






The Need for Sexual Wholeness: Linking Self-Determination Theory to the Physical, Emotional, and Meaning Aspects of Sex

Amber A. Price , Dean M. Busby  and Chelom E. Leavitt 

The School of Family Life, Brigham Young University, Provo, Utah, USA

ABSTRACT

Sexuality is a highly complex aspect of a human's existence with several elements contributing to a quality sexual relationship. This study examined a broad scope of sexuality encompassing physical, emotional, and meaning aspects of sex, or sexual wholeness. Sexual wholeness is grounded in the idea that a self-determined sexual relationship in which three innate human needs (autonomy, competence, and relatedness) are met is more likely to promote sexual well-being. Using a sample of 884 adults in long-term relationships, we used structural equation modeling to estimate the association between each of the three self-determination theory (SDT) needs and the physical, emotional, and meaning aspects of sex. We found that overall, greater SDT needs satisfaction predicted sexual wholeness, though some needs held more bearing than others and the associations with components of sexual wholeness varied. For women, the physical aspect of sex was predicted by autonomy (predicted comfort) and competence (predicted sexual knowledge) but for the physical aspects of sex for men, no significant associations were found. The emotional aspect of sex was associated with all three SDT needs for both men and women and sexual meaning was associated with competence and relatedness for both men and women.

Humans are innately driven to form relationships and connections with others (Ryan & Deci, 2017) and fulfilling romantic and sexual relationships are most often those that are self-determined, or freely chosen (Kluwer, Karremans, Riedijk, & Knee, 2020; Smith, 2007). It is not surprising then that the three needs posited by self-determination theory (SDT), autonomy, relatedness, and competence, are closely tied to several benefits in relationships (e.g., Kluwer et al., 2020; Knee et al., 2103; Patrick, Knee, Canevello, & Lonsbary, 2007). Romantic relationships in which the SDT needs are met (i.e., individuals feel a sense of autonomy or choice and ownership in the relationship, individuals each feel competent or adequate and capable, and each individual feels a close connection with the other) provide more satisfaction and well-being to the individuals and couples involved (e.g., Gaine & La Guardia, 2009; Ryan & Deci, 2017).

The benefits of SDT need fulfillment may extend to sexual relationships (e.g., Brunell & Webster, 2013; Gravel, Reissing, & Pelletier, 2020; Smith, 2007), yet research connecting SDT needs and sexual relationships thus far have focused on sexual satisfaction without considering other measures of sexual well-being. The Sexual Wholeness Model (Busby, Hanna-Walker, Leavitt, & Carroll, 2022), which accounts for a more comprehensive concept of sexuality (i.e., the physical, emotional, and meaning aspects of sex), evaluates aspects such as intimacy, growth, and maturity which are also connected to sexuality and that come together to create a sexual

relationship. The Sexual Wholeness Model posits that SDT and the associated needs of autonomy, competence, and relatedness are positively linked to this broader view of sexual well-being, but this idea has yet to be directly examined.

We examine how each SDT need, autonomy, competence, and relatedness, might be uniquely associated with areas of sexual wholeness, specifically, the physical aspects of sex (conceptualized as comfort with sexual aspects of the body and sexual knowledge), the emotional aspects of sex (sexual flourishing in a relationship), and the meaning of sex. Given that men and women may experience sexuality differently (Basson, 2008), we also consider possible gender differences in the associations between SDT needs and sexual wholeness.

Self-determination theory and close relationships

Self-determination theory posits that psychological well-being is grounded in the fulfillment of three innate needs—autonomy (an ability for self-government), competence (a feeling of adequacy), and relatedness (a sense of belonging; Deci & Ryan, 2000). The satisfaction of these three needs is considered not only essential to overall well-being (Ryan & Deci, 2017), but is also inherently tied to the optimal development of relationships (Knee, Hadden, Porter, & Rodriguez, 2013). Research provides evidence that satisfaction of the three SDT needs is associated with many positive relational outcomes (e.g., Knee et al., 2013 Patrick et al., 2007). For example, couples in relationships with high levels of both autonomy and relatedness are better able to work through conflict (Kluwer et al., 2020) and individuals who experience need satisfaction in their relationship have better couple functioning and relational well-being (Patrick et al., 2007).

Needs satisfaction & sex

Though SDT and romantic relationships are well studied, research linking SDT with sexual well-being is an emerging field. Some evidence, though limited, indicates that self-determined motivation and SDT needs satisfaction are important components of sexual relationships (e.g., Brunell & Webster, 2013). It is logical that having one's SDT needs met would yield more positive sexual outcomes (Smith, 2007) and in general, research supports this theory. SDT needs satisfaction is associated with higher sexual satisfaction (Gravel et al., 2020), more ability to relax in a sexual relationship (Smith, 2007), and more positive sexual affect (Gravel et al., 2020) and this needs satisfaction may be positively related not only to sexual satisfaction of the self, but to that of the partner as well (Brunell & Webster, 2013).

Autonomy and sex. From a self-determination perspective, autonomy is an important aspect in sexual motivation. When sexual motivations are autonomous (rather than controlled or pressured), both men and women, regardless of relationship length, sexual frequency, or quality of the relationship, experience greater sexual satisfaction and more positive sexual affect (Gravel et al., 2020). Autonomy in sex may also be associated with less pressure stemming from either individual or partner's sexual expectations (Sanchez, Crocker, & Boike, 2005) such as prescribed gender norms, which are often associated with less sexual satisfaction (Sanchez et al., 2005), particularly for women (Impett & Peplau, 2003).

Competence and sex. A sense of competence may be important in a sexual relationship as partners work together to create a mutually fulfilling connection. Specifically, it seems likely that a basic knowledge of aspects of sexuality like anatomy or the sexual response cycle may improve sexual function, satisfaction, and well-being (Wylie, 2010). A knowledge of the female sexual response cycle, which often differs not only from men's (Basson, 2008) but also may vary from one woman to another (Leavitt, Leonhardt, & Busby, 2019b), may also allow couples to work together to find ways to make the relationship mutually satisfying.

Relatedness and sex. According to self-determination theory, all people have a fundamental need for belonging (Ryan & Deci, 2017) and this may be a major motivation for a sexual relationship. A strong and fulfilling sexual relationship can greatly serve to enhance feelings of attachment and emotional security between partners (Johnson & Zuccarini, 2010) and is an important part of satisfying romantic relationships (Impett, Muise, & Peragine, 2014). Mounting evidence points to the salience of SDT needs satisfaction in sexual relationships (e.g., Brunell & Webster, 2013; Gravel et al., 2020; Smith, 2007), yet much of the research to date focuses primarily on sexual satisfaction. In this study, we examine SDT needs satisfaction in sexual relationships in a broader context, that of a sexual wholeness perspective, which encompasses the physical, relational, and meaning-related aspects of sexuality (Busby et al., 2022).

The sexual wholeness model

Previous research examining SDT and sexuality found associations between needs satisfaction and sexual satisfaction (e.g., Brunell & Webster, 2013; Gravel et al., 2020; Smith, 2007), but a sexual relationship encompasses more than just satisfaction with pleasure, frequency, or creativity. The sexual wholeness model (Busby et al., 2021) posits that sexual well-being also involves the physical, emotional, and meaning aspects of sex and thus, a more comprehensive study of sex is warranted (Tolman & Diamond, 2014). Each area of SDT needs satisfaction may be uniquely associated with various aspects of sexual wholeness (i.e., physical, emotional, meaning), so we examine each SDT need and its possible associations with each aspect of sexual wholeness. (See Figure 1).

Physical aspects of sex

Sexuality is inherently tied to the physical body as some components of sex, such as sexual impulses, desire, or arousal, are intrinsic or biologically driven (Busby, Chiu, Leonhardt, & Iliff, 2019). Beyond this, comfort with the physical aspects of sex is helpful in developing a more fulfilling sexual relationship for both partners (Busby et al., 2022). Awareness of sexual sensations and a mind frame of nonjudgment relating to self and partner are also important to fulfilling

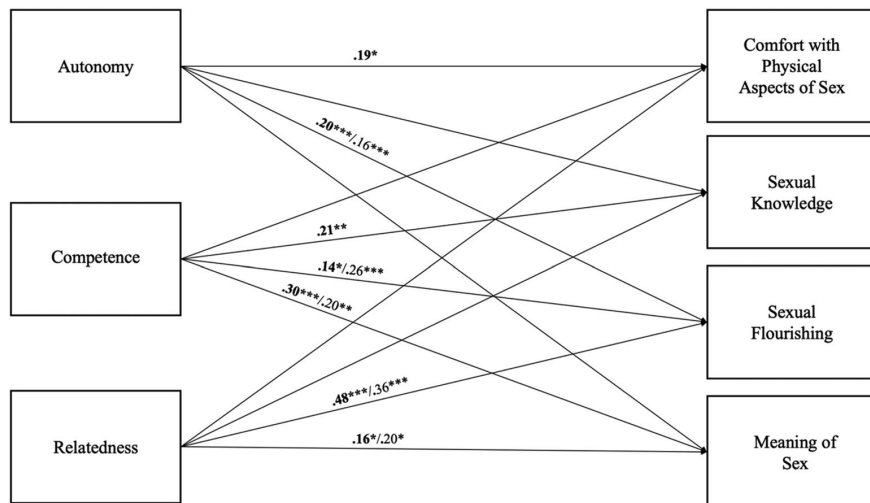


Figure 1. Structural equation model for needs satisfaction predicting sexual wholeness. *Note:* Only significant paths shown. For paths with significant results for both women and men, women's results are bolded. ***p < .001, **p < .01, *p < .05.

sexual experiences (Leavitt, Lefkowitz, & Waterman, 2019a), but a focus on external cues such as weight and appearance or disgust with the body can hinder both sexual functioning (Erbil, 2012) and sexual satisfaction (Calogero & Thompson, 2009). Additionally, a basic understanding of sexual anatomy and functions of the sexual body are important to a satisfying sexual experience for both partners (Wylie, 2010).

Emotional aspects of sex

A sexual relationship extends beyond physical pleasure and encompasses emotional aspects as well with the potential to be profoundly connective and emotionally intimate for both partners (Schnarch, 2009). Optimal sexual relationships are characterized by connection, vulnerability, authenticity, profound communication, and deep intimacy between partners (Kleinplatz et al., 2009). An emotionally close sexual relationship (conceptualized as *sexual flourishing* in this study) may create feelings of belonging and meaningfulness within the couple, as well as a focus on growth and relationship development (Leonhardt, Busby, Carroll, Leavitt, & Impett, 2019). Rather than simply feeling satisfied with the sexual nature of their relationship, couples who report sexual flourishing also feel a sense of genuine connection, respect, admiration, and knowledge of the other (Leonhardt et al., 2019).

Meaning of sex

Unlike other species, humans have a unique capacity to give meaning to sexual experiences or a sexual relationship (Schnarch, 2009), which likely influences the sexual encounter (Hanna-Walker, Busby, Leavitt, & James, 2021). Meaning is the value or significance a person gives a particular aspect of life, in this case sex (Hanna-Walker et al., 2021), and those who give meaning to a sexual experience, (i.e., expressing love; Olmstead, Billen, Conrad, Pasley, & Fincham, 2013), are more likely to have a satisfying sexual relationship (Hanna-Walker et al., 2021). Thus, we include sexual meaning as a possible outcome of SDT needs satisfaction in relationships, adding depth to the vision of a possible sexual relationship.

Sexual wholeness and gender differences

Women's and men's sexuality differs in important ways. For example, women's sexual response may follow a different pattern than men's (Basson, 2008) and women's sexual experiences may be more susceptible to social, cultural, and situational influences than men's (Baumeister, 2004). Gender differences are also commonly found in a variety of sexual elements such as sexual motives (Stephenson, Ahrold, & Meston, 2011), sexual desire (Baumeister, Catanese, & Vohs, 2001), desired sexual frequency, sexual expectancies, and sexual satisfaction (McNulty & Fisher, 2008). Recognizing that sexual experiences may differ for women and men, we compare gender differences in this study and consider whether needs satisfaction and the sexual wholeness outcomes might vary by gender.

The current study

In this study we seek to broaden the examination of self-determination theory needs satisfaction in a sexual context by exploring how autonomy, competence, and relatedness might be associated with sexual well-being across a broad scope of sexual wellness (Busby et al., 2022), including physical, emotional, and meaning aspects of sex (See [Figure 1](#)) using structural equation modeling. We predict that higher levels of SDT needs satisfaction will be associated with more sexual wholeness. Specifically, we consider the following research questions:

R1: How is autonomy associated with the physical, emotional, and meaning aspects of sex?

R2: How is competence associated with the physical, emotional, and meaning aspects of sex?

R3: How is relatedness associated with the physical, emotional, and meaning aspects of sex?

R4: Do the possible associations between autonomy, competence, and relatedness and the physical, emotional, and meaning aspects of sex differ between men and women?

Methods

Participants and procedure

The sample, gathered January through March 2019, for this study consisted of 884 participants (433 men and 445 women) after removing 152 participants who missed two out of three attention checks in the survey (e.g., If you are reading this, please select “Strongly Disagree”). We determined that missing one attention check may indicate a misreading of the question, but missing two or more may indicate answering at random or less attention to questions (e.g., Hanna-Walker et al., 2021). Additionally, those who took less than eight minutes to complete the survey were also removed as the average time it took participants to take our survey was 22.7 minutes. We decided that eight minutes was not an adequate amount of time to mindfully answer our survey, as it was only a third of the time the average person took to answer approximately 200 questions. An additional six individuals who identified as transgender were removed and two who did not specify a gender because we did not have an adequate number to analyze differences. All participants had been in a committed, romantic relationship for at least two years and were above the age of 18 to participate in the study. In our sample, 16% were exclusively dating someone, 9% were engaged, and 75% were married. The majority of our sample were white (78%), while 9% were African American (black), 6% were Latino, 2% were Asian, 2% were mixed/biracial, 1% were American Indian, and 1% reported a race different than the options provided. The majority of this sample reported receiving a 4-year college degree or less (78%) and earning between \$40,000-\$59,999 or lower (51%).

Participants for this study were recruited through Lucid Marketplace, which is an automated system that connects researchers with online research participants. To ensure quality data, Lucid Marketplace verifies that participants are completing the survey by screening for identifiers such as duplicate cookies and IP addresses. Prior to completing the survey, all participants gave their consent. Compensation for completing the survey was \$3.50. The study was approved by the Institutional Review Board at Brigham Young University

Measures

Needs satisfaction

The three SDT needs of autonomy, competence, and relatedness were measured using the needs satisfaction in relationships scale (La Guardia, Ryan, Couchman, & Deci, 2000). Each of the three needs was composed of two items and participants responded on a scale from 1 (*Not true at all*) to 7 (*Very true*) with higher scores indicating greater needs satisfaction. All alphas were above .85 when this scale was normed (La Guardia et al., 2000), however, these three items were used together to form a full scale. Confirmatory factor analysis for the current study indicated that using them separately was preferable (see below).

Autonomy ($\alpha = .78$ women; $.67$ men) items included “When I am with my partner, I feel free to be who I am” and “When I am with my partner, I have a say in what happens and can voice my opinion.”

Competence ($\alpha = .81$ women; $.76$ men) included “When I am with my partner, I feel like a competent person” and “When I am with my partner, I feel very capable and effective.”

Relatedness ($\alpha = .81$ women; $.76$ men) was assessed using “When I am with my partner, I feel loved and cared about” and “When I am with my partner, I feel a lot of closeness and intimacy.” Higher scores indicate more needs satisfaction in each area.

Sexual wholeness

We used general terms like “sex” and “sexual” for the measures in this study and did not define these terms more specifically as is often typical within the practices of research on sexuality (e.g., Brunell & Webster, 2013; Gravel et al., 2020; Smith, 2007). It is generally understood that couples consider many different types of sexual behavior such as intercourse, oral sex, etc., as “sex” and that the specific type of sexual behavior couples typically practice has not been shown to make a difference in terms of sexual outcomes.

Physical aspects of sex. Physical aspects of sexuality were assessed using The Assessment of the Physical Aspects of Sexuality (TAPAS; Busby et al., 2022). The scale consists of eight items which were divided into two subscales, that of comfort with the physical aspects of sex ($\alpha = .82$ women; $.85$ men) and that of sexual knowledge ($\alpha = .87$ women; $.90$ men). For both subscales, participants responded on a scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

The *comfort* subscale consisted of three items which assessed acceptance of sexual acts and one’s own and partner’s body (i.e., “The male sexual anatomy is disgusting to me” and “The physical act of sex is disgusting to me”) all reverse coded so that higher scores indicate greater comfort with bodies and sex.

The second subscale, *sexual knowledge*, consisted of five items which assessed understanding of how bodies respond in a sexual setting (i.e., “In reference to sex, I wish my partner knew more about how my body works” and “My lack of knowledge about the physical aspects of sex interfere with the quality of our relationship”) reverse coded so that higher scores indicate more sexual knowledge.

Emotional aspects of sex. To examine the emotional aspects of a sexual relationship, we used the Sexual Flourishing Scale (Leonhardt et al., 2019) which incorporates feelings of emotional connection through belonging or engagement in the sexual experience. This scale is designed to capture more of the emotional and relational aspects of sexuality and consists of five items ($\alpha = .92$ women; $.87$ men) rated from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Sample items include “Our sexual relationship is enhanced by shared experiences over the course of our time together” and “Our sexual relationship includes deep mutual respect and admiration.” Higher scores indicate more sexual flourishing.

Meaning aspects of sex

Sexual meaning was assessed using the Meaning of Sex instrument (MOS; Hanna-Walker et al., 2021) which consists of four items ($\alpha = .87$ women; $.84$ men) that indicate the presence of sexual meaning in the relationship. Sample items include “I understand the meaning of sexuality in my life” and “I have discovered a satisfying purpose of sexuality” with participants responding on a scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Higher scores indicate the presence of more sexual meaning.

Control variables

Relationship length, income, race, and age were used as control variables in this study. Relationship length was measured in months. Income was measured with one question (“What is your current personal yearly gross income before taxes & deductions?”) and was measured on a 12-point scale (1 = None, 6 = \$80,000–\$99,999, 12 = \$300,000 or above). Age was answered in years.

Analytic strategy

In order to account for multiple outcomes in a single model, structural equation modeling was used to perform a path analysis in Stata (StataCorp, 2019). Our analytic model estimated the relationship between the three predictors (the STD needs), autonomy, competence, and relatedness and four outcomes, comfort with the physical aspects of sex, sexual knowledge, sexual flourishing, and meaning of sex (encompassing the three aspects of sexual wholeness) as illustrated in Figure 1. We also controlled for age in years, relationship length in years, and income. Race was originally included in the model but was removed prior to the path analysis because an ANOVA test showed no significant differences by race associated with any of the outcomes. Because of the high correlations between the different constructs of SDT as we measured them, the question arose as to whether these might be better represented as a single dimension rather than three separate dimensions. Consequently, we conducted a confirmatory factor analysis with the three dimensions and compared the chi-square values for this model with an alternative model where there was only one dimension. The chi-square difference score was $\chi^2(3) = 27.20$, $p < .05$, indicating that the three-dimensional model was an improvement over the single dimension model. Separate models were estimated for men and women, and both had good model fit (women: $\chi^2 = 10.03$ ($df = 3$), $p = 0.018$; CFI = .99; RMSEA = 0.70; men: $\chi^2 = 6.76$ ($df = 3$), $p = 0.08$; CFI = 1.00; RMSEA = 0.05). Full information maximum likelihood was used to account for minimal amounts of missing data.

Results

Structural equation model for women

In examining the two constructs encompassing the physical aspects of sex (comfort and sexual knowledge), autonomy predicted comfort for women ($\beta = .19$, $p < .05$) and competence predicted sexual knowledge ($\beta = .21$, $p < .01$). Income was negatively associated with comfort ($\beta = -.09$, $p < .05$). The emotional aspect of sex was predicted by all three SDT needs as each was positively associated with sexual flourishing (autonomy $\beta = .20$, $p < .001$; competence $\beta = .14$, $p < .05$; relatedness $\beta = .48$, $p < .001$). Meaning of sex was also positively associated with both competence ($\beta = .30$, $p < .001$) and relatedness ($\beta = .16$, $p < .05$) but was not significantly associated with autonomy.

Structural equation model for men

There were no significant associations between the SDT needs and the physical aspect of sex outcomes (comfort and sexual knowledge) for men. Relationship length was positively associated with comfort ($\beta = .13$, $p < .05$). Just as for women, the emotional aspect of sex was predicted by all three SDT needs being positively associated with sexual flourishing (autonomy $\beta = .16$, $p < .001$; competence $\beta = .26$, $p = .001$; relatedness $\beta = .36$, $p < .001$) and meaning of sex was positively associated with both competence ($\beta = .20$, $p < .01$) and relatedness ($\beta = .16$, $p < .05$). Income was negatively associated with comfort ($\beta = -.09$, $p < .05$) and sexual knowledge ($\beta = -.27$, $p < .001$) but positively associated with sexual flourishing ($\beta = .09$, $p < .01$) and meaning of sex ($\beta = .18$, $p < .001$).

Given the differing outcomes for men and women associated with the physical aspect of sex, we performed further analysis of means and t-tests to better understand what might account for these differences. Women reported higher levels of comfort with the physical aspect of sex (women's mean: 5.98, men's mean: 5.57; $z = -3.94$, $p < .001$) and higher levels of sexual knowledge (women's mean: 4.91, men's mean: 4.10; $z = -7.43$, $p < .001$). For all means, see Table 1.

Table 1. Bivariate correlations for men and women.

Variable Name	1	2	3	4	5	6	7
1. Autonomy	—	.80***	.76***	.30***	.21***	.67***	.40***
2. Competence	.74***	—	.74***	.28***	.22***	.66***	.45***
3. Relatedness	.72***	.77***	—	.25***	.12**	.74***	.41***
4. Comfort	.14**	.16***	.17***	—	.41***	.30***	.28***
5. Sexual Know.	.00	.04	.02	.48***	—	.12**	.14**
6. Sexual Flour.	.63***	.67***	.68***	.11*	-.04	—	.54***
7. Mean. of Sex	.44***	.46***	.46***	.16***	-.00	.52***	—
Range	1–7	1–7	1–7	1–7	1–7	1–7	1–7
Women's Means (SE)	5.79 (.06)	5.65 (.06)	5.67 (.07)	5.98 (.08)	4.91 (.07)	3.97 (.04)	5.58 (.05)
Men's Means (SE)	5.99 (.05)	5.85 (.06)	5.96 (.06)	5.57 (.06)	4.10 (.08)	4.15 (.03)	5.87 (.05)
z-values	2.29*	2.33*	3.19**	-3.94***	-7.43***	3.19**	4.02***

Women's values reported above the diagonal and men's reported below.

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .00$

Discussion

Sexuality is a highly complex aspect of a human's existence with many elements contributing to a quality sexual relationship (Althof et al., 2005). To account for these complexities, this study examined a broad scope of sexuality encompassing physical, emotional, and meaning aspects of sex, or sexual wholeness (Busby et al., 2022), with self-determination theory needs (autonomy, competence, and relatedness) as potential contributors to sexual wholeness. In examining whether each of these needs contributed to sexual wholeness, we found that overall, greater SDT needs satisfaction was associated with sexual wholeness, though some needs held more bearing than others and the associations with components of sexual wholeness varied. As the sexual experience may differ for men and women (e.g., Basson, 2008; Baumeister, 2004), gender differences were also analyzed.

Physical aspects of sex

In comparing SDT needs and sexual wholeness between women and men, only one main area of difference was found. For women, the physical aspect of sex was associated with SDT needs in two ways: feeling competent was associated with more sexual knowledge and having a sense of autonomy with more sexual comfort. For men, there was no association between autonomy, competence, or relatedness and the physical aspect of sex. Along with this association between needs satisfaction and the physical aspects of sex, women reported more overall comfort with the physical aspects of sex and more sexual knowledge than men. These were positive but unexpected findings in our study. A sense of autonomy and competence may be important for women as they face sexual challenges. This may be important because, though both men and women experience objectification of their bodies at some level, appearance is emphasized and socially pressured far more for women (Buote, Wilson, Strahan, Gazzola, & Papps, 2011). A woman's focus on appearance may diminish her awareness of internal sensations such as arousal and desire (Chivers, Seto, Lalumiere, Laan, & Grimbos, 2010) and inhibit her sexual experience (Calogero & Thompson, 2009; Steer & Tiggemann, 2008). It is likely that a focus on appearance might then be associated with less comfort with the body for some women, but a sense of autonomy might free her from societal pressure to self-objectify as she takes ownership of her own experience with her body.

The internal nature of a woman's genitalia combined with a potentially slower, less visible sexual response (Basson, 2008) might also make sexual knowledge harder to come by for women than for men who are often more familiar with their bodies and their own sexual response (Chivers et al., 2010). Additionally, the gendered "orgasm gap" in which women orgasm less

consistently than men during sexual experiences may be accounted for by a lack of sexual knowledge as well as sociocultural factors such as gendered sexual scripts that pressure men to dominate and women to adopt a lack of entitlement in the bedroom (Leavitt, Leonhardt, Busby, & Clarke, 2021). It is understandable then, that a sense of competence would be associated with sexual knowledge for women as an understanding of one's sexual anatomy and sexual response, as well as feeling like she has equal footing with her partner, is likely to follow feelings of competence. For women who are struggling with a sexual relationship, clinicians may wish to focus on improving sexual knowledge and comfort with the physical body, placing a special emphasis on competence and autonomy. When women can gain a clear understanding of their own sexual response and feel in control of their own sexuality, they may have improved outcomes associated with their sexual relationship.

The physical aspects of sex appear to be not as closely tied to having SDT needs met for men. It may be that men feel as though the physical aspects of sex come naturally (i.e., external genitalia, visible and predictable sexual response) and have been more obvious in their life without as much effort. Alternatively, it may be that men are less familiar and comfortable with the physical aspects of sex than we have been assuming. Only future research can clarify if this is unique to our sample, to men in a committed relationship, or to other factors. For all other outcomes in this model, women's and men's outcomes were similar, which may highlight a higher level of engagement for men in the emotional and meaning aspects of sex and a greater reliance on needs satisfaction in these areas.

Emotional aspects of sex

The emotional aspect of sexuality was the outcome most strongly associated with SDT needs satisfaction for both women and men as all three areas, autonomy, competence, and relatedness, predicted greater sexual flourishing. As research shows that emotional connection is highly salient to a couple's sexual well-being (Štulhofer, Jurin, Graham, Janssen, & Traeen, 2020), this points to the value of needs satisfaction in establishing a strong sexual connection. Galovan et al. (2021) argue that the best assessment of fulfilling romantic relationships comes not only by measuring satisfaction, but through assessing satisfaction paired *with* connection which may give greater understanding of meaningful couple relationships. This study provides evidence that this may be true in a sexual realm as well.

Competence, especially when paired with autonomy, may be related to a willingness to allow another person to see and know oneself intimately. Those who are comfortable with who they are, have a greater capacity for deep, intimate connection and sexual fulfillment (Schnarch, 2009), so it is understandable that competence, or positive feelings toward the self, would predict emotional connection in a sexual relationship. The strong association between relatedness and sexual flourishing for both women and men was expected as emotional connection in a relationship is a strong predictor of sexual well-being (Štulhofer et al., 2020). Individuals who feel connection in their relationship are known to find more sexual fulfillment (Birnbaum, 2010) and couples who report connection through things like authenticity, vulnerability, or extraordinary communication are more likely to report optimal sexual relationships (Kleinplatz et al., 2009). It is notable that this finding was true for both women and men. Men's sexuality is at times seen as less motivated by emotional expressions of love than women's (Stephenson et al., 2011), but the findings in this study underscore the importance of belonging and connection for men in a sexual relationship as well. The importance of emotional connection in sex may be addressed by clinicians assisting couples in their sexual relationship. Specifically, emphasizing the need for autonomy, competence, and a sense of relatedness may serve to strengthen this relationship. As individuals begin to balance ownership of the sexual relationship with a feeling of belonging with their partner, more emotional connection may occur.

Meaning of sex

Sexual meaning was predicted by relatedness and competence for both women and men as well, though not by autonomy. Again, it is not surprising that relatedness is associated with sexual meaning, as sexual meaning is highly associated with a deep connection with one's partner (Hanna-Walker et al., 2021). It was also expected that competence might relate to sexual meaning and this association may relate to several areas of previous sexual research. First, it may be that competence is working in the opposite direction of feeling insecure in a sexual relationship. Whereas those who are insecure may rely heavily on the sexual relationship to provide reassurance of security and love (Birnbaum, 2010), a sense of competence may provide meaning without the need for reassurance. The measure used to assess autonomy is highly specific whereas the measure for meaning is quite general and broad, so it is possible that this accounts for the lack of significant association between autonomy and meaning in sex. Addressing and framing one's sexual meaning in the context of a relationship may be beneficial to couples as they work through sexual challenges. Sexual meanings that were inherited from societal and cultural expectations may need to be challenged in order to promote sexual growth within the couple's relationship.

One surprising finding was in controlling for income. For men, income was negatively associated with the physical aspects of sex, comfort and sexual knowledge, but positively associated with the emotional and meaning aspects of sex. It is notable that only one of these relationships (income negatively associated with comfort) was significant for women, perhaps indicating a societal pressure on men to be seen as financially stable or wealthy, and that this could impact his sexual relationship (Wheeler & Kerpelman, 2016). Perhaps in the same way that body image can be at play in women's sexuality (Calogero & Thompson, 2009), income may be a pressure for men that can predict, either positively or negatively, their sexual experience. Clinically these findings suggest the need to specifically design sexual interventions to fit within the particular SES contexts and values that clients bring to therapy. This could be further explored in future research.

Finally, relationship length was associated with sexual comfort for men. It seems that as men's relationships progress, more familiarity and understanding with his partner's sexuality is likely. Given the varied nature of sexual response (Basson, 2008), as he gains experience with his partner, it is understandable that comfort with the physical aspects of sex might improve.

Limitations

This study contributes to research relating to sexuality by broadening the understanding of SDT needs satisfaction in a sexual relationship, but also has some limitations that need to be acknowledged. First, the data collected for this sample were cross-sectional in nature, and therefore causation cannot be established. It may be that this is a reciprocal relationship such that sexual wholeness predicts needs satisfaction and as couples develop sexual wholeness, their SDT needs are satisfied. Those who appreciate a physical, emotional, and meaningful connection in their sexual lives may in turn feel that their SDT needs are satisfied. Additionally, the measures used in this study to capture the physical (TAPAS; Busby et al., 2022) and emotional (Sexual Flourishing Scale; Leonhardt et al., 2019) aspects of sex, though strongly related to the physical and emotional pieces, may not fully capture what is occurring in these areas of the relationship and there may be more to each of these concepts than these measures assess. Also, the reliability score for men's autonomy was lower than .70. Additional studies with a stronger measure would help verify the results from this study. Although the sample was national in scope, it is not nationally representative, so generalizability of the findings is limited (Szolnoki & Hoffmann, 2013). Finally, the participants were in long-term relationships and therefore, results should be interpreted with caution for individuals in less stable relationships.

Conclusion

Human relationships in which individuals feel that their innate needs of autonomy, competence, and relatedness are met are more likely to breed fulfillment for both partners (Ryan & Deci, 2017) and this study adds evidence that is true in sexual relationships. Expanding on previous research of SDT needs (autonomy, competence, and relatedness) and sexuality, this research provides evidence that, in general, needs satisfaction provides fulfillment in a number of sexual areas, including the physical, emotional, and meaning aspects of sex. Though there are some differences between men and women relating to needs satisfaction in sexual wholeness, overall, research seems to indicate that those who experience more sexual wholeness are those who feel like their SDT needs are satisfied. Thus, for clinicians, a focus on ensuring SDT needs satisfaction for each partner may be beneficial to improving the sexual relationship.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

The author(s) reported there is no funding associated with the work featured in this article.

ORCID

Amber A. Price  <http://orcid.org/0000-0001-9336-0424>

Dean M. Busby  <http://orcid.org/0000-0002-1943-7056>

Chelom E. Leavitt  <http://orcid.org/0000-0002-0740-5508>

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