</td>
<td>3.65 (1.24)</td>
<td>2.99 (1.40)</td>
<td>2.68 (1.27)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sexual Satisfaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>3.26 (.89)</td>
<td>3.30 (.83)</td>
<td>3.08 (0.90)</td>
<td>7.93***</td>
<td>0.61</td>
<td>1.63</td>
</tr>
<tr>
<td>Women</td>
<td>3.49 (.73)</td>
<td>3.21 (.78)</td>
<td>2.95 (1.10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sexual Communication</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>4.35 (1.43)</td>
<td>4.82 (1.51)</td>
<td>5.50 (1.65)</td>
<td>10.38***</td>
<td>11.72***</td>
<td>2.45</td>
</tr>
<tr>
<td>Women</td>
<td>5.08 (1.37)</td>
<td>5.42 (1.55)</td>
<td>5.42 (1.55)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Kissing Frequency</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>4.95 (1.59)</td>
<td>4.12 (1.89)</td>
<td>3.98 (1.80)</td>
<td>23.32***</td>
<td>0.51</td>
<td>0.06</td>
</tr>
<tr>
<td>Women</td>
<td>5.03 (1.30)</td>
<td>4.38 (1.89)</td>
<td>4.08 (1.82)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oral Sex (perform) Frequency</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>1.21 (1.10)</td>
<td>2.31 (1.48)</td>
<td>2.14 (1.65)</td>
<td>16.59***</td>
<td>0.00</td>
<td>1.81</td>
</tr>
<tr>
<td>Women</td>
<td>1.48 (1.28)</td>
<td>2.37 (1.38)</td>
<td>1.90 (1.64)</td>
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<tr>
<td><strong>Oral Sex (receive) Frequency</strong></td>
<td></td>
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<tr>
<td>Men</td>
<td>1.09 (1.17)</td>
<td>1.98 (1.49)</td>
<td>1.74 (1.68)</td>
<td>9.40***</td>
<td>0.50</td>
<td>0.52</td>
</tr>
<tr>
<td>Women</td>
<td>1.37 (1.39)</td>
<td>2.08 (1.39)</td>
<td>1.75 (1.74)</td>
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<tr>
<td><strong>Vaginal Sex Frequency</strong></td>
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<tr>
<td>Men</td>
<td>2.63 (1.22)</td>
<td>3.73 (1.51)</td>
<td>3.34 (1.70)</td>
<td>15.16***</td>
<td>0.52</td>
<td>0.16</td>
</tr>
<tr>
<td>Women</td>
<td>2.60 (1.52)</td>
<td>3.63 (1.67)</td>
<td>3.21 (1.89)</td>
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<tr>
<td><strong>Sexual Mindfulness – Observing</strong></td>
<td></td>
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</tr>
<tr>
<td>Men</td>
<td>3.43 (.80)</td>
<td>3.66 (.86)</td>
<td>3.44 (1.09)</td>
<td>2.09</td>
<td>0.24</td>
<td>0.04</td>
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<tr>
<td></td>
<td>U.S. M (SE)</td>
<td>Ukraine M (SE)</td>
<td>Turkey M (SE)</td>
<td>(F) (Country)</td>
<td>(F) (Gender)</td>
<td>(F) (Country X Gender)</td>
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<tr>
<td><strong>Women</strong></td>
<td>3.41 (.84)</td>
<td>3.66 (.73)</td>
<td>3.51 (0.95)</td>
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<tr>
<td>Sexual Mindfulness –</td>
<td></td>
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<tr>
<td>Non-judgment</td>
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<tr>
<td><strong>Men</strong></td>
<td>4.13 (.69)</td>
<td>3.74 (.83)</td>
<td>3.42 (1.01)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td>3.88 (.83)</td>
<td>3.70 (.90)</td>
<td>3.26 (1.29)</td>
<td></td>
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</tbody>
</table>

Note: Due to missing data, \(n = 194 - 298\) (U.S.); 136 - 333 (Ukraine); 195 - 556 (Turkey). *\(p < .05\); **\(p < .01\); ***\(p < .001\).
Chapter 5: Final Discussion

In this research I examined factors that may contribute to midlife relational and sexual health. Across these three papers I developed a new measure of sexual mindfulness, examined the contribution of mindfulness and desire discrepancy to relational and sexual satisfaction, and explored the roles of gender and culture in relational and sexual satisfaction. The measure, the Sexual Mindfulness Measure (SMM), demonstrated reliability and validity with midlife adults, and demonstrated explanatory power above and beyond trait mindfulness. Sexual mindfulness, assessed by the SMM, moderated the association between desire discrepancy and sexual satisfaction. Finally, I demonstrated cross-cultural differences between the U.S., Ukraine, and Turkey in sexual behavior and relational and sexual satisfaction. Across the three studies, findings indicate that context is an important aspect of midlife relational and sexual health. Midlife adults are influenced by factors at both the macro and micro level.

Relational and sexual health

Scholars have recognized the need to define relational and sexual health in midlife by a combination of objective and subjective factors (Lachman, 2004; Laumann, Das, & Waite, 2008). Some of these factors may include sexual frequency, relationship quality, and physical and mental health. Each of these factors explains an element of relational or sexual health during midlife. The participants in these studies engaged in sex 1-4 times a month, and were generally satisfied with their relationships and their sex lives.

Individuals who experience more desire discrepancy are likely to feel less satisfied with their relationships and sexual experiences (Willoughby, Farero, & Busby, 2014; Willoughby & Vitas, 2012). The construct of desire discrepancy represents the difference between how frequently an individual desires to have sex and how frequently an individual actually has sex,
and is likely associated with an individual’s diminished relational and sexual satisfaction, two indicators of sexual health (Santtila et al., 2008; Willoughby, Farero, & Busby, 2014; Willoughby & Vitas, 2012). In the current studies, I found that desire discrepancy was associated with both relational and sexual satisfaction. Midlife men and women who had larger discrepancies between their desire for sex, and how frequently they actually had sex, tended to be less satisfied with their relationships and with their sex lives. This finding supports prior work that unmet sexual expectations lead to worse relationship functioning (Willoughby et al., 2014).

In addition to considering associations between different aspects of relational and sexual health, I also examined cross-cultural differences in sexual health. I found several cross-cultural differences between the U.S., Turkey, and Ukraine. For instance, U.S. adults, who benefit from a culture that promotes more independence, reported being more satisfied with their relationships and sex lives and kissing more frequently than Ukrainian and Turkish adults. It may be that living in a culture that encourages egalitarian gender roles and emphasize individuals’ sexual pleasure contributes to feelings of relational and sexual satisfaction (Amato et al., 2003; Dion & Dion, 1993). Identifying broad cultural differences may allow researchers and therapists to better understand why relational and sexual satisfaction may differ among countries.

This dissertation work confirmed that context is an important consideration in relational and sexual satisfaction. Individuals are influenced by factors at the macro level, like cultural norms. Individuals are also influenced by factors at the micro level, like contexts within their own relationships, such as desire discrepancy.

**Mindfulness**

Mindfulness is the ability to stay present, without judgment (Kabat-Zinn, 1990; Kabat-Zinn, 1994). Previous research established that mindfulness may provide individuals with needed
skills and perspective to disengage from destructive patterns in both their romantic and sexual relationships (Barker, 2017; Barnes, Brown, Krusemark, Campbell, & Rogge, 2007; Carson, Carson, Gil, & Baucom, 2004; Davis & Hayes, 2011). The use of mindfulness may be particularly salient in midlife in that mindfulness may allow individuals to better adjust to the gains and losses experienced during this period of life (Barlow, 1986; Forbes, Eaton, & Krueger, 2016; Laumann et al., 2008; Laumann, Paik, & Rosen, 1999; Lindau et al., 2007).

Midlife adults face a convergence of personal and relational changes that may increase anxiety or at least require constant adjustment (Lachman, 2004; Laumann et al., 2008; Rossi, 1980). Midlife adults deal with changes in physical and mental health (Laumann et al., 2008; Lindau et al., 2007; Nicolosi, Moreira, Villa, & Glasser, 2004), as well as changes in relational health (Rollins, 1989; Rossi, 1980). In this dissertation I demonstrated that mindfulness is associated with both relational and sexual satisfaction and may therefore be a useful tool for helping midlife adults deal with some of the changes of midlife.

Even if midlife adults employ mindfulness in their daily life, they may not be able to maintain this same mindfulness during sexual experiences. Mindfulness in daily life helps individuals become more aware of harmful patterns habituated on a day-to-day basis (Atkinson, 2013; Barnes et al., 2007; Carson et al., 2007). Sexual mindfulness may help individuals examine any harmful patterns in their sexual experiences. These harmful patterns may be connected to their decreased satisfaction with romantic and sexual experiences. Sexually mindful individuals may be able to observe their arousal, let go of predetermined goals, and maintain an attitude of acceptance during sexual experiences.

Across studies, I found that sexual mindfulness is associated with sexual health. In the development of the SMM, I examined how two aspects of sexual mindfulness (observation and
non-judgment of experience) are associated with sexual health after accounting for trait mindfulness. Specifically, individuals who were more sexually mindful tended to be more satisfied with their individual functioning and sexual lives than individuals who were less sexually mindful. Thus, the SMM may provide a useful tool for researchers and therapists aiming to explain or improve sexual satisfaction.

Having developed a reliable and valid measure of sexual mindfulness, I then tested how trait mindfulness and sexual mindfulness are associated with sexual satisfaction. In addition, I examined the role of sexual mindfulness in moderating the association between desire discrepancy and sexual satisfaction. Although mindfulness is positively associated with sexual satisfaction (Barker, 2017; Khaddouma, Gordon, & Bolden, 2015), desire discrepancy represents an area of sexual difficulty that cannot be resolved by the individual alone, but instead is dependent on a couple’s sexual interaction. I found that both aspects of sexual mindfulness were positively associated with sexual satisfaction. In addition, being mindful by observing during sex moderated the association between desire discrepancy and sexual satisfaction. For individuals who were more observant during sex, the association between desire discrepancy and sexual satisfaction was stronger than for individuals lower in sexual mindfulness. Thus, therapists should be aware that in cases where individuals experience much desire discrepancy, sexual mindfulness could actually make desire discrepancy more detrimental to their satisfaction.

I then used the SMM in the larger context of cross cultural comparisons. Culture is a combination of factors such as individualism or collectivism, religious attitudes, and gender role attitudes. As compared to less sexually mindful individuals, more sexually mindful individuals may be able to observe their arousal, let go of predetermined goals, and maintain an attitude of acceptance during sexual experiences, which may create more enjoyable sexual experiences.
Sexual mindfulness, especially during midlife, may provide an additional tool for researchers and therapists to better examine an individual’s state of mindfulness during a sexual experience. Midlife adults will likely experience increased sexual dysfunction. The ability to create calmness, reduce or diminish expectations and goals, and eliminate judgment may help the midlife individual to adjust an area of his/her life where they have control (e.g., thoughts, expectations), which may in turn help an area of his/her life where they do not have control (e.g., arousal, anxiety). Additionally, sexual mindfulness does not depend on a partner’s involvement and thereby affords more flexibility than sensate focus. Whereas sensate focus requires desensitization practice with a partner, mindfulness can be practiced without the help of a partner. Consequently, sexual mindfulness may provide a way for prevention scientists to develop individual-based interventions for sexual problems, and may provide therapists a way to address sexual concerns at an individual-level.

U.S. adults reported being more mindful by not judging during sex than Ukrainian or Turkish adults, which indicated that this element of sexual mindfulness may be more present in an individualistic culture. Collectivistic cultures do not encourage a sense of autonomy, which may be needed for the implementation of mindfulness (Özyeşil, 2012). However, individuals in the three countries did not differ on being more mindful by observing during sex.

As researchers work to understand the connections between mindfulness and relational and sexual satisfaction, the use of more context specific measures may be required. I provided one such context specific measure, the SMM. Using the SMM allows researchers to examine whether individuals maintain mindfulness during sex and whether sexual mindfulness is associated with important relational and sexual health outcomes.

Gender
Across these studies I found that gender is an important consideration when examining relational and sexual health. Prior work has demonstrated that men and women differ in a number of aspects of relational and sexual health including satisfaction with relationship (Jackson, Miller, Oka, & Henry, 2014), frequency of sex, masturbation, and number of sexual partners (Oliver & Hyde, 1993). These differences in part stem from cultural scripts for how men and women should behave (Carpenter, 2010; Petersen & Hyde, 2010). Midlife is a time when many of these sexual scripts may be questioned and changed. Marriage is generally thought of as a protective factor for health and greater sexual frequency is typically associated with feelings of greater sexual satisfaction (Brody & Costa, 2009; Haavio-Mannila, & Kontula, 1997; Nicolosi, Moreira, Villa, & Glasser, 2004). However, although men generally benefit from marriage and more frequent sex, women benefit only when the relationship is high quality (Brotto, Bitzer, Laan, Leiblum, & Luria 2010; Dempsey, 2002; Donoho, Crimmins, & Seeman, 2013; Umberson et al., 2006).

Prior work on sexual mindfulness only considered women, so, to my knowledge, no research had considered sexual mindfulness in men, or potential gender differences in sexual mindfulness. In creating the SMM, I found that the measure was reliable for both men and women. In addition, I found no gender difference in sexual mindfulness in a three-country sample.

I also examined gender differences in how sexual mindfulness moderated the association between desire discrepancy and relational and sexual satisfaction. I found no significant gender differences in how mindfulness moderated the association between desire discrepancy and relational and sexual satisfaction. That is, sexual mindfulness played the same moderating role in the association between desire discrepancy and satisfaction regardless of gender. Given the
challenge of finding significant moderation effects, future work should further explore this association.

In a three-country sample, I found gender differences in sexual communication satisfaction and relational satisfaction. Women felt more satisfied with their sexual communication than men did. Women communicate more frequently than men on non-sexual and sexual topics (Byers & Demmons, 2010). Therefore, it is likely that women feel more sexual communication satisfaction because they are able to express their sexual needs and concerns more than men do. However, women also reported feeling less satisfied in their relationships than men, which is consistent with prior research (Dempsey, 2002). Women may feel less satisfied in their relationships unless the relationship is more egalitarian (Umberson et al., 2006).

**Contributions to the literature**

These studies contribute to the literatures on mindfulness and on relational and sexual health. One of the most important contributions may be the creation of the Sexual Mindfulness Measure to examine mindfulness during a sexual experience. Across the three studies, I demonstrated the SMM’s psychometric properties, examined how it contributes to relational and sexual satisfaction, and, in the context of a larger paper, examined how it varies by culture. I also provided some evidence of how being mindful by observing during sex moderates the association between desire discrepancy and sexual satisfaction. Lastly, I provided cross cultural comparisons of a number of relational and sexual health variables across three diverse cultures.

**Future directions.** This dissertation is a first step in a research plan to examine midlife relational and sexual health, and the role of mindfulness in relational and sexual health. I am planning a number of additional studies that will build on this work. My next steps will include: 1) research using the same dataset used in the dissertation, the Sexual Relationship Project, and
2) research that involves new data collection.

First, I plan to use the Sexual Relationship Project data to further examine the validity and reliability of the SMM. I will use the Sexual Relationship Project data from Ukraine and Turkey to examine the validity and reliability of the SMM in other cultures.

Second, I will examine other cross cultural differences related to sexual mindfulness and sexual health using the Sexual Relationship Project data. For instance, I will examine whether trait and sexual mindfulness are positively associated with relational and sexual satisfaction in Ukraine and Turkey.

Third, I will consider broader mindfulness and sexual health questions. For instance, I will consider whether individuals who are more sexually mindful are less likely to experience desire discrepancy than people who are less sexually mindful. In addition, I will consider whether trait or sexual mindfulness moderate the association of self-esteem or sexual communication and relational and sexual satisfaction.

Fourth, I will use the Sexual Relationship Project data to examine whether religiosity and mindfulness are similarly positively associated with relational and sexual satisfaction in Ukraine and Turkey as in the U.S. Both being more religious and being more mindful are associated with greater relationship satisfaction (Bradbury, Fincham, & Beach, 2000; Call & Heaton, 1997; Fard, Shahabi, & Zardkhaneh, 2013). However, Christian morality may promote negative attitudes toward sexual behavior, especially for women (Cahill, 1996). I will examine the associations of religiosity and mindfulness with relational and sexual satisfaction for men and women. I would expect to find that Ukrainians experience less of an association between religiosity and relational and sexual satisfaction than Americans or Turks because their culture is more secular.

In addition to papers out of the Sexual Relationship Project, I will also collect new data to
address these broad research interests. I currently anticipate collecting data to address two areas. First, I will gather data in other cultures, which will allow me to examine how culture contributes to different sexual attitudes or behaviors. I am in the initial stages of collecting data in Bangladesh, a country more sexually conservative than the U.S. These data will provide a comparison point in Central Asia. Another comparison culture that may be useful would be Mexico or another Latin American country. I will also work toward collecting data in a more sexually open country such as a Scandinavian country. Testing the validity and reliability of the SMM in other populations may also be of interest, such as in single adults, or couples in high conflict relationships.

Second, I will gather longitudinal dyadic data from a sexual mindfulness intervention to examine how changes in sexual mindfulness may be associated with changes in couple outcomes. I plan to conduct a longitudinal dyadic intervention on mindfulness and midlife sexual health. I would like to measure couples’ changes in relational and sexual satisfaction before and after a sexual mindfulness intervention (see Figure 5.1). An intervention would test whether improving individuals’ sexual mindfulness improves their relational and sexual satisfaction.

Figure 5.1

*Intervention logic model*
Mindfulness is a skill that requires practice and longer periods of time may be required to detect improvement in trait and sexual mindfulness. Post-intervention would allow me to track improvement in mindfulness as a result of the intervention, and possible improvements in other outcomes such as relational and sexual satisfaction and sexual functioning. As couples become more mindful, and specifically more aware or observant of their anxiety, arousal, or other personal expectations, they may initially experience a decrease in satisfaction or other outcome measures. However, as couples continue a mindfulness practice they likely will experience less judgment and more ability to let go of unhealthy expectations. The continued practice of mindfulness would likely create incremental improvements over time.

As participants continue to practice the mindfulness and sexual mindfulness skills taught in the intervention, they would likely continue to improve in these skills (Markman, Renick, Floyd, Stanley, & Clements, 1993). In addition to assessing positive outcomes of an intervention,
Longitudinal research can address whether an intervention may have negative outcomes, such as an individual’s heightened sensitivity to the lack of relationship skills or mindfulness skills (e.g. Rogge, Cobb, Lawrence, Johnson, & Bradbury, 2013). Individuals who learn to be sexually mindful may need months of practice to show results in some outcomes. Following couples for a twelve-month or longer period could reveal a natural process of development within a sexual mindfulness practice.

Because the intervention includes dyadic data, I could examine whether a partner’s mindfulness influences the individual’s relational and sexual satisfaction. I could also examine whether conflict diminishes over time when either or both partner’s mindfulness increases. In addition, I could examine the influence of mindfulness in the dyadic relationship for basic relationship outcomes such as communication, sexual communication, relationship stability, and sexual functioning.

Figure 5.2 provides an outline of my current and proposed program of research. The green boxes indicate research questions addressed in the current dissertation. The purple boxes indicate areas of future research. I will use my cross-sectional data, collect new cross-sectional data from additional countries, and create an intervention that evaluates the impact of a mindfulness intervention on dyadic relationships.

To better evaluate midlife relational and sexual health, I plan to continue my research in mindfulness, specifically sexual mindfulness, and relational and sexual satisfaction. The area of sexual mindfulness is a relatively new area and will benefit from the research questions answered in this dissertation. In addition, the studies I have proposed here will build on this dissertation work and continue to contribute to the areas of sexual health and mindfulness. Using this new measure and the work in this dissertation, I will continue to expand the literature on sexuality.
and mindfulness.
Sexual Mindfulness Research

Figure 5.2

Sexual Mindfulness Research

Sexual Relationship Intervention:

Aim 1: To conduct an independent randomized trial to assess the efficacy of a Skills/Mindfulness practice intervention for committed couples for increasing relational and sexual quality (relational satisfaction, relationship stability, sexual satisfaction and sexual functioning). 

Aim 2: To compare the efficacy of a mindfulness only program to a mindfulness and sexual mindfulness program.

Study will utilize a randomized controlled trial. The intervention will consist of 3 groups: 2 intervention conditions (mindfulness only and mindfulness + sexual mindfulness) and 1 control group. Couples will be randomized to one of the groups prior to the intervention. All groups will take a baseline assessment measuring individual, relationship and sexual functioning. Participants will report on their own functioning and their perceptions of their partner’s functioning. Follow up reporting at end of intervention, 3, 6, and 12 months.
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