

DISSERTATION

PSYCHOLOGICAL PREDICTORS OF SEXUAL SATISFACTION AMONG
MARRIED HETEROSEXUAL OLDER ADULTS USING THE INTERPERSONAL
EXCHANGE MODEL OF SEXUAL SATISFACTION

Submitted by

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In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

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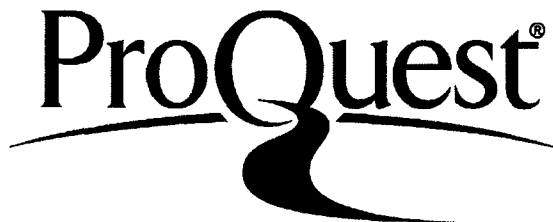
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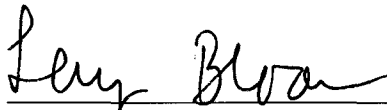
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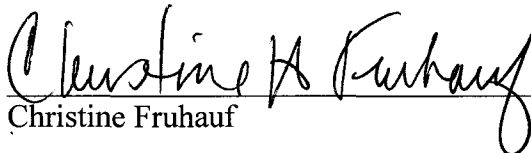
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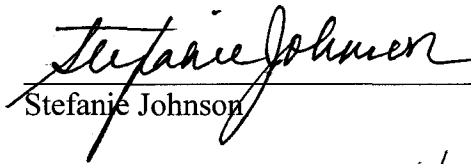
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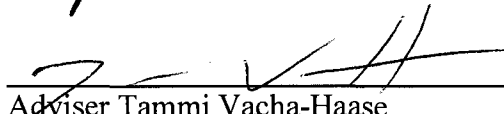
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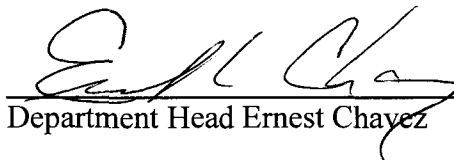
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ABSTRACT OF DISSERTATION

PSYCHOLOGICAL PREDICTORS OF SEXUAL SATISFACTION AMONG
MARRIED HETEROSEXUAL OLDER ADULTS USING THE INTERPERSONAL
EXCHANGE MODEL OF SEXUAL SATISFACTION

Sexual satisfaction is an area that has rarely been studied among older adults. However, as people live longer, and have the options of various methods to aid with sexual functioning, it has become increasingly valued to maintain a satisfying sex life at the end of the lifespan. Variables that have been found to predict sexual satisfaction in research with younger adult populations include: age, gender, marital/relationship satisfaction, sense of perceived control, and subjective well-being. Thus, these same psychological predictors of sexual satisfaction (relationship satisfaction, subjective well-being and sense of control) were explored in an older adult population.

The current study is based on previous findings with younger adults, and utilizes the Interpersonal Exchange Model of Sexual Satisfaction (IEMSS) theory. The present study further utilized secondary analyses of the Midlife in the United States (MIDUS) 2 database, with a focus on heterosexual married adults aged 65 to 84. The three psychological variables were used together to create a potential prediction model and were analyzed using multiple regression techniques and post hoc correlations.

Results using this three-factor model indicated that relationship satisfaction significantly contributed to the way that sexual rewards and costs compared to one's expected level of sexual rewards and costs, the perceived equality of sexual rewards and costs between partners, and the quality of the nonsexual aspects of the relationship (IEMSS components two, three, and four). Within this context, subjective well-being did

not appear to add predictive value to the current model. However, sense of perceived control significantly contributes the way that sexual rewards and costs compare to one's expected level of sexual rewards and costs and the perceived equality of sexual rewards and costs between partners (IEMSS components two and three).

Of additional note, when correlational analyses were examined, and issues of multicollinearity were circumvented, all three psychological factors (relationship satisfaction, subjective well-being and sense of control) were statistically significantly related to IEMSS components two, three, and four (the way that sexual rewards and costs compared to one's expected level of sexual rewards and costs, the perceived equality of sexual rewards and costs between partners, and the quality of the nonsexual aspects of the relationship).

It appears at this time that the construct of sexual satisfaction is far more complex than once thought. In this study among married, heterosexual older adults, typical levels of sexual satisfaction varied based on which aspect of sexual satisfaction was being examined. There were also many factors that went into predicting levels of sexual satisfaction. It is also now known that relationship satisfaction, subjective well-being and sense of control are related to sexual satisfaction in myriad ways. This knowledge can be used to shape treatments for sexual problems and finding ways to maintain high levels of sexual satisfaction across the lifespan. It is essential to work toward including sexual health and maintenance as a regular part of care for our older adults.

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Chapter 1: Introduction

The United States population is aging. Currently one out of every eight Americans is over age 65; within the next two decades this older population is projected to reach 72 million people (He, Sengupta, Velkoff, & DeBarros, 2005). A large number of these aging adults are considered to be “Baby Boomers,” who came of age during the sexual revolution of the 1960’s and early 1970’s. They are the first generation to have nearly unlimited access to information about human sexuality via the internet, access to the birth control pill and the option for prescription drugs specifically designed to enhance sexual functioning. The Baby Boomers are a generation that has come to expect satisfying sex lives. However, society has not traditionally accepted nor researched what it is that makes for a satisfying sex life in later adulthood.

At this time there is limited data on the degree of sexual satisfaction experienced by older adults (Griebeling, 2006) or the factors that lead to increases in sexual satisfaction with age. In fact, the few studies that examine levels of sexual satisfaction among older adults indicated that as age increases, reported sexual satisfaction decreases (Biss & Horne, 2005; Johnson, 1998; Deeks & McCabe, 2001; Beutel, Schumacher, Weidner, & Brahler, 2002). This may be due to sexual problems (Dunn, Croft, & Hackett, 2000; Kingsberg, 2002; MacNeil & Byers, 1997), decreases in sexual desire and functioning (Araujo, Mohr, & McKinlay, 2004; Deeks & McCabe, 2001; Genazzani, Gambacciani, & Simoncini, 2007; Howard, O’Neill, & Travers, 2006), or the presence of lack of a sexual

partner (Fugul-Meyer & Sjögren Fugul-Meyer, 1999). This is unfortunate as lifelong sexual function has come to be seen as a primary component of achieving successful aging (Gott, 2006).

In fact, there are many compelling reasons to study sexual satisfaction among older adults. Research with younger adult populations has shown that sexual satisfaction is important to psychological well-being and in buffering against depressive symptoms (Hurlbert, et. al., 2005; Tower & Krasner, 2006). There appears to be strong associations between level of sexual satisfaction and presence of depression for both men and women (Nicolosi, Moriera, Villa, & Glasser, 2001; Tower & Krasner, 2006). For example, the presence of sexual problems can negatively affect one's psychological well-being (Hinchliff & Gott, 2004; Wylie, 2004) and sexual satisfaction appears to be a psychologically protective factor for younger adults. Further, sexual pleasure has been recognized as a fundamental need of humans, and is an important part of life (Genazzani, Gambacciani, & Simoncini (Eds.), 2007; Lindau, et.al, 2007).

Moreover, it is known that for older adults, maintaining a satisfying level of sexual activity is an important part of sustaining a high quality of life (Griebing, 2006). However, Lindau et al., 2007 reported that the likelihood of being sexually active was uniformly lower among women than among men, which may impact levels of sexual satisfaction among older women. Nonetheless, the existing information regarding the psychological benefits of sexuality has almost exclusively been collected among populations of younger adults. In fact, there have been no studies to date that have examined the way that psychological factors may relate to sexual satisfaction for older adults. This is clearly a deficit in the current literature. Thus, extending this field of

research into older adult populations will be essential to more fully understanding sexual satisfaction across the lifespan.

Sexual Satisfaction

Definition and measurement. There is no single agreed upon definition of sexual satisfaction. For example, some studies have conceptualized sexual satisfaction as a lack of dissatisfaction with one's sex life; others have relied on measures such as frequency of intercourse or orgasm to determine sexual satisfaction. Lawrence and Byers (1995) defined sexual satisfaction as an "affective response arising from one's subjective evaluation of the positive and negative dimensions associated with one's sexual relationship" (p.268) implying that sexual satisfaction relies not only on sexual behaviors, but also on interpersonal factors. This definition of sexual satisfaction is supported by previous research, and is a main component in the Interpersonal Exchange Model of Sexual Satisfaction (IEMSS) (Lawrence and Byers, 1995).

Levels of sexual satisfaction. In the majority of published research studies on sexual satisfaction, participants rated their current level of overall sexual satisfaction as relatively high (Dunn, Croft, & Hackett, 2000; Biss & Horne, 2005; Byers, Demmons, & Lawrence, 1998; Fugul-Meyer & Sjögren Fugul-Meyer, 1999; Apt & Hurlbert, 1996). In fact, Dunn, Croft, and Hackett found that three-quarters of their respondents reported they were "extremely" or "quite satisfied" with their sex lives (2000). Of note is that none of these studies included participants over the age of 60. Therefore, it is unclear if these high levels of sexual satisfaction would generalize to an older adult population.

Sexual Satisfaction Related to Gender and Aging

Many researchers have examined potential predictors of sexual satisfaction. However these studies have primarily examined general population samples, excluding the unique experiences of older adults. For example, there are inconsistencies as to whether gender differences exist when participants rate themselves satisfied sexually. Some researchers indicated that women were more likely to be sexually satisfied than men (Biss & Horne, 2005; Dunn, Croft, & Hackett, 2000; Tower & Krasner, 2006); others stated that men were more likely to be sexually satisfied than women (Laumann, et.al, 2006). And, others have indicated there are no statistically significant differences in the satisfactions scores of men and women (Dunn, Croft, & Hackett, 2000; Fugul-Meyer & Sjögren Fugul-Meyer, 1999; Haavio-Mannila & Kontula, 1997; MacNeil & Byers, 1997; Young, Denny, Luquis, & Young, 1998). It should be noted that Lindau et al. (2007) reported the likelihood of being sexually active was uniformly lower among women than among men, which may impact levels of sexual satisfaction. Thus, it is unclear at this time or how gender may impact the prediction of sexual satisfaction for older adults.

Researchers have consistently suggested that as age increases, reported sexual satisfaction decreases (Biss & Horne, 2005; Johnson, 1998; Deeks & McCabe, 2001; Beutel, Schumacher, Weidner, & Brahler, 2002). This has been hypothesized to be due to several factors. One of these areas may be declining sexual frequency with age (Christopher & Sprecher, 2000; Deeks & McCabe, 2001). Thus, age appears to relate negatively with frequency of marital sex; however, even within this decline Christopher and Sprecher (2000) found marital satisfaction to be positively related to sexual

frequency. This was corroborated by Beutel, Weidner, and Brahler's findings (2006) of significant correlations between sexual and partnership satisfaction. Therefore, even with age-related declines in sexual frequency, it appears that relationship satisfaction is still associated with sexual satisfaction. A further finding of this study was that frequency of sex appears to decline both more rapidly and more dramatically than does the level of sexual satisfaction. This may suggest that the relationship between quantity and quality of sex changes with the passage of time (Christopher & Sprecher, 2000).

Other studies of sexual satisfaction have found that the presence of physical sexual problems or concerns relate to decreases in reported sexual satisfaction for both older men and women (Dunn, Croft, & Hackett, 2000; Kingsberg, 2002; MacNeil & Byers, 1997). Along these lines, it is known that individuals with more severe physical impairments (e.g. sexual or otherwise) experienced significantly lower levels of sexual satisfaction (Kedde & van Berlo, 2006). Kedde and van Berlo reported that overall men with physical disabilities reported lower levels of sexual satisfaction than did women with physical disabilities (2006), which may relate to men with disabilities believing they do not meet the gender stereotypic expectations of men as strong and virile. It has been found that a high level of sexual functioning is important to overall sexual satisfaction (Young, Denny, Luquis, & Young, 1998).

Maintaining a satisfying level of sexual activity is an important part of sustaining a high quality of life for older adults (Griebeling, 2006). In fact, Fugul-Meyer and Sjögren Fugul-Meyer report that having or not having a steady partner was significantly associated with the level of satisfaction with one's sexual life (1999). However, it is also known that maintenance of sexual interest is largely dependent on the existence of a

relationship, and older women are much less likely to be in a relationship than older men (Genazzani, Gambacciani, & Simoncini, 2007) and this difference increases dramatically with age (Lindau, et.al, 2007). For example, Lindau, et al. (2007) stated that a total of 78% of men age 75 to 85, as compared to 40% of same age women, reported having a spousal or other intimate partner. In fact, Gott (2001) found that for older adults being married significantly related to being currently sexually active. Therefore, it is the presence of an able sexual partner that is a major factor in the sexuality of older men and women (Beutel, Schumacher, Weidner, & Brahler, 2002; Beutel, Weidner, & Brahler, 2006; Howard, O'Neill, & Travers, 2006).

Most people have the potential to remain sexually active into very late life and that sexual activity is often considered central to overall well-being (Gott, 2001). In fact, findings indicate that the majority of older adults are engaged in spousal or other intimate relationships and regard sexuality as an important part of life (Lindau, et al., 2007). Some changes that may occur with aging may be that simple acts of touch and physical intimacy may supplant penetrative sexual intercourse as highly meaningful and satisfying forms of sexual expression (Griebeling, 2006). Further, it has been shown that participation in and enjoyment of non-coital sexual activities plays a role in sexual satisfaction (Young, Denny, Luquis, & Young, 1998). All of this information is important as lifelong sexual function has come to be seen as a primary component of achieving successful aging in general (Gott, 2006).

On the whole, previous research has shown us that there are many factors that seem to contribute to the levels of sexual satisfaction one experiences. Some of the factors are demographic in nature (e.g. age, gender, presence of a partner), while others

are physical (e.g. physical disability, chronic illness). Interestingly, there has been less attention paid to the potential impact psychological factors may also have on sexual satisfaction, especially with older adults.

Psychological Factors Associated with Sexual Satisfaction

Relationship satisfaction across the lifespan. A variable that has received attention in the sexual satisfaction literature is that of relationship or marital satisfaction. In fact, Christopher and Sprecher (2000) stated that not only is sexual satisfaction associated with marital satisfaction, but also that sexual satisfaction contributes to marital stability. Stated another way, one's sexual relationship is central to finding one's marriage to be satisfying (Litzinger & Gordon, 2005). It was also found that the married and monogamous couples reported highest levels of sexual satisfaction of any group (Christopher & Sprecher, 2000).

Byers (2005) noted that for couples, changes in sexual satisfaction were accompanied by similar changes in relationship satisfaction, indicating a close association between sexual and relationship satisfaction. In fact, Sprecher (2002) stated that sexual satisfaction had implications for how partners felt about each other and how committed they were to staying in the relationship. A number of additional studies have highlighted the correlation between sexual satisfaction and marital or relationship satisfaction among younger adults (Apt & Hurlbert, 1996; Byers, 1999; Byers & Demmons, 1999; Byers & MacNeil, 2006; Lawrence & Byers, 1995; Sprecher, 2002; Young, Denny, Luquis, & Young, 1998).

These results, however, may be influenced by gender. McCabe (2006) found this relationship between sexual satisfaction and relationship satisfaction to be true only for

women. In fact, some research supported the idea that the quality of the relationship or emotional attachment seemed to matter only for female sexual satisfaction (Biss & Horne, 2005; Young, Denny, Young, & Luquis, 2000; Hurlbert, Apt, & Rabehl, 1993; Apt & Hurlbert, 1996). In another interesting finding, Byers (2005) found relationship satisfaction to be more strongly correlated with sexual satisfaction early in relationships when compared to long-term relationships. This suggests that early in relationships couples are more likely to use their level of sexual satisfaction as a proxy measure of their overall relationship satisfaction than after having been together for some time. Once a couple is more established they seem to be able to parse out their satisfaction with the relationship versus their satisfaction with the sex more efficaciously.

What Sprecher postulated was that sexual satisfaction actually functions as a barometer for the quality of the marriage or relationship; in other words, how one feels about their sex life may be a direct indicator of how they feel about their relationship overall. (2002). However, Sprecher also stated that this was more likely the case for men than women. In fact, Haavio-Mannila and Kontula (1997) stated that emotional and physical sexual satisfaction were related; emotional and physical sexual satisfaction are both important predictors of overall sexual satisfaction. Further, Purnine and Carey (1997) noted that there is more to sexual satisfaction than the quality of the relationship, citing examples of happy couples who may have unsatisfying sex lives and of poorly adjusted couples who may be satisfied sexually. Although these findings seem to have implications for older adults and long-term sexual relationships, this has not yet been validated with exclusively older adult populations.

Well-being across the lifespan. It is known that people differ in their levels of happiness, or well-being (Mroczek & Kolarz, 1998). The construct of subjective well-being is generally defined as life satisfaction, presence of positive affect, and absence of negative affect (Koo, Rie, & Park, 2004). This is also an area that is useful to consider in satisfaction research, as well-being may be closely related to levels of satisfaction. In fact, Wylie (2004) even goes so far as to say that liberalization of attitudes toward sex could contribute to happier and longer lasting relationships, which could increase our overall sense of well-being.

When well-being is examined across the lifespan, some interesting patterns arise. For example, Mroczek and Kolarz (1998) described positive affect as an accelerating function; it is at its lowest levels among the youngest respondents and then increases at an accelerated rate from ages 45 to 75. Their oldest respondents had higher levels of positive affect than any other age group in the sample. Conversely, Mroczek and Kolarz found the youngest people in their sample reported more negative affect, with the oldest people reporting the least (1998). Other findings of their study included that women reported lower positive affect, more highly educated people reported higher positive affect, and married respondents reported higher positive affect, and those who were more physically healthy reported higher positive affect (Koo, Rie, & Park, 2004; Mroczek & Kolarz, 1998).

Additional research on well-being has shown that well-being tends to decline with middle age, but appears to improve with older age (Wylie, 2004). Mroczek and Kolarz (1998) have also found that well-being may improve with age, which supports a number of recent theories. In particular, these results support Carstensen's socioemotional

selectivity theory (Carstensen, 1992) which states that older adults regulate their emotions more effectively than younger or middle-aged adults. It is thought that “older individuals, through years of experience, know what kinds of external events increase and decrease their positive and negative emotions. Thus, they achieve a better ‘affect balance’ by selecting people and situations that will minimize negative and maximize positive emotion” (Mroczek & Kolarz, 1998, p. 1345). Further, when well-being was defined by positive affect, older people are found to be happier than other adults (Mroczek & Kolarz, 1998).

The ability to effectively regulate emotions may be particularly useful to older adults as they navigate the typical age-related changes in their health. For example, Hinchliff and Gott (2004) refer to the fact that sexual problems, including those resulting from general health concerns, may change an individual’s self-concept, which can impact their sense of well-being. However, they also go on to state that general health problems seemed to outweigh the impact that sexual health problems had on well-being. Thus, physical health appears to be closely linked with sense of well-being.

The well-being literature often includes the variable of heterosexual marriage. Bookwala and Franks (2005) reported a good marriage can protect the emotional well-being of older adults as they confront the physical challenges associated with aging. Marriage has also been lauded as a buffer against loneliness, which is thought to be associated with decreased well-being due to emotional distress (Beal, 2006). This is particularly important for older women, who are less likely to have a spouse and may therefore be at an increased risk for loneliness, and thereby decreased well-being. Given the increases in positive affect, and the decreases in negative affect with advancing age, it

would be interesting to note how this construct might play into the sexual satisfaction of older adults as well.

Perceived Control and Aging. The perception that one can influence what happens in one's life is a construct known as perceived control. Traditionally, perceived control is subdivided into two scales (personal mastery and perceived constraints). Personal mastery is one's sense of efficacy in carrying out goals, whereas perceived constraints refers to one's belief that there are obstacles beyond their control that keep them from reaching their goals (Lachman & Firth, 2004). Overall, perceived control can be assessed as both generalized, and domain-specific.

Some of the reasons that perceived control is important are that findings consistently show a positive association between a sense of control and well-being. Lachman and Firth (2004) described the model as cyclical, suggesting that not only do control beliefs affect well-being but that feeling or doing well can also lead to an increased sense of control. Having a sense of control may lead to positive affect, which helps one to appraise and respond to stress in a more positive proactive way. Feeling in control of outcomes may also give increased hope about the future and motivation to remain active. Control was associated with better health and well-being for adults of all ages (Lachman & Firth, 2004).

Lachman and Weaver found that sense of control is an important ingredient for successful aging (1998). In fact, control beliefs appear to play a particularly important role during later adulthood when losses begin to increase relative to gains. Additionally, older adults indicated facing more constraints than did members of the other age groups; however older adults reported greater perceived control for life overall than did the

younger and middle-aged adults, despite the perception of increased perceived constraints (Lachman & Weaver, 1998; Lachman & Firth, 2004). Not surprisingly, this study also showed that many aspects of control are maintained throughout the middle years and into old age (Lachman & Firth, 2004). In contrast to young adults, older adults acknowledged the salience of external forces and, yet, maintained strong beliefs in their own internal control (Lachman, 1986). Thus, even with aging, adults are able to find ways to achieve an overall balance of control in their lives, despite perceptions of increased constraints (Lachman & Firth, 2004).

There is a great deal of evidence that control beliefs are associated with successful aging; in one national sample those with a higher sense of control had a more optimistic view of adulthood, and those who have a higher sense of control are less likely to report memory problems (2005). However, according to Mirowsky, respondents over age 80 have the lowest average sense of control (1995). He found an accelerating decline in the sense of control in successively older age groups, which is consistent with the idea that increasing impairment accounts for the declining sense of control in successively older age groups. He stated this impairment contributed substantially to a low sense of control among older adults, but is not the sole explanation and not the most important single factor; age group differences in education are the single most important factor identified here (Mirowsky 1995).

In fact, educational level does appear to impact sense of control. Lachman and Firth identified that higher levels of education were associated with fewer perceived constraints and greater control over health, work, finances, and making a contribution to the welfare of others (2004). Other studies showed higher education can be expected to

foster a greater sense of control because it affords greater opportunities for advancement and leadership; control in MIDUS 1 was higher for respondents with more education (Lachman & Weaver, 1998; Ross & Mirowsky, 2002). Thus, the association between older age and a lower sense of control is probably due to aging and to cohort differences (historical differences in educational attainment) (Ross & Mirowsky, 2002).

Overall, a sense of purpose and control over one's life is integral to the health of older adults. Rodin (1986) noted that the health of older people is strongly affected by control-enhancing interventions and control-restricting life circumstances. Research has shown that enhancement of control appears to have strikingly positive effects on the health and well-being of older people (Rodin, 1986). It is thought since sexual satisfaction can be thought of as an aspect of well-being, enhancement of one's perceived control may also have a positive impact on their level of sexual satisfaction.

Interpersonal Exchange Model of Sexual Satisfaction (IEMSS)

Early research on sexual satisfaction among couples was guided by the propositions of Equity theory (Hatfield, Greenberger, Traupmann, & Lambert, 1982), using an economic model and various types of relationship dynamics Equity Theory posited the following: 1) individuals will try to maximize their outcomes 2) groups can maximize collective outcomes by creating systems of rewards and punishments among members 3) participating in inequitable relationships causes one to feel distressed and 4) when one discovers they are in an inequitable relationship they will attempt to eliminate their distress by restoring equity to the relationship. Essentially, the theory suggested that how fairly treated people feel has substantial impact on how content or distressed they feel in their relationships. Thus, Equity theorists have argued that marital satisfaction

leads to equity, which then leads to sexual satisfaction (Hatfield, Greenberger, Traupmann, & Lambert, 1982).

According to Equity theory, men and women who are equitably treated within their intimate relationships would be more satisfied overall with their sexual relationships in comparison to other couples. When Hatfield, Greenberger, Traupmann, and Lambert tested these concepts with recently married couples, they found that both men and women in equitable relationships were more content, less distressed, more satisfied, and happier with their relationships than were the men and women in inequitable relationships (1982). Further, Hurlbert and Apt (1994, p. 287) stated that satisfaction in general derives from one's expectations being met. Thus, those who are satisfied not only have expectations, but have also found ways of meeting their expectations within the contexts of their sexual relationships. Initial results provided considerable support for the argument that equity considerations had an impact on sexual satisfaction in marriage (Hatfield, Greenberger, Traupmann, & Lambert, 1982).

However, as more research began to accumulate regarding sexual satisfaction, it became apparent that equity alone did not explain sexual satisfaction. In fact, Lawrence and Byers (1995) found sexual satisfaction relied on a cost/benefit ratio of interpersonal exchanges. In their sample, sexual satisfaction was greater to the extent that one's sexual rewards exceeded their sexual costs, and that relative rewards exceeded their relative costs (Lawrence & Byers, 1995). This laid the groundwork for what became known as the Interpersonal Exchange Model of Sexual Satisfaction (IEMSS).

For the purpose of IEMSS, sexual satisfaction is defined as "an affective response arising from one's subjective evaluation of the positive and negative dimensions

associated with one's sexual relationship" (Byers, Demmons, & Lawrence, 1998, p. 258). This model of sexual satisfaction takes into account "the interpersonal context in which sexual activity within a relationship occurs, as well as the level of sexual rewards, level of sexual costs, comparison levels for sexual rewards and costs, and the perceived equality of sexual rewards and costs," (Byers, 1999, p. 99). The IEMSS is well-suited for examining multiple aspects of sexual satisfaction as it utilizes a definition of sexual satisfaction that incorporates behaviors, perceptions, and interpersonal constructs. Thus, it will be possible to parse out which components of the theory are most relevant for use with older adults.

In particular, the IEMSS identifies four distinct aspects, or components, of relationships that impact sexual satisfaction intimate relationships (Byers & MacNeil, 2006). First, this theory posits that the balance of sexual rewards and sexual costs in the relationship impact sexual satisfaction (IEMSS component 1). Thus, "satisfaction in the relationship will be greater to the extent that relationship satisfaction is greater" (Byers, 1999, p. 99). Secondly, the way that sexual rewards and costs compare to the expected level of sexual rewards and costs impacts sexual satisfaction in an intimate relationship (IEMSS component 2). For example, "sexual satisfaction is expected to be greater to the extent that the level of rewards incurred in the sexual relationship exceed the level of sexual costs" (Byers, 1999, p. 99). Third, the perceived equality of sexual rewards and costs between partners impacts sexual satisfaction (IEMSS component 3). Therefore, to achieve sexual satisfaction, the level of rewards and the level of costs that are experienced in the sexual relationship must compare favorably to the level of rewards and the level of costs that are expected in the sexual relationship (Byers, 1999). Finally, the

quality of the nonsexual aspects of the relationship also impact sexual satisfaction (IEMSS component 4). Thus, “greater sexual satisfaction is expected to be related to greater perceived equality between one’s own and one’s partner’s level of rewards and one’s own and one’s partner’s level of costs in the sexual relationship” (Byers, 1999, p. 100).

The IEMSS theory has been well-supported in the literature. For example, IEMSS has demonstrated good validity for dating couples, as well as for long-term heterosexual couples (Byers, 1999, Byers, Demmons, & Lawrence, 1998, Byers & Lawrence, 1995). Byers also reported having found that IEMSS has cross-cultural support, and works equally well for both men and women (Byers, 1999). However, at this time, the IEMSS theory has not been used or tested with older adults. Therefore there has been no opportunity to date to examine the utility of this theory with older adult populations.

Purpose of Present Study

The purpose of the present study was to increase knowledge related to sexual satisfaction among heterosexual married older adults. Very little is currently known about levels of sexual satisfaction among married older adults, as most existing studies of sexual satisfaction have focused exclusively on the experiences of younger adults. This study will utilize the theoretical background of the IEMSS to define sexual satisfaction and to guide the research questions asked in the present study. Thus, the current study strived to answer the question ‘What are typical levels of sexual satisfaction for older adults?’ In addition, sexual satisfaction among older adults was explored to answer the question ‘What psychological factors predict sexual satisfaction for heterosexual married older adults?’ It is hypothesized that the psychological variables of relationship

satisfaction, subjective well-being, and perceived control will explain much of the variance within the domain of sexual satisfaction, as these factors have been shown to be impactful in predicting sexual satisfaction among younger adults.

Chapter 2: Method

Database: Midlife in the United States (MIDUS)

The first wave of the MIDUS Survey was conducted by the John D. and Catherine T. MacArthur Foundation Network on Successful Midlife Development. This was a national probability sample of households with at least one telephone selected using random digit dialing. All eligible participants were non-institutionalized, English-speaking adults in the coterminous United States, aged 25 to 74. Data from the described samples were collected primarily in 1995/96. The MIDUS study collected survey data from a total of 7,108 participants. All respondents completed a phone interview of approximately 30 minutes in length and two self-administered questionnaires (SAQs), each of approximately 45 pages in length.

A longitudinal follow-up of the original MIDUS study (entitled MIDUS 2) was conducted in 2004/06. Every attempt was made to contact all original respondents to participate in a second wave of data collection. Monetary incentives were used to maximize participation; respondents who completed all phases of data collection received \$60. Of the 7,108 participants in MIDUS 1, 4,963 were successfully contacted for another phone interview of about 30 minutes in length. The average longitudinal follow-up interval was approximately nine years, and ranged from 7.8 to 10.4 years. MIDUS 2 also included two self-administered questionnaires each of about 55 pages in length, which were mailed to participants, and when completed, returned by mail. Response rates

for completion of the MIDUS 2 phone interview and self-administered questionnaires was 81% for the full sample. Among the respondents who did not complete the MIDUS 2 phone interview, the top two reasons for non-response were “Refusals” and “Non-working Numbers.” Lower percentages of the sample were deceased or unable to participate for health or other related reasons.

Participants in MIDUS 2 who completed the telephone interview were 47% male and 53% female. Age ranged from 32 to 84 with an average age of 55. Over 67% had more than a high school education; 27% had a high-school degree or equivalent, and 6% had less than a high school education.

Sample of Present Study

The current study included 683 participants from the MIDUS 2 database ranging in age from 65 to 83 ($M = 71.58$, $SD = 4.95$). All respondents self-identified as heterosexual, currently married, and U.S. citizens. Of these, 375 participants (54.9%) self-identified as men, and 308 participants (45.1%) self-identified as women. The majority (76.4%) indicated they were currently in their first marriage, with 18.8% in their second marriage and 4.3% in their third marriage.

Participants predominantly self-identified as being White (94.9%), 2.8% identified themselves as being Black or African American, and one self-identified as being Native American or Alaska Native. Almost one-third of participants graduated from high school (31.3%), 18.1% of the sample attended 1-2 years of college, another 17.2% graduated from a 4-5 year college or earned a bachelor’s degree, and 8.5 % earned master’s degrees. Income levels from this sample vary widely with a mean income of

\$64,049.56 ($SD = \$43,909.34$), and a median income of \$52,250. Additional demographic information is provided in Appendix A.

Measures

Psychological well-being. Psychological well-being in six domains (Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self Acceptance) was assessed using a seven-point rating scale for each domain (1 = strongly agree, 7 = strongly disagree). The wording of the items asked participants to indicate how strongly they agree or disagree with each of the 43 statements provided (see Appendix B). These six dimensions of psychological well-being were generated from multiple theoretical accounts of positive functioning. In the initial validation study (Ryff, 1989) each dimension was operationalized with a 20-item scale that showed high internal consistency and test-retest reliability. Alpha's ranged from .71-.84 for the total Midas 2 sample (psychometrics for the current study can be found in Appendix F). For the present study, the psychological well-being scale was constructed by calculating the sum of each set of items (43 items total) so that high scores reflect higher standing in the scale.

Sense of control. In MIDAS 2 perceived control was operationalized by two dimensions: personal mastery and perceived constraints (Lachman & Weaver, 1998). Personal mastery refers to one's sense of efficacy in carrying out goals. Perceived constraints indicate to what extent one believes there are obstacles or factor beyond one's control interfere with reaching goals. These dimensions are consistent with Skinner's (1996) two-fold conceptualization of control as comprised of competence and contingency. Respondents have indicated on a seven-point scale the extent to which they agree with each of the items (1 = *strongly agree*, 7 = *strongly disagree*), where higher

scores reflect greater mastery or greater perceived constraints. The perceived control scale used in this study is constructed by calculating the mean of the 12 items (see Appendix C) (Lachman & Weaver, 1998). Alpha's ranged from .73-.87 for the total MIDAS 2 sample. Psychometrics for the current study can be found in Appendix F.

Marriage/relationship domain measures. The Spouse/ Partner Support (Marital Empathy Scale) was used to assess the marriage/relationship domain. Respondents indicated how much they believe their partner really cares about them, understands them and appreciates them, as well as how much the respondent relies on their partner, opens up to them, and feels that can relax around their partner. See Appendix D for full items and response sets used to assess the marriage/relationship domain. This scale showed good internal consistency ($\alpha = 0.90$), with a mean of 3.64, and a standard deviations of 0.53 in the total MIDAS 2 sample of 3049 participants. Psychometrics for the current study can be found in Appendix F.

Sexual satisfaction measure. The present study relied on a measure of sexual satisfaction that is based on the IEMSS theory. Although the data to be used in this study (MIDUS 2) were not collected explicitly to address issues of sexuality, nor designed to be in line with a particular theoretical framework, theoretically relevant dependent variables could be identified. For this study, four separate measures assessed for the four main components of the IEMSS. Each component was examined individually as a dependent variable. They were not combined into a single composite measure as they items did not show good internal consistency when combined into one scale. This is likely due to the fact that each of the components represents a distinct aspect of sexual satisfaction, and would not necessarily be expected to come together well into a single factor. Further, this

approach allows for measurement of multiple components of sexual satisfaction, as well as for grounding in theory.

To measure IEMSS component 1 sexual cost was measured via the question “how much thought and effort do you put into the sexual aspect of your life these days?” and sexual reward was measured via the question “how often do you experience pleasure in your sexual interactions?” This score was calculated by taking the difference between scores of sexual cost and sexual reward. The scores for IEMSS component 1 ranged from zero to ten, with zero representing perfect balance of rewards and costs, and 10 representing very imbalanced rewards and costs.

For IEMSS component 2 participants were asked to “rate the sexual aspect of your life currently” using a scale from zero to 10, with zero representing “worst” and 10 representing “best”. Scores for IEMSS component 2 ranged from zero to ten.

To measure IEMSS component 3 participants were asked “how would you rate the amount of control you have over the sexual aspect of your life these days?” using a scale from zero to 10, with zero representing “no control at all” and 10 representing “very much control”. Scores ranged from zero to ten.

The nonsexual aspect of the relationship (IEMSS component 4) was measured via the questions “how would you rate your marriage or close relationship these days?” and “Would you describe your relationship as: (Excellent, Very Good, Good, Fair, Poor)?” For this measure scores ranged from zero to eighteen, with a higher score relating to greater relationship quality and a lower score relating to lower relationship quality, as this score was calculated by taking the sum of scores of measures of relationship quality. See Appendix E for full items and response sets used to assess the sexual satisfaction domain.

Analyses

An initial goal of the present study was to increase knowledge related to typical levels of sexual satisfaction among heterosexual married older adults. Thus, this study strived to answer the question ‘What are typical levels of sexual satisfaction for older adults?’ This question will be answered by examining the descriptive statistics for each of the four components of sexual satisfaction to see what patterns of responding exist within each aspect of sexual satisfaction, as defined by this study. A summary of the descriptive statistics related to levels of sexual satisfaction for each of IEMSS components one through four is available (see Table 1). Further psychometric information regarding these measures can be found in Appendix F.

Secondarily, multiple regression analyses were used to determine the variance explained by the predictor variables. The four IEMSS components (balance of sexual rewards and sexual costs in the relationship, the way that sexual rewards and costs compare to the expected level of sexual rewards and costs, the perceived equality of sexual rewards and costs between partners, and the nonsexual aspects of the relationship) served as dependent variables in four separate regression equations. The independent variables for these models were age and gender, which were controlled for as demographic variables, as well as subjective well-being, relationship satisfaction, and sense of control as the psychological variables of interest. This process provided the most information regarding how much of the variance of sexual satisfaction is explained by each psychological variable within each one of the IEMSS components.

To examine the unique contribution of subjective well-being, sense of control, and relationship satisfaction to the prediction of various components of sexual

satisfaction, four separate hierarchical multiple regressions were performed. For all four analyses the following entry format was used: the control variables of age and gender (Step 1); subjective well-being, relationship satisfaction, and sense of control (Step 2). Further, in cases where issues of multicollinearity was present, supplemental partial correlations, controlling for age and gender, were carried out in order to elucidate relationships that may have been masked within the context of the multiple regressions.

Table 1

Summary of Sexual Satisfaction Levels for IEMSS Components 1-4

	1	2	3	4
Mean	2.82	4.66	4.81	15.33
Median	2	5	5	16
Mode	0.05	5	0	18
Standard Deviation	2.39	3.11	3.39	3.31
Range	0-10	0-10	0-10	0-18
<i>N</i>	447	651	662	660

Note. (IEMSS component 1) = the balance of sexual rewards and sexual costs in the relationship. For this measure scores ranged from zero to ten, with zero representing perfect balance of rewards and costs, and 10 representing very imbalanced rewards and costs.

(IEMSS component 2) = the way that sexual rewards and costs compare to one's expected level of sexual rewards and costs. For this measure participants were asked to "rate the sexual aspect of your life currently" using a scale from zero to 10, with zero representing "worst" and 10 representing "best".

(IEMSS component 3) = the perceived equality of sexual rewards and costs between partners. For this measure participants were asked "how would you rate the amount of control you have over the sexual aspect of your life these days?" using a scale from zero to 10, with zero representing "no control at all" and 10 representing "very much control".

(IEMSS component 4) = the quality of the nonsexual aspects of the relationship. For this measure scores ranged from zero to eighteen, with a higher score relating to greater relationship quality and a lower score relating to lower relationship quality, as this score was calculated by taking the sum of scores of measures of relationship quality.

Chapter 3: Results

The objective of this study was to increase knowledge related to sexual satisfaction among heterosexual married older adults. First, the typical levels of sexual satisfaction were explored within each of the four separate components of the IEMSS. A further goal of this study was to determine the predictive value of the psychological variables of: relationship satisfaction, subjective well-being, and sense of control on the four IEMSS determined components of sexual satisfaction. This study employed secondary analyses of the MIDUS 2 database with a focus on married heterosexual adults ($n = 683$) aged 65-83 ($M = 71.6$). The goal was to use the IEMSS theory to determine a model of psychological predictors of sexual satisfaction for older adults (perceived control, subjective well-being, and relationship satisfaction), while controlling for the demographic factors of age and gender that we know also impact sexual satisfaction. See Appendix F for details on the inter-correlations of the IEMSS components and their predictors.

Typical Levels of Sexual Satisfaction

For the measure of the balance of sexual rewards and sexual costs in the relationship (IEMSS component1) scores ranged from zero to ten, with zero representing perfect balance of rewards and costs, and 10 representing very imbalanced rewards and costs, as this score was calculated by taking the difference between scores of sexual cost and sexual reward. Sexual cost was measured via the question “how much thought and

effort do you put into the sexual aspect of your life these days?” and sexual reward was measured via the question “how often do you experience pleasure in your sexual interactions?” Some possible measurement issues were noticed with this item. Measures of central tendency ($N = 455$, missing data = 228), indicated participants felt fairly strong balance between the sexual costs and sexual rewards in their relationship; $M = 2.82$, median = 2, mode = 0.5, with $SD = 2.39$. Thus, it appears that the participants in this study seemed to report their levels of sexual costs and rewards as fairly balanced overall.

In examining the way that sexual rewards and costs compare to one’s expected level of sexual rewards and costs (IEMSS component 2) participants were asked to “rate the sexual aspect of your life currently” using a scale from zero to 10, with zero representing “worst” and 10 representing “best”. Scores ranged from zero to ten. Measures of central tendency ($N = 651$, missing data = 32), indicated participants felt the current sexual aspect of their life was neither the best, nor the worst, but rather right in between; $M = 4.66$, median = 5, mode = 5, with $SD = 3.11$. Thus, it appears that the participants in this study indicated their levels of sexual costs and rewards were relatively in line with their expectations.

In order to measure the perceived equality of sexual rewards and costs between partners (IEMSS component 3) participants were asked “how would you rate the amount of control you have over the sexual aspect of your life these days?” using a scale from zero to 10, with zero representing “no control at all” and 10 representing “very much control”. Scores ranged from zero to ten. Measures of central tendency ($N = 662$, missing data = 21), indicated participants varied widely in how much control they felt they had over the sexual aspects of their lives; $M = 4.81$, median = 5, mode = 0, with $SD = 3.39$.

Since control was used as a proxy measure for the component of the perceived equality of sexual rewards and costs between partners, it may be that it was not a particularly accurate proxy measure. However, it is interesting to note the almost flat distribution of responses to the question regarding control over the sexual aspect of one's life. This may indicate that sexual control is highly variable among married older adults and may be impacted by factors other than those measured in this study.

In examining the quality of the nonsexual aspects of the relationship (IEMSS component 4) scores ranged from zero to eighteen, with a higher score relating to greater relationship quality and a lower score relating to lower relationship quality, as this score was calculated by taking the sum of scores of measures of relationship quality. The nonsexual aspect of the relationship was measured via the questions "how would you rate your marriage or close relationship these days?" and "Would you describe your relationship as: (Excellent, Very Good, Good, Fair, Poor)?" Measures of central tendency ($N = 660$, missing data = 23), indicated participants reported high quality in the nonsexual aspects of their relationships; $M = 15.33$, median = 16, mode = 18, with $SD = 3.31$. Thus, it appears that the participants in this study seemed to feel the quality of the nonsexual aspects of their relationships were quite good.

IEMSS Component 1: Balance of Sexual Rewards and Sexual Costs in the Relationship

A hierarchical multiple regression analysis was conducted using relationship satisfaction, subjective well-being, and sense of control (Step 2) to predict the balance of sexual rewards and sexual costs in the relationship, while controlling for the variables of age and gender (Step1). In Step 1 the coefficient of determination (R^2) was .057, indicating that the variables of age and gender explained 5.7% of the variance of the total

outcome score for this sample; adjusted $R^2 = .053$; $F(2, 444) = 13.53$, $p < .01$. However, when relationship satisfaction, subjective well-being, and sense of control were entered in the second step, the model accounted for 6.1% of the variance, $F(5, 441) = 5.77$, $p < .01$ (R^2 change = .004, $p > .05$), which is not a statistically significant change. For this analysis, neither relationship satisfaction, subjective well-being, nor sense of control were found to significantly predict the outcome variable beyond the effects of age and gender (see Table 2). Of note, is that the assumption of independent errors was met for this regression (Durbin-Watson = 1.85), and no evidence of multicollinearity was present.

Table 2

Hierarchical Multiple Regression for IEMSS Composite 1

	<i>B</i>	<i>SE B</i>	β
Step 1			
Constant	-3.24	1.67	
Age	0.08	0.02	.16***
Gender	0.82	0.22	.17***
Step 2			
Constant	-1.79	2.17	
Age	0.08	0.02	.16***
Gender	0.85	0.23	.18***
Subjective Well-being	-0.01	0.03	-.02
Relationship Satisfaction	-0.37	0.29	-.06
Sense of Control	0.04	0.18	.02

Note. $R^2 = .24$ for Step 1; $\Delta R^2 = .004$ for Step 2 ($p > .05$).

* $p < .05$, ** $p < .01$, *** $p < .001$.

IEMSS component 1 = the balance of sexual rewards and sexual costs in the relationship.

IEMSS component 2 = the way that sexual rewards and costs compare to one's expected level of sexual rewards and costs.

IEMSS component 3 = the perceived equality of sexual rewards and costs between partners.

IEMSS component 4 = the quality of the nonsexual aspects of the relationship.

Thus, the psychological variables of relationship satisfaction, subjective well-being and sense of control do not appear to predict the balance of sexual rewards and sexual costs in the relationship, as measured in this study. Therefore, when predicting the balance of sexual rewards and sexual costs in the relationship (IEMSS component 1), only age and gender served as statistically significant predictors. Thus as age increases, so does the amount of perceived balance of the sexual rewards and sexual costs in the relationship. So, relatively older couples may experience more balance in this domain as compared to relatively younger couples. Interestingly, women tended to report increased balance in this domain, while men tended to report decreased balance in this domain. Therefore, older female participants reported more balance of the sexual rewards and sexual costs in their relationship, as measured in this study.

IEMSS Component 2: How Sexual Rewards and Costs Compare to One's Expected Level of Sexual Rewards and Costs

A second hierarchical multiple regression analysis was conducted using relationship satisfaction, subjective well-being, and sense of control (Step 2) to predict the way that sexual rewards and costs compare to the expected level of sexual rewards and costs (IEMSS component 2), while controlling for the variables of age and gender (Step1). In Step 1 the coefficient of determination (R^2) was .042, indicating that the variables of age and gender explained 4.2% of the variance of the total outcome score for this sample; adjusted $R^2 = .039$; $F(2, 632) = 13.70$, $p < .001$. When relationship satisfaction, subjective well-being, and sense of control were entered in the second step, the coefficient of determination (R^2) was .170, indicating that these variables explained an additional 17% of the variance of the total outcome score for this sample; adjusted R^2

= .163; $F(5, 629) = 25.68, p < .001$ (R^2 change = .128, $p < .001$), which is a statistically significant change. For this analysis, age ($\beta = -.11, p < .001$), gender ($\beta = -.54, p < .05$), relationship satisfaction ($\beta = 1.83, p < .001$), and sense of control ($\beta = .42, p < .05$) were found to significantly predict the outcome variable (see Table 3). Of additional note, is that the assumption of independent errors was met for this regression (Durbin-Watson = 2.13), however some evidence of multicollinearity was present.

Table 3

Hierarchical Multiple Regression for IEMSS Composite 2

	<i>B</i>	<i>SE B</i>	β
Step 1			
Constant	13.80	1.77	
Age	-0.13	0.03	-.20***
Gender	-0.19	0.25	-.03
Step 2			
Constant	2.01	2.09	
Age	-0.11	0.02	-.17***
Gender	-0.54	0.24	-.09*
Subjective Well-being	0.04	0.03	.07
Relationship Satisfaction	1.83	0.26	.27***
Sense of Control	0.42	0.17	.13*

Note. $R^2 = .04$ for Step 1; $\Delta R^2 = .128$ for Step 2 ($p < .001$).

* $p < .05$, ** $p < .01$, *** $p < .001$.

IEMSS component 1 = the balance of sexual rewards and sexual costs in the relationship.

IEMSS component 2 = the way that sexual rewards and costs compare to one's expected level of sexual rewards and costs.

IEMSS component 3 = the perceived equality of sexual rewards and costs between partners.

IEMSS component 4 = the quality of the nonsexual aspects of the relationship.

Due to the likely presence of multicollinearity within these variables, an additional partial correlation was conducted, continuing to control for age and gender. An

analysis using Pearson's correlation coefficient indicates a statistically significant linear relationship was found between the variables of subjective well-being ($r = .23, p < .001, R^2 = .053$), relationship satisfaction ($r = .32, p < .001, R^2 = .103$), and sense of control ($r = .25, p < .001, R^2 = .063$) and the outcome variable of IEMSS composite 2 (rating of the sexual aspect of life currently). Therefore, although the multiple regression analysis suggested that subjective well-being did not significantly contribute to the prediction of one's rating of the current sexual aspect of their life, this correlational analysis suggests that it does, in fact, have a significant relationship with the variable in question that was likely masked by multicollinearity with other predictive variable. This may indicate that subjective well-being is significantly related to the construct of this aspect of sexual satisfaction.

IEMSS Component 3: Perceived Equality of Sexual Rewards and Costs between Partners

A third hierarchical multiple regression analysis was conducted using relationship satisfaction, subjective well-being, and sense of control (Step 2) to predict the perceived equality of sexual rewards and costs between partners (IEMSS component 3), while controlling for the variables of age and gender (Step1). In Step 1 the coefficient of determination (R^2) was .055, indicating that the variables of age and gender explained 5.5% of the variance of the total outcome score for this sample; adjusted $R^2 = .052$; $F(2, 643) = 18.66, p < .001$. When relationship satisfaction, subjective well-being, and sense of control were entered in the second step, the coefficient of determination (R^2) was .135, indicating that these variables explained 13.5% of the variance of the total outcome score for this sample; adjusted $R^2 = .128$; $F(5, 640) = 19.93, p < .001$ (R^2 change = .08, $p < .001$), which is a statistically significant change from step 1 to step 2. For this analysis,

age ($\beta = -.11, p < .001$), gender ($\beta = -1.16, p < .001$), relationship satisfaction ($\beta = 1.27, p < .001$), and sense of control ($\beta = .45, p < .05$) were found to significantly predict the outcome variable (see Table 4). It is notable that the assumption of independent errors was met for this regression (Durbin-Watson = 2.01), however, some evidence of multicollinearity was present.

Table 4

Hierarchical Multiple Regression for IEMSS Composite 3

	<i>B</i>	<i>SE B</i>	β
Step 1			
Constant	14.37	1.89	
Age	-0.13	0.03	-.19***
Gender	-0.88	0.26	-.13***
Step 2			
Constant	3.93	2.30	
Age	-0.11	0.03	-.15 ***
Gender	-1.16	0.26	-.17***
Subjective Well-being	0.05	0.04	.07
Relationship Satisfaction	1.27	0.28	.17***
Sense of Control	0.45	0.19	.13*

Note. $R^2 = .05$ for Step 1; $\Delta R^2 = .08$ for Step 2 ($p < .001$).

* $p < .05$, ** $p < .01$, *** $p < .001$.

IEMSS component 1 = the balance of sexual rewards and sexual costs in the relationship.

IEMSS component 2 = the way that sexual rewards and costs compare to one's expected level of sexual rewards and costs.

IEMSS component 3 = the perceived equality of sexual rewards and costs between partners.

IEMSS component 4 = the quality of the nonsexual aspects of the relationship.

Due to the likely presence of multicollinearity among these variables, an additional partial correlation was conducted, controlling for age and gender. An analysis using Pearson's correlation coefficient indicates a statistically significant linear

relationship was found between the variables of subjective well-being ($r = .21, p < .001, R^2 = .044$), relationship satisfaction ($r = .23, p < .001, R^2 = .053$), and sense of control ($r = .23, p < .001, R^2 = .053$) and the outcome variable of IEMSS composite 3 (rating one's control over the sexual aspect of their life). Therefore, although the multiple regression analysis again suggested that subjective well-being did not significantly contribute to the prediction of one's rating of their control over the sexual aspect of their life, this correlational analysis suggests that subjective well-being does, in fact, have a significant relationship with the variable in question that was likely masked by multicollinearity with other predictive variables. This may indicate that subjective well-being, along with relationship satisfaction and sense of control are significantly related to the construct of this aspect of sexual satisfaction.

IEMSS Component 4: Quality of the Nonsexual Aspects of the Relationship

A fourth hierarchical multiple regression analysis was conducted using relationship satisfaction, subjective well-being, and sense of control (Step 2) to predict the quality of the nonsexual aspects of the relationship (IEMSS component 4), while controlling for the variables of age and gender (Step 1). In Step 1 the coefficient of determination (R^2) was .025, indicating that the variables of age and gender explained 2.5% of the variance of the total outcome score for this sample; adjusted $R^2 = .022$; $F(2, 645) = 8.14, p < .001$. When relationship satisfaction, subjective well-being, and sense of control were entered in the second step, the coefficient of determination (R^2) became .631, indicating that these variables explained 63.1% of the variance of the total outcome score for this sample; adjusted $R^2 = .628$; $F(5, 642) = 219.90, p < .001$ (R^2 change = .61, $p < .001$), which is a statistically significant change from step 1 to step 2. For this

analysis, only age ($\beta = .05, p < .01$), and relationship satisfaction ($\beta = 5.27, p < .001$) were found to significantly predict the outcome variable. However, both subjective well-being ($\beta = .04, p = .062$) and sense of control ($\beta = .24, p = .052$) did trend toward statistical significance, which may indicate they play some role in the prediction of the nonsexual aspects of a relationship (see Table 5). Of additional note, is that the assumption of independent errors was met for this regression (Durbin-Watson = 2.06), however evidence of multicollinearity was present.

Table 5

Hierarchical Multiple Regression for IEMSS Component 4

	<i>B</i>	<i>SE B</i>	β
Step 1			
Constant	11.31	1.87	
Age	0.05	0.03	.07
Gender	0.88	0.26	-.13***
Step 2			
Constant	-10.73	1.46	
Age	0.05	0.02	.08**
Gender	-0.09	0.17	-.01
Subjective Well-being	0.04	0.02	.07
Relationship Satisfaction	5.27	0.18	.75***
Sense of Control	0.24	0.12	.07

Note. $R^2 = .03$ for Step 1; $\Delta R^2 = .61$ for Step 2 ($p < .001$).

* $p < .05$, ** $p < .01$, *** $p < .001$.

IEMSS component 1 = the balance of sexual rewards and sexual costs in the relationship.

IEMSS component 2 = the way that sexual rewards and costs compare to one's expected level of sexual rewards and costs.

IEMSS component 3 = the perceived equality of sexual rewards and costs between partners.

IEMSS component 4 = the quality of the nonsexual aspects of the relationship.

Due to the presence of multicollinearity among these variables, an additional partial correlation was conducted, controlling for age and gender. An analysis using Pearson's correlation coefficient indicates a statistically significant linear relationship was found between the variables of subjective well-being ($r = .31, p < .001, R^2 = .096$), relationship satisfaction ($r = .78, p < .001, R^2 = .608$), and sense of control ($r = .31, p < .001, R^2 = .096$) and the outcome variable of IEMSS composite 4 (the quality of the nonsexual aspects of the relationship). Therefore, although the multiple regression analysis suggested that subjective well-being and sense of control did not significantly contribute to the prediction of one's rating of the quality of the nonsexual aspects of the relationship, this correlational analysis suggests that subjective well-being and sense of control do, in fact, have significant relationships with the variable in question, that was likely masked by multicollinearity with other predictive variables. This may indicate that subjective well-being, relationship satisfaction and sense of control are significantly related to the construct of this aspect of sexual satisfaction.

A summary of the Betas, from the multiple regression analyses, for each level of dependent and independent variables is found in Table 6. Results from IEMSS components 1 and 4 (the balance of sexual rewards and costs in the relationship and the quality of the nonsexual aspects of the relationship) appear to support prior research. The findings from components 2 and 3 (the way that sexual rewards and costs compare to one's expected level of sexual rewards and cost and the perceived equality of sexual rewards and costs between partners), do not support the proposed model of psychological predictors of sexual satisfaction in the current study. However, it is difficult to say how

these findings would compare to other findings, as no other study has explored each of these IEMSS components individually before.

Table 6

Summary of Standardized Beta Values for the Predictors of IEMSS Components 1-4

	1	2	3	4
Step 2				
Age	.16***	-.17***	-.15***	.08**
Gender	.18***	-.09*	-.17***	-.01
Subjective Well-being	-.02	.07	.07	.07
Relationship Satisfaction	-.06	.27***	.17***	.75***
Sense of Control	.02	.13*	.13*	.07
<i>N</i>	447	635	646	648

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

IEMSS component 1 = the balance of sexual rewards and sexual costs in the relationship.

IEMSS component 2 = the way that sexual rewards and costs compare to one's expected level of sexual rewards and costs.

IEMSS component 3 = the perceived equality of sexual rewards and costs between partners.

IEMSS component 4 = the quality of the nonsexual aspects of the relationship.

Chapter 4: Discussion

The purpose of the present study was to investigate the typical levels of sexual satisfaction among heterosexual married older adults. A further goal of this study was to increase knowledge related to sexual satisfaction and the psychological factors that predict sexual satisfaction for heterosexual married older adults. It was hypothesized that the psychological variables of relationship satisfaction, subjective well-being, and perceived control would explain much of the variance within the various domains of sexual satisfaction. Currently little is known about the topic of sexual satisfaction among older adults as most existing studies of sexual satisfaction have focused on the experiences of younger adults. It is not clear if what is currently known about sexual satisfaction and its predictors can be generalized to an older adult population.

In fact, there are several persuasive arguments for the need of this present study. As was stated earlier, it has been show that a person's level of sexual satisfaction can impact psychological well-being (Hurlbert, et. al., 2005 Hinchliff & Gott, 2004; Wylie, 2004), is associated with levels of depression (Nicolosi, Moriera, Villa, & Glasser, 2001; Tower & Krasner, 2006) and sexual pleasure has been recognized as a fundamental need of humans, and is an important part of life (Genazzani, Gambacciani, & Simoncini (Eds.), 2007; Lindau, et.al, 2007). It is also known that for older adults, maintaining a satisfying level of sexual activity is an important part of sustaining a high quality of life (Griebing, 2006). Given these strong findings, it is imperative to increase the available literature on

sexual satisfaction and older adults. Today's older adults have come to expect and value the maintenance of sexually satisfying lives across the lifespan. Therefore, it is essential to specifically study sexual satisfaction among older adults in order to answer the previous questions, and to increase knowledge about this important topic in general.

Typical Levels of Sexual Satisfaction

Currently, relatively limited information exists about the typical levels of sexual satisfaction of older adults. The research that has been conducted with older adults has suggested that as age increases, reported sexual satisfaction decreases (Biss & Horne, 2005; Johnson, 1998; Deeks & McCabe, 2001; Beutel, Schumacher, Weidner, & Brahler, 2002). However, most studies of sexual satisfaction have focused on the experiences of younger adults in which participants rated their current level of sexual satisfaction as relatively high overall (Dunn, Croft, & Hackett, 2000; Biss & Horne, 2005; Byers, Demmons, & Lawrence, 1998; Fugul-Meyer & Sjögren Fugul-Meyer, 1999; Apt & Hurlbert, 1996). There have been various suggestions that sexual satisfaction tends to decrease with age due to physical decline or loss of a partner. However, it is unclear if other, psychological variables may also play a role in the prediction of sexual satisfaction, especially for older adults who are currently married.

When examining typical levels of sexual satisfaction among heterosexual married older adults it was decided to investigate each of the IEMSS components individually, as this would provide more specific information regarding sexual satisfaction in each of the four component areas covered by the IEMSS theory and allow for a more detailed examination of satisfaction within each of the components. However, since these

components have not been examined individually before, this does not allow for direct comparison to previous research, as none currently exists.

In the current study, findings regarding typical levels of sexual satisfaction were somewhat mixed. For responses related to the balance of sexual rewards and sexual costs in the relationship (IEMSS component 1), several interesting findings emerged. Measures indicated that participants reported a strong balance between the sexual costs and sexual rewards in their relationship. It appears that the participants in this study seemed to report their levels of sexual costs and rewards as fairly balanced overall. This may be similar to the high levels of sexual satisfaction reported in other studies of sexual satisfaction with younger adults (Dunn, Croft, & Hackett, 2000; Biss & Horne, 2005; Byers, Demmons, & Lawrence, 1998; Fugul-Meyer & Sjögren Fugul-Meyer, 1999; Apt & Hurlbert, 1996). However, the current findings cannot be directly compared to others, as no other studies have examined the individual components of the IEMSS theory.

Conversely, for IEMSS component 2 participants tended to report the current sexual aspect of their lives as “middle-of-the-road.” In investigating typical levels of sexual satisfaction related to the way that sexual rewards and costs compare to one’s expected level of sexual rewards and costs, measures indicated participants felt the current sexual aspect of their life was neither the best, nor the worst, but rather right in between. This could indicate that for the participants in this study, their levels of sexual costs and rewards seem to line up with their expectations, but it is not a clear sign that sexual satisfaction is high in this domain. Again, current findings cannot be directly compared to other studies, as no other studies have examined the individual components of the IEMSS theory.

In regard to typical levels of sexual satisfaction related to the perceived equality of sexual rewards and costs between partners (IEMSS component 3), results indicated participants varied widely in how much control they felt they had over the sexual aspects of their lives. Since control was used as a proxy measure for the component of the perceived equality of sexual rewards and costs between partners, it may be that it was not a particularly accurate proxy measure. However, it is interesting to note the distribution of responses to the question regarding control over the sexual aspect of one's life. It appears that sexual control is highly variable among married older adults; and as such may be impacted by factors other than those measured in this study.

Examining typical levels of sexual satisfaction related to the quality of the nonsexual aspects of the relationship (IEMSS component 4) indicated participants reported high quality in the nonsexual aspects of their relationships overall. Thus, it appears that the participants in this study seemed to feel the quality of the nonsexual aspects of their relationships were quite good overall. This is consistent with past findings among younger adults that have found a correlation between sexual satisfaction and marital or relationship satisfaction (Apt & Hurlbert, 1996; Byers, 1999; Byers & Demmons, 1999; Byers & MacNeil, 2006; Lawrence & Byers, 1995; Sprecher, 2002; Young, Denny, Luquis, & Young, 1998). Thus, participants in this study, may appear to be experiencing high levels of this aspect of sexual satisfaction.

Psychological Predictors of Sexual Satisfaction within each IEMSS Component

Overall, results of the present study suggested that age and gender frequently impact various aspects of sexual satisfaction among married heterosexual older adults similar to that of younger adults. Additionally it was found that when using multiple

regression to predict a three-factor model (relationship satisfaction, subjective well-being and sense of control) relationship satisfaction predicts many of the components of sexual satisfaction for this sample. Using this same model, sense of control contributed to certain specific aspects of sexual satisfactions, and contrary to the hypothesis of this study, subjective well-being did not significantly contribute to the prediction of any of the components of sexual satisfaction. Given the increases in positive affect, and the decreases in negative affect with advancing age, it was hypothesized that the psychological construct of subjective well-being might play into the prediction of sexual satisfaction of older adults as well.

However, in the current study the construct of subjective well-being did not significantly contribute to the prediction of sexual satisfaction in any of the four aspects of sexual satisfaction that were measured when the multiple regression methods were used. It was later determined this may well have had to do with issues of multicollinearity, which could have masked the effects of subjective well-being. Thus, when examined using correlational methods, it appeared that all three predictors (relationship satisfaction, subjective well-being and sense of control) showed statistically significant relationships with IEMSS components 2-4. Further, it should be noted that as the IEMSS components have never been examined independently of the IEMSS theory as a whole. Consequently, there are no existing studies with which to compare some of the specific findings of the present study.

IEMSS Component 1: Balance of Sexual Rewards and Sexual Costs in the Relationship. For the items regarding EIMSS component 1(the balance of sexual rewards and sexual costs in the relationship), the none of the psychological variables (relationship

satisfaction, subjective well-being or sense of control) served to predict the balance of sexual rewards and sexual costs in the relationship, as measured in this study. Therefore, when predicting the balance of sexual rewards and sexual costs in the relationship (IEMSS component 1), only age and gender served as statistically significant predictors. Specifically, as age increases among older adults, so does the amount of balance of sexual rewards and sexual costs in the relationship. So, relatively older couples may experience more balance in this domain and may therefore be more satisfied with the amount of balance they experience in the area of sexual costs and rewards. As described earlier, inconsistent findings regarding gender effects in sexual satisfaction exist in the literature. In the current study results indicated a clear difference in participant ratings based on gender, such that women tended to report more balance of sexual rewards and costs in the relationship and men tended to report more imbalanced rewards and costs. This may indicate higher sexual satisfaction in this area for women, which would be consistent with some previous findings related to gender and sexual satisfaction (Biss & Horne, 2005; Dunn, Croft, & Hackett, 2000; Tower & Krasner, 2006).

Consequently, these findings show that comparatively older female participants reported experiencing more balance of sexual rewards and sexual costs in the relationship, as measured in this study. Thus, in this study, older female participants seem to report the highest level of balance in the costs and rewards of their sexual relationships, which is again consistent with some previous research indicated women report higher levels of sexual satisfaction (Biss & Horne, 2005; Dunn, Croft, & Hackett, 2000; Tower & Krasner, 2006). This could have implications in how the members of a couple perceive needs for interventions related to their sexual relationship. If one party

feels they are experiencing a fair balance of costs and rewards, it may be more difficult for their partner to suggest interventions such as psychotherapy or pharmaceutical interventions. It may also be important for couple's counselors to assess agreement in the area of sexual costs and rewards before proceeding with any treatment of potential sexual concerns.

IEMSS Component 2: How Sexual Rewards and Costs Compare to One's

Expected Level of Sexual Rewards and Costs. For the items regarding IEMSS component 2 (the way that sexual rewards and costs compare to the expected level of sexual rewards and costs), the psychological variables of relationship satisfaction and sense of control together were significant predictors, beyond simply the effects of age and gender, when using a multiple regression model analyses. Consequently, when predicting the way that sexual rewards and costs compare to the expected level of sexual rewards and costs in the relationship (IEMSS component 2), age, gender, relationship satisfaction, and sense of control all served as statistically significant predictors. This means that as age increases among older adults, this aspect of sexual satisfaction tends to decrease, which is consistent with findings that have shown sexual satisfaction to decrease with age (Biss & Horne, 2005; Johnson, 1998; Deeks & McCabe, 2001; Beutel, Schumacher, Weidner, & Brahler, 2002). So, in this domain comparatively younger couples may experience more balance than older couples do, which is a proxy for levels of sexual satisfaction in this particular area. Further, gender also correlates with balance in this domain, such that men tended to report more balance in this domain than did women, which indicates they may experience higher levels of sexual satisfaction in this area than women, which is

consistent with Laumann, et.al's finding regarding men exhibiting higher levels of sexual satisfaction (2006).

Thus, it appears that women indicated they were more likely to feel the rewards and costs were balanced in the relationship overall, but men were more likely to indicate feeling balance in their own sense of how their sexual costs and rewards compare to their expected level of sexual costs and rewards. Additionally, increased relationship satisfaction and increased sense of control also correlated with increased balance in the way that sexual rewards and costs compare to the expected level of sexual rewards and costs in the relationship. Consequently, relatively younger male participants, who reported higher levels of relationship satisfaction and higher levels of sense of control, reported the most balance in the way that sexual rewards and costs compare to the expected level of sexual rewards and costs in the relationship, as measured in this study.

This result may have important and serious implications in the treatment of sexual difficulties and marital distress as there appear to be differences in how men and women report their sexual rewards and costs comparing to what they expect for sexual rewards and costs. Further, those with lower levels of relationship satisfaction or senses of control (often women) may end up feeling that their expectations are not being met in this area of sexual satisfaction, which could lead to relational distress. Therefore, the way that sexual rewards and costs compare to expected levels of sexual rewards and costs may also be an important area to assess when taking a sexual history of a couple.

IEMSS Component 3: Perceived Equality of Sexual Rewards and Costs between Partners. For the items regarding EIMSS component 3 (the perceived equality of sexual rewards and costs between partners), findings mirrored those of IEMSS component 2.

Therefore, the psychological variables of relationship satisfaction and sense of control together are significant predictors of the perceived equality of sexual rewards and costs between partners (IEMSS component 3), beyond simply the effects of age and gender. Consequently, when predicting the perceived equality of sexual rewards and costs between partners, age, gender, relationship satisfaction, and sense of control all served as statistically significant predictors.

This means that as age increases among older adults, the perceived equality of sexual rewards and costs between partners tends to decrease. This is again consistent with previous findings that have suggested that as age increased, reported sexual satisfaction decreased (Biss & Horne, 2005; Johnson, 1998; Deeks & McCabe, 2001; Beutel, Schumacher, Weidner, & Braehler, 2002). This was found to be true for two of the four components of sexual satisfaction measured in the current study. Notably, this finding was consistent for IEMSS components 2 and 3, meaning that as relative age increased the perceived balance of sexual rewards and costs decreased and the perceived equality of sexual rewards and costs between partners decreased. Thus, relatively younger couples may experience more perceived equality in these domains. Gender also correlated with perceived equality in this domain, with men showing more perceived equality in this domain than women. This could indicate that men are likely to perceive equality in this domain, while women may feel an inequality here, which could lead to relational or sexual conflict within a relationship. Thus, for IEMSS components 2 and 3 it appears men exhibited higher levels of sexual satisfaction in those domain, which is consistent with the findings of Laumann, et. al's finding regarding men exhibiting higher levels of

sexual satisfaction (2006). Also, relationship satisfaction and sense of control correlated positively with perceived equality of sexual rewards and costs between partners.

Therefore, findings from the multiple regression analyses indicated that relatively younger male participants in this study, who reported higher levels of relationship satisfaction and higher levels of sense of control, reported the most perceived equality of sexual rewards and costs between partners, as measured in this study. Thus, these participants tend to believe that they and their partners incur similar levels of sexual costs, as well as similar levels of sexual rewards. However, it seems that women did not tend to perceive these costs and rewards as equal between partners. It is unclear from this study if this is a product of female socialization which tends to imply women should not experience as many sexual rewards as men, if this is due to faulty perceptions of inequalities, or if this reflects an actual discrepancy in the sexual costs and rewards that partner's experience. In any case, it seems that levels of perceived equality in this domain could be essential in maintaining a balanced sexual relationship and would therefore be useful to explore in the context of couple's or sex therapies.

IEMSS Component 4: Quality of the Nonsexual Aspects of the Relationship. For the items regarding EIMSS component 4 (the nonsexual aspect of the relationship), relationship satisfaction was found to be a significant predictor, above and beyond the effects of age and gender. Consequently, when predicting the nonsexual aspect of the relationship, age, and relationship satisfaction served as statistically significant predictors. Interestingly, gender did not significantly predict this domain at all. Overall, it seems the current data matches the inconsistencies already found in the literature regarding gender and sexual satisfaction.

As relative age increases, the quality of nonsexual aspect of the relationship also appears to increase in this sample. Thus, comparatively older couples may experience more quality in the nonsexual domain of their relationships. Although increasing age can appear to negatively impact some aspects of sexual satisfaction (the way that sexual rewards and costs compare to the expected level of sexual rewards and costs in the relationship and the perceived equality of sexual rewards and costs between partners), it does not appear to consistently do so. In fact, increasing age among older adults is positively related to other aspects of sexual satisfaction (the balance of sexual rewards and sexual costs in the relationship and the nonsexual aspect of the relationship). In addition, increased relationship satisfaction also correlated with increased quality of the nonsexual aspect of the relationship.

As a result, comparatively older participants, who reported higher levels of relationship satisfaction, reported the most perceived quality of the nonsexual aspect of the relationship, as measured in this study. This may indicate that late in life relationship satisfaction and the nonsexual aspects of a relationship are important in maintaining certain aspects of sexual satisfaction. This information could be useful for older couples who wish to maintain some level of sexual satisfaction into late life. It may also make a case for some behavioral or psychoeducational interventions with couples prior to pharmaceutical ones, to ensure both parties are in agreement with their goals for maintenance of sexual functioning.

Psychological Predictors of Sexual Satisfaction

Relationship satisfaction. A variable that has received much attention in the sexual satisfaction literature is that of relationship or marital satisfaction. In fact,

Christopher and Sprecher (2000) stated that not only is sexual satisfaction associated with marital satisfaction, but also that sexual satisfaction contributes to marital stability. Stated another way, one's sexual relationship is central to finding one's marriage to be satisfying (Litzinger & Gordon, 2005). It was also found that the married and monogamous couples reported highest levels of sexual satisfaction of any group (Christopher & Sprecher, 2000).

Additionally, Byers (2005) noted that for couples, changes in sexual satisfaction were accompanied by similar changes in relationship satisfaction, indicating a close association between sexual and relationship satisfaction. A number of additional studies have highlighted the correlation between sexual satisfaction and marital or relationship satisfaction (Apt & Hurlbert, 1996; Byers, 1999; Byers & Demmons, 1999; Byers & MacNeil, 2006; Lawrence & Byers, 1995; Sprecher, 2002; Young, Denny, Luquis, & Young, 1998). These findings were reinforced in the present study, as relationship satisfaction was a statistically significant predictor for three of the four aspects of sexual satisfaction measured (the way that sexual rewards and costs compare to one's expected level of sexual rewards and costs, the perceived equality of sexual rewards and costs between partners and the quality of the nonsexual aspects of the relationship). In fact, relationship satisfaction was the most consistently significant psychological predictor of any aspect of sexual satisfaction in the study. Thus, it seems the present study has added to the evidence for relationship satisfaction as a strong predictor of sexual satisfaction, throughout the lifespan.

Sense of control. Lachman and Weaver found that sense of control is an important ingredient for successful aging (1998). In fact, control beliefs appear to play a

particularly important role during later adulthood when losses begin to increase relative to gains. Additionally, older adults indicated facing more constraints than did members of the other age groups. This may be due to decreased physical functioning, losses of significant interpersonal relationships, or sometimes diminished abilities to make decisions in their own lives. However, older adults also reported greater perceived control for life overall than did the younger and middle-aged adults, despite the perception of increased perceived constraints (Lachman & Weaver, 1998; Lachman & Firth, 2004).

Research has shown that enhancement of control appears to have strikingly positive effects on the health and well-being of older people (Rodin, 1986). Further, increased control has been found to affect both psychological and physical health. Therefore, it follows that control might also be related to a construct such as sexual satisfaction, which incorporates aspects of both psychological and physical health. The present study showed that sense of control significantly predicted two of the four aspects of sexual satisfaction as measured in this paper (the way that sexual rewards and costs compared to the expected level of sexual rewards and costs and the perceived equality of sexual rewards and costs between partners).

Limitations

The present study adds to the burgeoning body of literature on the topic of aging and sexuality. However this study is not without its limitations. For example, the sample used in this study may not be particularly representative of today's older adults. Although many efforts were made to increase recruiting among diverse populations in the MIDUS database, diversity among the older adult sample in this dataset is lacking. Overall, this is a sample of married, heterosexual, U.S. citizens who are predominantly White, Christian,

well-educated and middle to upper-middle class older adults. This will certainly impact the generalizability of these findings to populations outside of these particular demographic parameters.

A further limitation is that of having used archival data (Schultz, Hoffman & Reiter-Palmon, 2005). One of the major limitations of using archival data is a lack of control over the variables selected for measurement or the ability to modify items or rating scales prior to administration. More specifically, many of the items used throughout this study were not designed for the purpose of studying sexual satisfaction and were not designed with any particular theoretical background in mind. Thus, the items were often used as proxy measures for a desired construct, rather than as pure measures of the constructs in question.

Additionally, the context of the data used in this analysis also is a potential source of bias such that individuals who completed these measures likely did so under the auspices of health psychology research. Therefore participants may not have necessarily put much thought or effort into items related to personal subjects, such as their sexual habits and satisfactions. This may have somewhat biased the data, particularly on items where many participants left the items blank, thus providing incomplete data on the topic of human sexuality.

Specifically, it should also be noted that for IEMSS component 1 (the balance of sexual rewards and costs in the relationship), there were 228 participants who did not fully complete all items used to calculate that component of sexual satisfaction. Consequently, the results for IEMSS Component 1 may not be entirely accurate, as it appears participants may not have been fully comfortable answering one of the items

measured in this area. Specifically, the question asking “How often do you experience pleasure in your sexual interactions?” was omitted by many participants. It is possible that this question was not clear to participants, or they may have felt uncomfortable responding to this question, given its highly personal nature. Thus, although several interesting and potentially useful findings came to light in this study, it is important to acknowledge the limitations of having used archival data.

Contributions

The present study also brings with it much strength. There is a growing body of research in the area of aging and sexuality, but almost none of the current literature examines the construct of sexual satisfaction among older adults. Given that sexual satisfaction has been shown to be important to psychological well-being and in buffering against depressive symptoms (Hurlbert, et. al., 2005; Tower & Krasner, 2006), that there appears to be associations between level of sexual satisfaction and presence of depression for both men and women (Nicolosi, Moriera, Villa, & Glasser, 2001; Tower & Krasner, 2006), and that sexual pleasure is now recognized to be a fundamental need of humans, and an important part of life (Genazzani, Gambacciani, & Simoncini, 2007; Lindau, et.al, 2007) it makes sense to begin examining this construct more closely amongst older adults. Further, it is known that for older adults, maintaining a satisfying level of sexual activity is an important part of sustaining a high quality of life (Griebing, 2006). Thus, it is of paramount importance to understand the various aspects of sexual satisfaction and to be aware of the demographic, physical and psychological factors that predict levels of sexual satisfaction among older adults, as this appears to be an essential element of quality of life.

A further strength of the current study is the size of the sample. When conducting research with community-dwelling older adults it is often difficult to recruit high numbers of participants, especially when studying sensitive topics such as human sexuality. Since this data was collected as part of a large and multi-faceted study it was possible to enroll hundreds of older adult participants. Also, since the original aim of the study was to explore many factors related to aging, a larger than usual sample for research related to sexuality was able to be polled. This greatly increased the overall sample size, which in turn increases the generalizability of the current findings.

Finally, the current study utilized a theoretical background to guide the research. This is significant as no existing theory regarding sexual satisfaction has yet been validated with an older adult population. The present study was able to incorporate what is currently known about sexuality and aging into an existing theoretical model of sexual satisfaction. Although the Interpersonal Exchange Model of Sexual Satisfaction was not entirely supported, this study does add to a burgeoning literature and will serve to guide future research questions in this area.

Implications for Research

The present study uncovered various follow-up questions to be examined in future research studies. For example, results of the multiple regression analyses of this study indicated that subjective well-being, relationship satisfaction, and sense of control do not appear to consistently work as a model for the prediction of sexual satisfaction among older adults. It seems more research may be needed to further understand this finding. This is particularly important as each of these factors does seem to correlate with various aspects of sexual satisfaction, and may simply not work well together as a model due to

issues of multicollinearity. Additionally, given the inconsistent findings of gender differences related to sexual satisfaction, both in this study and past research, there remains a need for further research into sexual satisfaction for men and women separately, and at different stages of their lives and relationships.

Moreover, it appears that relationship satisfaction and sense of control only predict certain components of sexual satisfaction in this sample in the multiple regression analyses. Specifically, relationship satisfaction was a significant predictor of the way that sexual rewards and costs compare to one's expected levels of sexual rewards and costs, the perceived equality of sexual rewards and costs between partners, and the quality of the nonsexual aspects of the relationship (IEMSS components 2-4). Sense of control was a significant predictor of only the way that sexual rewards and costs compare to one's expected levels of sexual rewards and costs and the perceived equality of sexual rewards and costs between partners (IEMSS components 2-3). It would be helpful to know if these results would hold in samples where the research questionnaires were specifically designed to assess the various components of the IEMSS theory. It is possible that with data collected specifically for the purpose of validating this theory with older adults the findings would differ.

It would also be useful to know if the results of this study are representative of more diverse populations of older adults. More research is needed to further explore the usefulness and generalizability of these findings in diverse populations. Specifically, it may be interesting to explore sexual satisfaction among partnered non-heterosexual older adults. It is not yet known how these findings might translate into gay, lesbian, or bisexual (GLB) populations as marriage has just recently become available to GLB

individuals in certain states and no research is currently available regarding the effects of marriage on their levels of sexual satisfaction. This, it may become even more essential to study sexual satisfaction among these sexual minorities as more states begin to allow same-sex marriage and expand civil rights for non-heterosexual U.S. citizens.

Implications for Practice

The findings of the present study have practical applications for both medical and psychological care settings. It is becoming more common for older adults to seek professional consultation regarding changes in their sexual functioning or satisfaction over time. All too often the solution given is pharmacologic in nature, with little to no attention given to other potential causes for these changes. What this study highlights is that sexual satisfaction is much more complex than often thought and is comprised of several different facets. It has additionally emphasized the importance that psychological factors play in sexual satisfaction across the lifespan. Therefore, the findings of this study will be added to a growing body of health psychology literature that advocate for more psychoeducation of patients, and more psychotherapeutic interventions for certain difficulties.

Sexual satisfaction appears to be influenced by psychological, as well as demographic and physical health factors. Thus, it would make sense for some older adults who are experiencing changes in their level of sexual satisfaction to be referred for psychological treatment, rather than solely for medical treatment. Sharing information regarding the predictors of sexual satisfaction with both patients and providers would be both useful and practical. Sexual satisfaction continues to be an important aspect of quality of life, across the lifespan.

Older adults who experience changes in their sexual functioning or sexual satisfaction are most likely to present to their primary care physician for treatment first, if they present for treatment at all. This may be due to physical health's direct impacts on sexual functioning, or to the fact that many older adults may still hold stigmatized beliefs regarding presenting for mental health treatment. Therefore, it is essential that geriatricians and other primary care physicians understand the complex nature of sexual satisfaction. It is important for physicians to have at least basic training in taking a sexual history and assessing sexual problems. In particular, it is known that relationship satisfaction has a strong association with sexual satisfaction. Thus, it would make sense if physicians asked about relationship satisfaction in the context of a sexual assessment. Given the often reciprocal nature of relationship and sexual satisfaction, it would not be uncommon for some older adults to seek pharmacologic solutions to sexual problems in hopes that this will also improve their relationship satisfaction. However, since it is known that physical problems can have an impact on sexual satisfaction, it is also important that physicians briefly educate patients about the complexities of sexual and relationship satisfaction. This may provide an opening in which to refer a patient for psychological treatment for their sexual problems, which may improved by addressing issues of relationship satisfaction, or other psychological concerns.

Current findings also have direct implication for couple's/relationship counselors or sex therapists. For example, it may be important for counselors to assess the couple's agreement in the area of sexual costs and rewards before proceeding with any treatment of potential sexual concerns. The way that sexual rewards and costs compare to expected levels of sexual rewards and costs and the perceived equality of sexual rewards and costs

between the partners may also be an important area to assess when taking a sexual history of a couple. Fully understanding each person's experience within these domains could add richness to the therapy by opening the door to conversations about what each partner expects and how they see things going within their relationship.

It is also essential to recognize that late in life, relationship satisfaction and the nonsexual aspects of a relationship (i.e. shared rituals and values, communication styles) are of paramount importance in maintaining certain aspects of sexual satisfaction. This information could be especially useful for older couples who wish to maintain some level of sexual satisfaction into later life, but who do not know much about psychological factors related to sexual satisfaction. It may also make a case for some behavioral or psychoeducational interventions with couples prior to pharmaceutical ones, as these are often both successful and cost-effective solutions. Including these issues into medical or psychotherapeutic assessments would also help to ensure both parties within the couple are in agreement with their goals for maintenance of sexual functioning as it would allow for more discussion of the various factors related to sexual functioning and sexual satisfaction.

In addition to impacting the assessment of sexual satisfaction, these findings also suggest that the multi-faceted nature of the domain of sexual satisfaction could be used in the treatment of sexual difficulties. For example, after a thorough assessment is completed, the therapist would have a clearer picture of a person's functioning in each of the areas related to sexual satisfaction. This information could then be used to formulate a treatment plan that capitalizes on the strengths a person already has. If they are showing signs of satisfaction in one area, but not others, that aspect of sexual satisfaction might

become a starting point to grow from. Thus, strengths or satisfaction found in even one area could be capitalized on in therapy with the hopes of generalization to the other aspects of sexual satisfaction.

Conclusion

The results of the present study are relevant not only to those working with older adults, but also to those with interests in aging, sexuality, public policy, in addition to those with friends and loved ones who are aging members of society. Older adults have the right to have their sexuality acknowledged by their health and mental health care providers, and they deserve to get accurate information about their sexual functioning and sexual satisfaction. It is now known that sexual satisfaction can be maintained throughout the lifespan. There are also many factors that go into predicting one's level of sexual satisfaction at any given time and sexual satisfaction is a far more complex construct than once thought.

It appears at this time that among married, heterosexual older adults typical levels of sexual satisfaction varied based on which aspect of sexual satisfaction is being examined. This is important information, as high sexual satisfaction in one area might be capitalized on to improve sexual satisfaction in the others areas of this complex construct. It is also now known that relationship satisfaction and sense of control do, in fact, impact sexual satisfaction in various ways. This knowledge can be used to shape treatments that are in use for sexual problems and may open the door for more psychologists to work with clients on the various aspects of sexual satisfaction and ways to maintain a high level of sexual satisfaction across the lifespan. Considering the large number of older adults in the United States, and the number that are nearing old age, this population

cannot be ignored. It is up to medical and mental health researchers and providers to continue working to fully understand the complex construct of sexual satisfaction and to work toward including sexual health and maintenance as a regular part of care for older adults.

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Appendix A

Demographic data for the current sample

<i>Gender</i>	<u>Frequency</u>	<u>Percentage</u>	
Female	308	45.1	
Male	375	54.9	
Total	683	100	
<i>Age</i>			
Mean	71.58		
Standard Deviation	4.95		
Minimum Age	65		
Maximum Age	83		
Total (N)	683		
<i>Total Number of times married</i>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Percent</u>
1	521	76.3	76.4
2	128	18.7	95.2
3	29	4.2	99.4
4	4	.6	99.9
Missing	1	.1	100

Total (N)	683	100	
<i>Highest level of education completed</i>	<u>Frequency</u>	<u>Percentage</u>	<u>Cumulative Percentage</u>
Eighth Grade/Junior High School (7-8)	13	1.9	1.9
Some High School (9-12)	43	6.3	8.2
No Diploma/No GED	6	.9	9.1
GED			
Graduated from High School	213	31.2	40.4
1-2 years of College, No degree yet	123	18	58.4
3 or more years of College, No degree yet	21	3.1	61.5
Graduated from 2-year College, Vocational School, or Associates Degree	38	5.6	67.1
Graduated from a 4- or 5-year College, or Bachelor's Degree	117	17.1	84.3
Some Graduate School	21	3.1	87.4
Master's Degree	58	8.5	95.9
Ph.D., Ed.D., M.D., D.D.S., L.L.B., L.L.D., J.D., or other Professional Degree	28	4.1	99.7
Missing	2	.3	100
Total	683	100	

Appendix B

Psychological Well-Being Scale (MIDUS 2 version)

Scales/Items:

Autonomy:

Items: 7 items - Self-Administered Questionnaire, Section E, Question 1 (a, g, m, s, y, ee, kk)

- a. "I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people." (R)
- g. "My decisions are not usually influenced by what everyone else is doing." (R)
- m. "I tend to be influenced by people with strong opinions."
- s. "I have confidence in my opinions, even if they are contrary to the general consensus." (R)
- y. "It's difficult for me to voice my own opinions on controversial matters."
- ee. "I tend to worry about what other people think of me."
- kk. "I judge myself by what I think is important, not by the values of what others think is important." (R)

Environmental Mastery:

Items: 7 items - Self-Administered Questionnaire, Section E, Question 1 (b, h, n, t, z, ff, ll)

- b. "In general, I feel I am in charge of the situation in which I live." (R)
- h. "The demands of everyday life often get me down."
- n. "I do not fit very well with the people and the community around me."
- t. "I am quite good at managing the many responsibilities of my daily life." (R)
- z. "I often feel overwhelmed by my responsibilities."
- ff. "I have difficulty arranging my life in a way that is satisfying to me."
- ll. "I have been able to build a living environment and a lifestyle for myself that is
much to my liking." (R)

Personal Growth:

Items: 7 items - Self-Administered Questionnaire, Section E, Question 1 (c, i, o, u, aa, gg, mm)

- c. "I am not interested in activities that will expand my horizons."
- i. "I think it is important to have new experiences that challenge how you think
about yourself and the world." (R)
- o. "When I think about it, I haven't really improved much as a person over the
years."
- u. "I have the sense that I have developed a lot as a person over time." (R)
- aa. "For me, life has been a continuous process of learning, changing, and
growth." (R) gg. "I gave up trying to make big improvements or changes in
my life a long time ago."
- mm. "I do not enjoy being in new situations that require me to change my old
familiar ways of doing things."

Positive Relations with Others:

Items: 7 items - Self-Administered Questionnaire, Section E, Question 1 (d, j, p, v, bb, hh, nn)

- d. "Most people see me as loving and affectionate." (R)
- j. "Maintaining close relationships has been difficult and frustrating for me."
- p. "I often feel lonely because I have few close friends with whom to share my concerns." v. "I enjoy personal and mutual conversations with family members and friends." (R)
- bb. "People would describe me as a giving person, willing to share my time with others." (R)
- hh. "I have not experienced many warm and trusting relationships with others."
- nn. "I know that I can trust my friends, and they know they can trust me." (R)

Purpose in Life:

Items: 7 items - Self-Administered Questionnaire, Section E, Question 1 (e, k, q, w, cc, oo, qq)

- e. "I live life one day at a time and don't really think about the future."
- k. "I have a sense of direction and purpose in life." (R)
- q. "I don't have a good sense of what it is I'm trying to accomplish in life."
- w. "My daily activities often seem trivial and unimportant to me."
- cc. "I enjoy making plans for the future and working to make them a reality." (R)
- oo. "Some people wander aimlessly through life, but I am not one of them." (R)
- qq. "I sometimes feel as if I've done all there is to do in life."

Self-Acceptance:

Items: 7 items -Self-Administered Questionnaire, Section E, Question 1 (f, l, r, x, dd, jj, pp)

- f. “When I look at the story of my life, I am pleased with how things have turned out.”(R)
- l. “In general, I feel confident and positive about myself.” (R)
- r. “I feel like many of the people I know have gotten more out of life than I have.”
- x. “I like most parts of my personality.” (R)
- dd. “In many ways I feel disappointed about my achievements in life.”
- jj. “My attitude about myself is probably not as positive as most people feel about themselves.”
- pp. “When I compare myself to friends and acquaintances, it makes me feel good about who I am.” (R)

Coding: 1 = Strongly agree; 2 = Somewhat agree; 3 = A little Agree; 4 = Neither agree or disagree; 5 = A little disagree; 6 = Somewhat disagree; 7 = Strongly disagree.

Scaling: Psychological well-being scales were constructed by calculating the sum of each set of items. Items marked with (R) were reverse-coded so that high scores reflect higher standing in the scale. For an item with a missing value, the mean value of completed items is imputed.

Missing Values: The scales are computed for cases that have at least four items with valid value on the particular scale. Scores are not calculated for cases with fewer than four valid items on the scales, and coded as “98” for “NOT CALCULATED (Due to missing data).”

Appendix C

Sense of Control Scale

Scales/Items:

Personal Mastery:

Items: 4 items - Self-Administered Questionnaire, Section E, Question 4 (c, f, h, l)

- c. "I can do just about anything I really set my mind to."
- f. "When I really want to do something, I usually find a way to succeed at it."
- h. "Whether or not I am able to get what I want is in my own hands."
- l. "What happens to me in the future mostly depends on me."

Perceived Constraints:

Items: 8 items - Self-Administered Questionnaire, Section E, Question 4 (a, b, d, e, g, i, j, k)

- a. "There is little I can do to change the important things in my life."
- b. "I often feel helpless in dealing with the problems of life."
- d. "Other people determine most of what I can and cannot do."
- e. "What happens in my life is often beyond my control."
- g. "There are many things that interfere with what I want to do."
- i. "I have little control over the things that happen to me."
- j. "There is really no way I can solve the problems I have."

k. "I sometimes feel I am being pushed around in my life."

Coding: 1 = Strongly agree; 2 = Somewhat agree; 3 = A little agree; 4 = Neither agree or disagree; 5 = A little disagree; 6 = Somewhat disagree; 7 = Strongly disagree.

Scaling: Scales are constructed by calculating the mean across each set of items. Items were re-coded so that high scores reflect higher standing in each dimension.

Perceived Control:

Items: 12-item scale combining the 4 "personal mastery" items and the 8 "perceived constraints" items.

Scaling: Perceived control scale is constructed by calculating the mean of the 12 items.

Items from "personal mastery" were reverse-coded so that higher scores represent higher levels of the overall perceived control.

Missing Values: The scales are computed for cases that have valid values for at least half of the items on the particular scale. Scale scores are not calculated for cases with fewer than half of the items on the scales, and coded as "8" for "NOT CALCULATED (Due to missing data)."

Appendix D

Marriage/Relationship Domain Measures

Scale/Items:

Spouse/ Partner Support (Marital Empathy Scale):

Items: 6 items - Self-Administered Questionnaire, Section L, Question 11 (a - f)

- a. “How much does your spouse or partner really care about you?”
- b. “How much does he or she understand the way you feel about things?”
- c. “How much does he or she appreciate you?”
- d. “How much do you rely on him or her for help if you have a serious problem?”
- e. “How much can you open up to him or her if you need to talk about your worries?”
- f. “How much can you relax and be yourself around him or her?”

Coding: 1 = A lot; 2 = Some; 3 = A little; 4 = Not at all

Scaling: Scales are constructed by calculating the **mean** of the values of the items in each scale. Items were reverse-coded so that high scores reflect higher standing in the scale.

Missing Values: The scales are computed for cases that have valid values for **at least one** item on the particular scale. Scores are not calculated for cases with no valid item on the scales, and coded as “8” for “NOT CALCULATED (Due to missing data).”

Appendix E

Sexual Satisfaction

Scale/Items:

IEMSS Component 1 = balance of sexual rewards and sexual costs in the relationship:

Items: 2 items - Self-Administered Questionnaire, Section M, Questions 5 & 12

M5. Using a 0 to 10 scale where 0 means “no thought or effort” and 10 means “very much thought and effort,” how much thought and effort do you put into the sexual aspect of your life these days?

M12. How often do you experience pleasure in your sexual interactions?

Coding: 1 = Never; 2 = Some of the time; 3 = Most of the time; 4 = Always

Scaling: Scale is constructed by multiplying the scores in item M12 by 2.5 and then calculating the absolute value of **difference** of the values of the items in each scale, where a lower score indicated more balance.

IEMSS Component 2 = the way that sexual rewards and costs compare to expected level of sexual rewards and costs:

Item: 1 item - Self-Administered Questionnaire, Section M, Question 1

M1. Using a scale from 0 to 10 where 0 means “the worst possible situation” and 10 means “the best possible situation,” how would you rate the sexual aspect of your life these days?

Scaling: For this measure a higher score indicates expectations are more likely met.

IEMSS Component 3 = perceived equality of sexual rewards and costs between partners:

Items: 1 item - Self-Administered Questionnaire, Section M, Questions 5 & 12

M5. Using a 0 to 10 scale where 0 means “no control at all” and 10 means “very much control,” how would you rate the amount of control you have over the sexual aspect of your life these days?

Scaling: For this measure a higher score indicates higher control, which is serving as a proxy measure of equality.

IEMSS Component 4 = the quality of the nonsexual aspects of the relationship:

Items: 2 items - Self-Administered Questionnaire, Section L, Questions 1 & 6

L1. Using a scale from 0 to 10 where 0 means “the worst possible marriage or close relationship” and 10 means “the best possible marriage or close relationship,” how would you rate your marriage or close relationship these days?

L6. Would you describe your relationship as... ?

Coding: 1 = Excellent; 2 = Very good; 3 = Good; 4 = Fair; 5 = Poor

Scaling: Scale is constructed by calculating the **sum** of the values of the items in each scale. Item L6 was doubled in value and then reverse coded. Thus, a higher sum score

relates to greater relationship quality and a lower sum score relates to lower relationship quality.

Reliability: this scale shows a Chronbach's alpha of 0.92

Appendix F

Inter-correlations of Independent and Dependent Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. IEMSS 1	2.82	2.39	(--)								
2. IEMSS 2	4.66	3.11	-.45**	(--)							
3. IEMSS 3	4.81	3.39	-.40**	.72**	(--)						
4. IEMSS 4	15.33	3.31	-.01	.36**	.24**	(.92)					
5. Age	71.58	4.95	.17**	-.20**	-.18**	.09*	(--)				
6. Gender	0.45	0.50	-.19**	.04	.15**	-.14**	-.09*	(--)			
7. Subjective Well-being	39.60	5.14	-.06	.25**	.24**	.29**	-.14**	.06	(.70)		
8. Relationship Satisfaction	3.71	0.47	-.02	.29**	.19**	.78**	.03	-.20**	.24**	(.89)	
9. Sense of Control	5.51	0.97	-.03	.27**	.25**	.30**	-.19**	-.07	.72**	.26**	(.60)

Note. * $p < .05$, ** $p < .01$. For gender Female = 0, Male = 1. Coefficient alphas are presented in parentheses.

IEMSS component 1 = the balance of sexual rewards and sexual costs in the relationship.

IEMSS component 2 = the way that sexual rewards and costs compare to one's expected level of sexual rewards and costs.

IEMSS component 3 = the perceived equality of sexual rewards and costs between partners.

IEMSS component 4 = the quality of the nonsexual aspects of the relationship.