

**Do Attitudes Toward Sex Affect Sexual Satisfaction? A Double-Moderated Mediation
Model of Pornography Use and Sexual Satisfaction**

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Abstract

People in a relationship often relate overall satisfaction to sexual satisfaction. There is much research on sexual satisfaction, pornography use, and sexual shame. However, the individual factors that determine sexual satisfaction are lacking in evidence. In this study, we examined the moderating role of individual attitudes toward sex on moral disapproval of pornography use, moderating frequency of use, and sexual satisfaction with a partner through sexual shame. Data from 155 monogamous and committed couples who submitted surveys to Mechanical Turk was analyzed. Results indicated that there was a significant correlation and interaction when the double moderated mediation using permissive sexual attitude and sexual satisfaction with a partner was tested ($R = .509$, $F(8,127) = 9.666$, $p < .000$). These results provide insight into clinical practices guiding couples to increased sexual satisfaction.

Keywords: Sexual satisfaction, attitude towards sex, couple's counseling

Introduction

Sexual satisfaction within a relationship is a key factor in overall satisfaction (Lambert et al., 2012; Plopa, 2020; Rausch & Rettenberger, 2021; Willoughby et al., 2021). It is, therefore, important for researchers and clinicians to understand the predictors of sexual satisfaction (Starc, 2022). This has led some to research the relationship between pornography use and sexual satisfaction (Hoagland & Grubbs, 2021). Others have conducted studies to predict the relationship between sexual shame and moral disapproval of pornography (Volk et al., 2016). These previous studies conclude that increased pornography use creates interpersonal and intrapersonal distress, including sexual shame and sexual dissatisfaction with a partner. However, there seems to be a need to study the interactions between increased pornography use and sexual satisfaction with a partner (Lamber et al., 2012). There also seems to be a lack of

research on individual factors that play a role in the relationship between increased pornography use and decreased sexual satisfaction with a partner (Sanchez-Fuentes et al., 2014). Therefore, this current study seeks to answer the question from previous research concerning the relationship between attitude toward sex, increased pornography use, moral disapproval of pornography, sexual shame, and sexual satisfaction (Wright, 2020).

Frequency of use

One's frequency of use of pornography as a predictor of intrapersonal affect, interpersonal distress, and interpersonal sexual satisfaction are highly studied relationships (Blais-Lecours et al., 2016; Grubbs et al., 2022; Hoagland & Grubbs, 2021; Lambert et al., 2012; Willoughby et al., 2021; Wright et al., 2019; Wright et al., 2025). These previous studies focused on a direct correlation between the frequency of pornography use and sexual satisfaction, psychological distress as a moderator, the moderating effect of religious attitude on sexual satisfaction through sexual shame, sexual shame as a mediator of frequency of use of pornography and sexual satisfaction with multiple measures, pornography use and romantic relationship satisfaction, the frequency of pornography use and sexual satisfaction with a partner, interpersonal sexual satisfaction predictors, rationales for why sexual satisfaction decreases as pornography use increases, and a host of other models and hypothesize (Blais-Lecours et al., 2016; Grubbs et al., 2022); Hoagland & Grubbs, 2021; Lambert et al., 2012; Willoughby et al., 2021; Wright et al., 2019; Wright et al., 2025). Many of these studies considered sexual shame as a mediator for frequency of use and sexual satisfaction, but only a few considered potential moderators for sexual shame as a mediator of frequency of use as a predictor of sexual satisfaction (Wright et al., 2025). When considering moderators for the current study, the initial expectation of increased frequency of use being a predictor of decreased sexual satisfaction is research that is

only lacking in testing further associations and simultaneous predictors with frequency of use (Blais-Lecours et al., 2016; Grubbs et al., 2022; Hoagland & Grubbs, 2021; Lambert et al., 2012; Willoughby et al., 2021; Wright et al., 2019; Wright et al., 2025). One variable that is consistently linked to frequency of use is moral disapproval of pornography (Wright et al., 2025).

Moral disapproval

Pornography Problems Due to Moral Incongruence (PPMI) is a conceptual framework or model, which mainly examines the effects experienced by people, who engage in pornography as it relates to moral incongruence, which happens to be a misalignment between an individual's disapproval of pornography use and their actual pornography use (Huțul & Karner-Huțuleac, 2024; Grubbs et al., 2019; Grubbs & Perry, 2019; Ostrander, 2021). One study suggested that the primary direct predictor of subjective distress is moral incongruence and suggested that other studies support the notion that the greater the moral incongruence, the greater the negative effects or outcomes of psychological distress will present (Grubbs & Perry, 2018; Grubbs et al., 2019; Huțul & Karner-Huțuleac, 2023a, 2023b, 2024; Lewczuk et al., 2020; Perry, 2018).

Moral incongruence has also been self-reported to be associated with some of the following: feelings of addiction to pornography (Grubbs et al., 2022); relationship issues (Leonhardt et al., 2018); diminished sexual happiness (Hoagland & Grubbs, 2021; Vaillancourt-Morel et al., 2017); lower level of sexual satisfaction (Blais-Lecours et al., 2016; Bóthe et al., 2021); and greater issues in spiritual and religious life (Grubbs et al., 2017). Grubbs et al. (2022) wrote that current studies have shown that moral disapproval of pornography moderates relationships between self-reported addiction and use and that, in the broader context, it is not only complex but likely present in multiple life domains. Continued research suggests (Grubbs et al., 2022, p.

750) that problem pornography use due to moral incongruence should be measured as “the interaction of moral disapproval [of pornography] and [pornography use], rather than simply as the presence of moral disapproval [of pornography] among [pornography] users.” This speaks to the individual factors and differences that play a role in sexual satisfaction with increased frequency of pornography use mediated by sexual shame.

Attitude toward sex

Worldwide, researchers are considering one’s attitude toward sex in relationship to and as affected by longstanding variables of sexual satisfaction and pornography use (Ammar et al., 2014; Lam & Chan, 2007; Omori et al., 2011; Plopa, 2020; Taylor, 2006; Wright, 2020; Wright 2022). Among the literature are studies like Plopa (2020), where individual differences were seen to affect the level of sexual satisfaction in a relationship. Differences such as personality type, watching pornography, and affect all interact with the outcome of sexual satisfaction in a relationship. The study concluded that a greater knowledge of each other’s preferences also mediates satisfaction. This study encouraged follow-up to their design as they predicted the likelihood that relationship satisfaction was also dependent on other variables. Further, in a study of 600 participants ages 26-45 from Geneva, Switzerland, Ammar and Widmer (2014) found that one’s intimate trajectory is determined by one’s attitude toward sexuality and sexual desire. Combining several of the variables in the current study, Wright (2022) found that religious viewers of pornography who are eighteen years old and older view sex with more permissiveness than non-religious viewers. This National Science Foundation study indicates that there is a relationship between a permissive attitude toward sex, frequency of pornography use, and religious incongruence with pornography use. In a 2020 study on sexual attitudes, Wright found that preexisting sexual attitudes play a mediating role between pornography consumption and

sexual behavior. Wright concluded that further studies could carry out moderated mediation tests to determine the extenuating conditions of the relationship between attitudes toward sex, pornography use, and sexual behavior. Other literature on this matter showed that, among young Chinese men, pornography use and attitudes toward sex covary. Specifically, pornography use affects permissive attitudes toward sex (Lam & Chan, 2007). Similarly, in a study of 476 Japanese college students, Omori et al. (2011) found that “Exposure to sexually explicit material had a direct effect on sexually permissive attitudes. Lastly, in a 2006 study, Taylor found that reading pornographic magazines had a direct impact on sexually permissive attitudes. Since these earlier studies were performed, sexual shame has become the leading predictor and/or mediator of sexual behavior (Grubbs et al., 2019; Grubbs et al., 2022; Grubbs & Perry, 2019; Hoagland & Grubbs, 2021; Huțul & Karner-Huțuleac, 2023a, 2023b; Huțul & Karner-Huțuleac, 2024; Lewczuk et al., 2020; Ostrander, 2021; Perry, 2018; Vaillancourt-Morel et al., 2017).

Sexual shame

Shame, which happens to be a powerful emotion that can begin early in life through adulthood and can greatly affect that person’s functioning, is identified and experienced differently by each individual, depending upon that person’s perception of self (Volk et al., 2016; MacGinley et al., 2019; Sedgwick & Adams, 1995). Shame, which can develop as a result of sexual trauma, can cause the following: control an individual’s life, affect an individual’s daily functioning, and stress/anguish (emotional) (Patterson et al., 2022; Sharma, 2022). Sexual shame, which usually alludes to how someone believes that others view her or him, can become a major factor in how someone deals with life and with others; it can also create a great level of self-awareness and, for people who deal with pornography addiction, can intensify and increase the person’s feelings of shame (Volk et al., 2016).

Self-image can be an issue for some individuals due to feelings linked with blame, responsibility, and shame or implicit shame (McElvaney et al., 2022; Patterson et al., 2022). Culture, which can play a significant role, can become an issue of contention with people due to fear of being judged (Lim, 2019). In addition to this, research states that women, more than men, are at risk of heightened levels of bodily and behavioral shame, cognitive reassessment, malevolence, and psychopathological anguish (Velotti et al., 2017). Research also states that people who deal with moral incongruence might deal with sex-based shame, which might be a direct emotional response (Floyd et al., 2022; Volk et al., 2016, 2019). Sexual shame has been linked to sexual satisfaction in recent studies as well (Marcinechová & Záhorcová, 2020).

Sexual satisfaction: self and partner

Sexual satisfaction is a phenomenon that has been of some interest in the last couple of decades. The predictors of sexual satisfaction are of most interest to researchers (Freihart et al., 2020; Jodouin & Janssen, 2018; Rausch & Rettenberger, 2021; Sanchez-Fuentes et al., 2014; Starc, 2022). Research from a 2020 study by Marcinechová & Záhorcová concluded that “sexual shame was positively related to religiosity and negatively related to sexual satisfaction (p. 1913).” In a meta-analysis of 49 studies from 15 years before 2021, Rausch and Rettenberger found that most studies of sexual satisfaction centered on relationship variables. This analysis concluded that frequency of sex and relationship satisfaction are the most confirmed predictors of sex satisfaction. A 2018 study of 70 newlywed couples showed that subjective arousal predicted sexual satisfaction. Sexual behaviors and physical and physiological factors mediated this prediction (Jodouin & Janssen). Four general predictors of sexual satisfaction came from a 2022 qualitative study by Starc. These predictors were seen as demographic, psychological, sociocultural, and pathophysiological factors. One other qualitative study from Sanchez-Fuentes

et al. (2014), where 197 scientific papers from 1979 to 2012 in which sexual satisfaction was the dependent variable, showed infidelity as a predictor of lower sexual satisfaction. In addition, individual factors such as orgasm rate, vaginal lubrication, sexual desire, and arousal were all correlates of sexual satisfaction. Another study relevant to the current study was a review of research before 2020 (Freihart et al., 2020). This review concluded that there is a lack of research on how individual differences predict sexual satisfaction.

The present study

Description of hypothesis

This present study aimed to extend the research on the individual differences in attitudes toward sex. It was theorized that individual factors influence sexual satisfaction as much as interpersonal factors do. Our hypothesis calls on the extant literature and the current research conclusions concerning sexual satisfaction. As we know, as the frequency of pornography use increases, sexual satisfaction for one's self and satisfaction with one's partner decreases. We also know that as sexual shame increases, the effect of frequency of use on satisfaction increases. We have also seen that as moral disapproval of pornography use increases, sexual shame increases, increasing the negative effect on satisfaction.

These are all proven hypotheses. Our new model introduces new attitudes about sex that have not been tested yet. The new hypothesis is that the attitude that sex is biological, ideal, or "anything goes" also affects sexual satisfaction when pornography use is incongruent with religious beliefs and sexual shame is high. It was expected that as attitudes toward sex changed, sexual satisfaction self and partner would be correlated through sexual shame, thus moderating the effects of frequency of pornography use on sexual satisfaction. It was also expected that as moral disapproval of pornography increased and sexual attitudes changed, the link between sexual

satisfaction self and partner would be heightened. This added moderating factor was believed to interact as much with sexual shame as it would with frequency of pornography use predicting sexual satisfaction.

Model

To study this hypothesis, a moderated mediation model (model 8) testing the effect of frequency of use and sexual satisfaction *self* through sexual shame moderated by moral disapproval of pornography use was employed. To further quantify the interactions hypothesized, a moderated mediation model (model 8) testing the effect of frequency of use and sexual satisfaction *partner* through sexual shame moderated by moral disapproval of pornography use was selected for validation of a correlation between frequency of use and sexual satisfaction.

Next, a series of moderated mediation models with multiple moderators (model 12) tested the added moderators' influence on the primary predictor, mediator, and outcome. A moderated mediation model with multiple moderators (model 12) testing the effect of frequency of use and sexual satisfaction *self* through sexual shame moderated by moral disapproval of pornography moderated by sexual attitude *permissiveness* was used. Next, a moderated mediation model with multiple moderators (model 12) testing the effect of frequency of use and sexual satisfaction *self* through sexual shame moderated by moral disapproval of pornography moderated by sexual attitude *communion* was used. Continuing the series, a moderated mediation model with multiple moderators (model 12) testing the effect of frequency of use and sexual satisfaction *self* through sexual shame moderated by moral disapproval of pornography moderated by sexual attitude *instrumentality* was used. This was followed by a moderated mediation model with multiple moderators (model 12) testing the effect of frequency of use and sexual satisfaction *partner* through sexual shame moderated by moral disapproval of pornography moderated by sexual

attitude *permissiveness*. Sequentially, a moderated mediation model with multiple moderators (model 12) testing the effect of frequency of use and sexual satisfaction *partner* through sexual shame moderated by moral disapproval of pornography moderated by sexual attitude *communion* was used. Finally, a moderated mediation model with multiple moderators (model 12) testing the effect of frequency of use and sexual satisfaction *partner* through sexual shame moderated by moral disapproval of pornography moderated by sexual attitude *instrumentality* was used. This model is shown as *Model 1* in the appendices.

Method

Participants/procedure

The sample included 155 participants (See Table 1), consisting of monogamous married and committed couples. The data used for the analysis were collected via Mechanical Turk (MTurk) as part of a larger research study, which included additional measures not utilized in this research. The sample size initially consisted of 193 respondents. After removing answers that were not complete, as well as respondents who did not fully respond or did not meet the specific criteria for this study (i.e., no pornography use in the past month and not being in a committed relationship), the sample size decreased to 173 respondents. Married or monogamous dating relationships were used to filter the respondents, leaving a final sample size of 155.

All participants admitted intentionally using pornography within the past month. The sample age range was from 20 to 66, with a mean age of 30.06. The demographics/descriptives for participants included gender, race, age, and relationship status (See Table 1 on the Tables and Figures Document). The participants included Hispanic, Latino, or of Spanish Origin, Asian, African American, Alaskan Native/Native American, and Caucasian.

Measures

Frequency of use

The frequency of use variable is one item with a five-point Likert-type scale response. The question is, “Within the past month, how many times have you intentionally viewed pornography online?” The scale allows for responses from 1-5: 1 being 0 times, 2 being 1-3 times, 3 being 4-6 times, 4 being 7-9 times, and 5 being 10 or more times.

Moral disapproval of pornography (PMD)

This is a 4-item scale developed by Grubbs et al. (2015) to measure a participant's moral disapproval of pornography (Floyd et al., 2020). The scale uses a 7-point Likert-type scale ranging from 1 (not at all) to 7 (extremely), where participants are asked to respond with the degree to which they believe certain statements are “like me.” The four statements are “Viewing pornography violates my personal values;” “I believe that viewing pornography is morally wrong;” “Viewing pornography troubles my conscience;” and “I believe that viewing pornography is inappropriate.” The internal consistency of the PMD test is high as the current sample of 110 cases the Cronbach’s $\alpha = .937$.

Sexual shame

In this study, the Kyle Inventory of Sexual Shame (KISS) was used to measure the participant's experiential shame (Floyd et al., 2020). The KISS is a 20-item scale designed to measure the singular trait of sexual shame in both the past and the present. The KISS scale measures sexual shame by having participants self-report on a scale of 1 (strongly disagree) and -7 (strongly agree) the degree to which they agree with statements such as “I feel ashamed of my sexual fantasies” and “I feel ashamed about being unfaithful sexually promiscuous.” Floyd et al., 2020 provided evidence in their research and previous research that the internal consistency of the KISS is high. The current study has a Cronbach’s α of .924, including 108 cases out of 110.

New Sexual Satisfaction Scale

The New Sexual Attitude Scale (NSSS) was used to measure sexual satisfaction. It is composed of 20 self-report items that require participants to identify their satisfaction level in various domains of sexual behavior, as well as their different aspects of sexual satisfaction (Floyd et al., 2020). Participants use a 5-point Likert Scale, ranging from (1) not at all satisfied to (5) extremely satisfied for each item, to identify their satisfaction level (Floyd et al., 2020). Some of the following various domains of sexual satisfaction are measured: emotional closeness (e.g., “My partner’s emotional opening up during sex”); sexual activity, consisting of variety, intensity, frequency, experimentation, and duration (e.g., “The variety of my sexual activity”); and the quality of the sexual experience (e.g., “The frequency of my orgasms”) (Floyd et al., 2020). The total sexual satisfaction score, which ranges from 1 (indicative of significant sexual satisfaction) to 5 (higher scores indicative of greater sexual satisfaction levels), is derived from the summed and averaged score. This study utilized both the NSSS self (items 1-10) and NSSS partner (items 11-20) subscales. The self subscale measures one’s personal level of satisfaction in a sexual relationship with another person. The subscale uses self-report items such as “The quality of my orgasms,” which the participant responds to on a scale of 1 (not at all satisfied) - 5 (extremely satisfied) according to their own experience. The partner subscale uses the same scale with items such as “My partner’s emotional opening up during sex.” The internal consistency of the NSSS is high, and Cronbach’s α was .920 for the self subscale using 154 valid cases out of 155 and .929 for the partner subscale using 151 out of 155 cases.

Brief Sexual Attitude Scale

The Brief Sexual Attitude Scale (BSAS) is a 23-item scale measuring the participant’s attitude toward sex as ideal (communion), a natural biological occurrence (instrumentality), and

permissiveness in sex (Hendrick et al., 2006). The shorter scale, reducing the original Sexual Attitude Scale of 43 items, including the same subscales, is more psychometrically sound than the original (Hendrick et al., 2006). The subscales of permissiveness and instrumentality return attitudes that are “self-oriented,” where communion is defined as “others-oriented.” Participants enter a value according to their agreement with certain statements (e.g., “Sex is the closest form of communication between two people.”) based on a Likert-type scale of 1 (strongly agree) – 5 (strongly disagree). The internal consistency of the current study is high and is similar to the initial designer’s results of Cronbach’s α ranging from .93-.77 (Hendrick et al., 2006) with a current Cronbach’s α of .904 with 107 out of 110 cases included.

Results

Data Analysis

The results for the moderated mediation model were significant for all variables but most significant for moral disapproval’s moderation of all variables (See Table 1). The most significant correlations were between sexual attitude communion and sexual shame ($p=.045$), sexual satisfaction self and sexual attitude instrumentality ($p=-.004$), and sexual attitude communion and moral disapproval of pornography use ($p=.015$) (See Table 3). These results gave a rationale for completing the double-moderated mediation with sexual attitudes included. Many double-moderated mediation tests performed showed insignificant or no relationship between the variables. When either satisfaction with partner or satisfaction self was measured, the attitudes for the first two variables (communion or instrumentality) did not correlate (See Table 2). The result of the tests was a failure to reject the null hypothesis because the results of correlation analysis included zero. However, there was a significant correlation and interaction when the double moderated mediation using permissive sexual attitude and sexual satisfaction

with partner was tested. The null hypothesis was proven ($F(8,127) = 9.666, p < .000$); the correlation was high ($R = .509$) with 5% of the variance due to a permissive sexual attitude (see Table 2). Graph 1 shows the negative relationship between sexual satisfaction partner, high moral disapproval, high permissive sexual attitude, and increase in frequency of use. In other words, when pornography use increases and an individual has a permissive sexual attitude and high moral disapproval, sexual satisfaction with a partner decreases.

Mediation/Moderation

These results indicate that attitudes toward sex moderate one's sexual satisfaction with their partner as expected. While many studies have shown that sexual shame was a mediator of many variables included in studies of pornography and the outcomes of use, this study indicates that individual factors moderate the mediation of sexual shame and moderate the relationship between frequency of use and sexual satisfaction with a partner. The indication is that previously held attitudes by individuals are tied to sexual satisfaction. But, when religious moral disapproval of pornography use is introduced, the interaction increases.

Discussion

Strengths and limitations

There are several points of strength to this research proposal. First, our research acknowledges that an individual's frequency of pornography use as a predictor of intrapersonal affect, interpersonal distress, and interpersonal sexual satisfaction are greatly studied relationships (Blais-Lecours et al., 2016; Grubbs et al., 2022); Hoagland & Grubbs, 2021; Lambert et al., 2012; Willoughby et al., 2021; Wright et al., 2019; Wright et al., 2025). Next, our research agrees with the notion that the greater the moral incongruence, the greater the negative effects or outcomes of psychological distress will present (Grubbs & Perry, 2019; Grubbs et al., 2019;

Huțul & Karner-Huțuleac, 2023a, 2023b, 2024; Lewczuk et al., 2020; Perry, 2018). Next, our research agrees with researchers worldwide, who are considering an individual's attitude toward sex in relationship to and as affected by longstanding variables of sexual satisfaction and pornography use (Ammar et al., 2014; Lam & Chan, 2007; Omori et al., 2011; Plopa, 2020; Taylor, 2006; Wright, 2020; Wright 2022). In addition to this, our research recognizes, like recent studies, that sexual shame can be linked to sexual satisfaction (Marcinechová & Záhorcová, 2020). Finally, our research recognizes that as moral disapproval of pornography use increases, sexual shame increases, increasing the negative effect on satisfaction.

These are great aspects to keep in mind concerning the strengths of this study. Another strength of this study is that there appears to be a lack of research on individual factors that play a role in the relationship between increased pornography use and decreased sexual satisfaction with a partner (Sanchez-Fuentes et al., 2014). Our research is embarking upon new territory and much-needed discussion in the mental health field. However, this is also a limitation because more data is needed to fully understand this phenomenon. Another limitation is that this study is not a longitudinal study. Comparing the measures over time and with multiple reports returned would increase the strength of this study. A lack of cultural diversity, as seen in this study, is also a limitation, and future studies can show how couples from other cultural groups might be affected by pornography use in their relationships. Concerning limitations, our study did not measure the couples' individual attitudes within the relationship. We did not measure their attitudes toward sex dyadically, which would provide us with more information. If we could understand the direct relationship within a dyad, we could more conclusively state the proposed conclusion that individual differences such as attitudes toward sex moderate individual sexual satisfaction with a partner. This could be an area for further research.

Clinical and theoretical implications

From a clinical perspective, our research can be a great asset in beginning the much-needed discussion about how the frequency of pornography use can affect partners' sexual satisfaction. This can greatly assist therapists who work with couples or marriage counseling to assess individuals' attitudes toward sex and create therapeutic interventions to help increase sexual satisfaction.

Theoretically, our data adds to a more nuanced understanding and the progression of scientific literature on the frequency of pornography use, attitude toward sex, moral disapproval, sexual shame, and sexual satisfaction with a partner. Theoretically, this study implies that previously held individual differences can affect sexual satisfaction within a relationship. Our study reinforces that moral disapproval of pornography and sexual shame greatly affect a variety of outcomes- in this study, specifically, sexual satisfaction.

Due to the clinical and theoretical implications, this study will help in the progression and advancement of the study of this phenomenon. The mental health field can advocate for this by looking for therapeutic ways to help address any issue pertaining to sexual satisfaction with a partner, as it relates to the frequency of pornography use, attitude toward sex, moral disapproval, and sexual shame. Our results may also serve as a catalyst in helping to create psychoeducational programs that could encourage healthy conversations about how the variables mentioned in this study can affect a couple's sexual satisfaction. Finally, our results may serve as a way to help further research in developing coping strategies for couples who might experience negative sexual satisfaction with their partner.

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