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Brady C. Eisert  
*Brigham Young University*

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Pinpointing Pornography's Effects: Paring Off the Influences of  
Masturbation, Sexual Desire Discrepancy, and Sexual  
Engagement in Heterosexual Dyads

Brady C. Eisert

A thesis submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the degree of  
Master of Science

Jason B. Whiting, Chair  
Brian J. Willoughby  
Shayne R. Anderson

School of Family Life  
Brigham Young University

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## ABSTRACT

### **Pinpointing Pornography's Effects: Paring Off the Influences of Masturbation, Sexual Desire Discrepancy, and Sexual Engagement in Heterosexual Dyads**

Brady C. Eisert  
School of Family Life, Brigham Young University  
Master of Science

Pornography has increasingly become a hot topic of discussion in the United States, likely due to its increasing rate of consumption. Recent scholarship has indicated the need to account for factors such as masturbation and sexual desire discrepancy when conducting pornography research. The current study isolated the influence pornography use had on those in heterosexual romantic relationships (N=713 couples) by parsing out the effects of sexual desire discrepancy and masturbation. This was done by using a series of nested actor-partner interdependence models (APIM) to see how the relationships between pornography use and sexual satisfaction changed in each model. Masturbation and sexual desire discrepancy were also investigated as potential moderators for the APIMs to explore the effects the levels of these variables had on that relationship. Results from these analyses demonstrated that the best-fitting model included measures of masturbation, sexual desire discrepancy, and sexual engagement (i.e., controls for the values making up sexual desire discrepancy), and that adding each of these variables to the model significantly changed pornography use's actor and partner effects. Masturbation and sexual desire discrepancy were not found to moderate these relationships. A discussion of the research implications of these findings, the limitations of this study, future directions for research, and clinical implications of this study are also presented.

Keywords: actor-partner interdependence model, pornography, masturbation, sexual desire discrepancy

## **ACKNOWLEDGEMENTS**

I would like to thank my family for the love and support they have given me throughout my education and thesis writing process. I would also like to acknowledge the many teachers, professors, and mentors who have helped me to learn the skills necessary to both perform research and become a therapist. Although there were many of these people in my life, I am specifically grateful for the guidance of Drs. Alex Jensen, Sarah Coyne, Brian Willoughby, and Shayne Anderson. I would also like to thank my graduate advisor, Dr. Jason Whiting, for his mentorship, tasteful wit, and patience throughout my learning process. Last, I am grateful for the members of my graduate cohort for their emotional support through the soul-stretching process of becoming a “fellow traveler” to those I am privileged to meet with in therapy.

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## **Pinpointing Pornography's Effects: Paring Off the Influences of Masturbation, Sexual Desire Discrepancy, and Sexual Engagement in Heterosexual Dyads**

Pornography has increasingly become a hot topic of discussion in the United States (US). This may be an artifact of the growing consumption rates of sexually explicit media in the US (Price et al., 2016; Short et al., 2012), which is estimated to be around 54% to 69% for men and 27% to 40% for women, according to a conglomeration of sociological surveys (Miller et al., 2020; Regnerus et al., 2016). This trend prompted the formation of anti-pornography groups that declare sexually explicit media addictive and harmful (Fight the New Drug, 2017). In response, pro-pornography groups have formed to contend that the effects of pornography are blown out of proportion by anti-pornography groups, and that pornography may actually have positive health effects (Real Your Brain on Porn, 2019). Research has generally shown a negative association between pornography use and individual and relational outcomes (Doran & Price, 2014; Maddox et al., 2011; Perry, 2018; Tylka, 2015; Willoughby, Carroll, et al., 2014; Willoughby & Leonhardt, 2018b; Wright et al., 2017), although many contextual factors potentially confounding or even reversing these relationships have also been shown to exist (Bridges & Morokoff, 2011; Kohut & Štulhofer, 2018; Perry & Whitehead, 2019; Poulsen et al., 2013). Therefore, more research about the effects of pornography is required to understand how it influences individuals and relationships.

In a similar vein, sexual desire discrepancy (SDD), or differences in levels of sexual desire between partners, may be one of the more common presenting problems in couples therapy (Ellison, 2002). Conservative population estimates of low sexual desire is 15 to 25% for men and 20 to 43% for women (Laumann et al., 2005; Lewis et al., 2010). SDD is commonly associated with negative relational outcomes (Bridges & Horne, 2007; Davies et al., 1999; Mark & Murray, 2012; Willoughby, Farero, & Busby, 2014; Willoughby & Vitas, 2012). Some

researchers have more recently normalized the occurrence of SDD, referring to the natural “ebb and flow” of sexual desire and explaining that individuals’ levels are unlikely to align perfectly on a regular basis (Mark et al., 2019; Vowels & Mark, 2020; Vowels et al., 2018). Recent scholarship in the area has suggested that masturbation may be one of the most common strategies couples utilize to cope with SDD (Vowels & Mark, 2020), although research connecting the two is still limited.

Both SDD and masturbation have received increasing attention in pornography literature due to the roles they play in general sexual functioning. Research on pornography use has been criticized when the effects of these constructs were not included in statistical models (Campbell & Kohut, 2017; Leonhardt, Spencer, et al., 2019; Perry, 2019, 2020; Prause, 2019). One scholar suggested that the negative relational effects usually attributed to pornography use could be confounded by the long-established connection between SDD and lower relational outcomes, because “porn is for masturbation” (Prause, 2019, para. 20), which is a coping strategy for SDD. Prause (2019) argues that it is SDD, not pornography use (which simply assists masturbation), that causes the lower reports of sexual and relational satisfaction. Perry (2019, 2020) also cites the importance of accounting for the effects of masturbation when studying pornography use, as it could play a mediating, moderating, and motivating role in the association between pornography use and relational outcomes. This association is still being elucidated, however, so it is still possible that pornography use may affect relational outcomes over and above the effects of masturbation or SDD. The need to integrate the roles of SDD and masturbation in pornography research is pressing.

The purpose of this study is to isolate the influence pornography use has on those in heterosexual romantic relationships by parsing out the effects of sexual desire discrepancy and masturbation. This will be done by using a series of nested actor-partner interdependence models

in addition to several that are moderated (Garcia et al., 2015) to investigate how these three constructs relate to each other.

Although these have been examined separately in previous studies, recent scholarship has illustrated that major methodological issues exist in pornography research (Fisher & Kohut, 2020), not to mention psychological research more generally (John et al., 2012; Loken & Gelman, 2017). Given the complex nature of the present study's often-oversimplified constructs, the literature review will clarify these constructs. First, an organizational framework will be introduced. Scholarly perspectives on pornography use will then be explained, including a more detailed commentary on common measurement issues in pornography research. Sexual desire and sexual desire discrepancy will then be defined and explained, followed by masturbation and sexual satisfaction. The current study will then be explained including a proposed conceptual model seated in the literature, along with the study hypotheses and research questions. According to the knowledge of the author, this is the first study to look at these associations in a large, dyadic dataset.

## **Literature Review**

### **Organizational Framework**

The organizational framework utilized by this paper draws heavily from the framework proposed by Willoughby and colleagues (2020). This framework was informed by many of the popular organizational and theoretical frameworks utilized in pornography research. These include sexual script theory/the 3AM model (Gagnon & Simon, 1973; Wright, 2016), objectification theory (Fredrickson et al., 1998; Peter & Valkenburg, 2009), the Antecedents-Contexts-Effects model (Campbell & Kohut, 2017), and Leonhardt and colleagues' (2018) model of short- and long-term relational effects of pornography use on relationships (see also Leonhardt, Spencer, et al., 2019). According to Willoughby and colleagues' (2020) framework,

there are generally five broad areas when conducting research on pornography: pornography content (e.g., BDSM, aggression, specific sex acts, etc.), personal views and attitudes (e.g., acceptance of pornography, religious views, perceived realism of pornographic content, etc.), individual background factors (e.g., personality traits, sex drive, masturbation patterns, etc.), couple processes (e.g., commitment, communication, pornography use as couple versus individually, etc.), and relational contexts (e.g., relationship status, relationship length, cultural norms around sexuality and relationships, etc.; Willoughby et al., 2020). These dimensions are useful for scholars as they provide language and conceptual boundaries that can be used in theoretical models.

Framed in the perspective of this framework, the present study examines how pornography influences relational outcomes by investigating the how the relationships between individual background factors in a couple process context (sexual desire discrepancy) and couple process outcomes (sexual satisfaction) change when masturbatory practices or pornography use is present, controlled for by relational contextual factors, pornography content, personal views and attitudes towards pornography, couple processes, and individual factors. These will be discussed more specifically in the Methods section of the paper.

## **Pornography**

A review of the history and development of pornography use as we understand it today is necessary to understand the context in which this phenomenon is seated. The sexual revolution and invention of computers in the late-21<sup>st</sup> Century was followed with an explosion of sexually explicit media (Wosick, 2015). Since then, many forms of pornography and sexual interactions have emerged: images, erotic literature, videos, videogames (interactive porn), live video performances, and virtual reality pornography (Willoughby & Leonhardt, 2018a). Various genres of pornography have also emerged, usually surrounding specific performer characteristics

(gender, age, hair type, body type, animated), specific acts (props, bodily functions), specific interactions (bondage, domination, rape, power differences), and so forth (Wosick, 2015). There seems to be a pornographic version of almost everything imaginable, including illegal depictions of child pornography and bestiality. Additionally, the privacy offered by computers and mobile devices has perhaps made sex more accessible, affordable, and anonymous (see Cooper, 1998) than ever before.

Some scholars believe that up to one-third of Americans seek out sexually explicit media at least once a month or more (Carroll et al., 2008; Edelman, 2009; Short et al., 2012). The rise in pornography consumption has been received with ambivalence in the US (Watson & Smith, 2012), with some arguing that it positively augments sexual relationships and connection (Darnell, 2015; Watson & Smith, 2012) and others arguing that it is relationally destructive and addictive (Love et al., 2015; Minarcik et al., 2016). Governing bodies have even weighed in on the debate, with Utah and Arizona recently declaring pornography a public health crisis (*HCR2009*, 2019; *SCR009*, 2016).

Research has generally shown a negative association between pornography use and individual outcomes. Pornography use has been associated with higher depression, distress, negative body image, and risk-taking behaviors (Perry, 2018; Tylka, 2015; Willoughby, Carroll, et al., 2014), but not necessarily for women (Bridges & Morokoff, 2011; Kohut & Štulhofer, 2018; Poulsen et al., 2013). This emphasizes the importance of accounting for factors such as gender when conducting research on this topic.

Other demographic trends have also emerged in pornography literature. Perry and Schleifer (2019) recently reviewed the General Social Surveys from 1973 to 2016 to examine how race, gender, and religion play into pornography use trends. They found that Black Americans were significantly more likely to have viewed pornography than White Americans

over and above the effects of controls (e.g., church attendance, income, age, education, parent status, and location), and that the rate of pornography use among Blacks was also increasing faster than the rate for Whites (Perry & Schleifer, 2019). Black men in particular were more likely to have viewed pornography than all other groups.

Relationally, higher rates of pornography use have been associated with lower relationship satisfaction, relationship stability, relationship adjustment, sexual satisfaction, sexual quality, life satisfaction, marital quality, and communication (Bridges & Morokoff, 2011; Doran & Price, 2014; Maddox et al., 2011; Manning, 2006; Muusses et al., 2015; Willoughby & Leonhardt, 2018b; Wright et al., 2017; Yucel & Gassanov, 2010). Dyadic data analyses revealed that even one partner's use of pornography could have repercussions on their own and their spouses' sexual quality and wellbeing (Poulsen et al., 2013; Willoughby & Leonhardt, 2018b). This suggests that pornography may have second-hand exposure effects; in other words, one spouse's pornography use may also have an influence on their partner's outcomes. Additionally, those who view pornography may also have higher rates of infidelity (Lambert et al., 2012; Maddox et al., 2011). Some research has shown that pornography use itself can be perceived by a non-using spouse as a form of marital infidelity (Manning, 2006; Zitzman & Butler, 2009) and lead to trauma-like responses involving feelings of betrayal (Bergner & Bridges, 2002). Clearly, viewing pornography may have significant relational implications.

In some research, however, pornography's negative relational effects have only applied to men (Perry, 2017) or to those who are religious (Perry & Whitehead, 2019). Moral Incongruence Theory posits that the negative effects of pornography use come from the distress caused by using pornography when one thinks it is wrong to do so (moral incongruence; Grubbs & Perry, 2019), which is a common moral stance in conservative religions (see Grubbs & Perry, 2019 for a review). Some scholars assert that pornography is harmful to only those who experience moral

incongruence (Perry & Whitehead, 2019), although research has also suggested that incongruence may simply be an exacerbating factor to pornography's harmful effects (Perry, 2016). Therefore, it is important to account for moral incongruence when examining the influence of pornography.

Some scholars argue that one of the mechanisms through which pornography affects sexual and relational outcomes is through its effects on sexual scripting (Štulhofer et al., 2010; Willoughby et al., 2016), meaning that it influences one's desires and turn-ons as well as one's ideas about how to go about engaging in sexual encounters and what happens during them (Simon & Gagnon, 1987; Wiederman, 2015). This perspective is further reinforced by the fact that some see pornography as a sex education tool, suggesting it is specifically sought out to influence sexual behavior (Štulhofer et al., 2010; Watson & Smith, 2012; Wosick, 2015). From the sexual scripts perspective, then, pornography goes from virtual to reality by being integrated into the scripts of its users and then brought explicitly or implicitly to the bedroom.

### ***Measurement Issues in Pornography Research***

Perhaps one of the contributing factors to the disparity of outcomes in pornography literature surrounds the methodological soundness of the research conducted. One of the largest methodological issues in pornography research surrounds the operationalization of pornography (Fisher & Kohut, 2020). Marshall and Miller (2019) reviewed the various ways recent scholarly articles operationalized pornography, including asking participants if they had watched an X-rated movie, seen specific content depicted (e.g., pictures with clearly exposed genitals), or seen pornography (undefined) in general. This is problematic as many of these studies ubiquitously use the terms *pornography* or *sexually explicit media* to represent a single construct, when the ways constructs were operationalized are not equivalent and hardly comparable. In addition, Willoughby and Busby (2016) explained that simply tapping into a participant-subjective

definition of pornography by asking about pornography use in general does not work either, as many have very different views on what is pornographic and what is not. They suggest that specific descriptions of the content be provided to mitigate bias from factors, such as religious conservatism, where the participants are more likely to view almost anything suggestive as pornographic (Willoughby & Busby, 2016). Clearly, a specific and reliable measure of pornography use is required to accurately represent the construct. This could allow researchers to measure pornography use more objectively; such a measure could be compared to questions assessing more subjective perspectives on what is and is not pornographic to evaluate outcomes relative to both objectively pornography use and perceived pornography use.

Busby and colleagues (2020) proposed both a long-form and short-form pornography usage measure (PUM) that attempts to capture the frequency at which individuals consume nonviolent, mainstream pornography in a way that is sensitive to both how often they utilized pornography as well as how selective they were about the levels of sexuality displayed in the media. Both forms of the measure were bidimensional (utilization and selectivity) and found to have sufficient reliability as well as concurrent, construct, and predictive validity (Busby et al., 2020).

It is of note that other large methodological issues in pornography research include bias incited from adopting a harm-focused narrative, gendered assumptions, samples that are not nationally representative, small samples, and individual rather than dyadic data sets (Campbell & Kohut, 2017; Fisher & Kohut, 2020; Willoughby et al., 2020). The present study does not address all of these issues, but it attempts to address some of them by utilizing a large, dyadic sample and interpreting results with an evenhanded approach towards pornography use.

## **Sexual Desire and Sexual Desire Discrepancy**

### ***Sexual Desire***

In order to describe what sexual desire discrepancy is, it is first necessary to expand on the meaning of sexual desire. Contemporary sex therapy literature often cites Levine, a psychiatrist whose work reflects his two-decade personal, clinical, and scholarly investigation of the matter (Hertlein et al., 2015; Levine, 2003; Weeks et al., 2016). Levine defines sexual desire as “the sum of the forces that lean us toward and push us away from sexual behavior” (2003, p. 280). Specific components of sexual desire include drive, or a biological aspect; motivation, which comprises the psychological and interpersonal components of desire; wishes, which is the cultural aspect of the values, meaning, and rules around sexual expression; and responsiveness, which represents one’s general receptivity and reactivity to sexual stimuli (Bitzer et al., 2013; Levine, 2003; Vowels & Mark, 2020). Sexual desire can be quite the elusive construct, as it is the net effect of these diverse converging factors.

Higher sexual desire in a relationship is generally associated with higher subjective wellbeing (Lee et al., 2016) as well as more sexual and relational satisfaction (Dosch et al., 2016; Mark, 2012; Štulhofer et al., 2014). One’s level of sexual desire is believed to decrease over the life course, especially for women after childbirth, menopause, or in assuming more relational responsibilities (Carpenter, 2015; Mark & Lasslo, 2018; Murray & Milhausen, 2012). Recent research suggests it is normative for sexual desire to ebb and flow and that it can be influenced by one’s desire the previous day or even one’s partner’s sexual desire the previous day for women (Mark et al., 2019; Vowels & Mark, 2020; Vowels et al., 2018). This suggests that differences in sexual desire may be a very common occurrence for couples.

### *Sexual Desire Discrepancy*

Sexual desire discrepancy (SDD) on the individual level, then, can be conceptualized as the difference between one's sexual desire and one's sexual actualization. This has been operationalized in psychological literature as the difference between the desired frequency of sexual interactions and the actual frequency of one's sexual interactions with a specific partner (Willoughby, Farero, & Busby, 2014; Willoughby & Vitas, 2012). Research has generally shown that higher desire discrepancies are associated with lower relational and sexual satisfaction, as well as less positive communication, increased conflict, and lower marital stability (Bridges & Horne, 2007; Davies et al., 1999; Mark & Murray, 2012; Willoughby, Farero, & Busby, 2014; Willoughby & Vitas, 2012). Willoughby, Farero, and Busby (2014) conducted a large-scale dyadic analysis of desire discrepancy and found that one's own desire discrepancy negatively impacted both one's own and one's partner's relationship satisfaction, relationship stability, and couple conflict. Interestingly, cross-partner desire discrepancy (the difference between each partner's sexual desire) alone predicted less positive communication, suggesting that this construct may function differently on the couple level.

As SDD is a common occurrence, couples must learn to effectively manage SDD on a regular basis. Vowels and Mark (2020) recently published an article delineating the common strategies individuals take in managing situations where sexual desire (usually defined by participants as the desire to engage in vaginal-penile intercourse) is not matched. They found that masturbation was most commonly used to deal with SDD, although it was not always clear in what context this happened (e.g., alone, with a partner, or using sexually explicit media). Based on the study design, however, the authors hypothesized that this finding actually measured masturbation as a "way to deal with immediate desire discrepancy on a day-by-day basis rather than something someone might cite as important for getting back on track with their partner

related to sexual desire.” (Vowels & Mark, 2020, p. 1025). There is much left to uncover concerning the role masturbation plays in the lives of desire-discrepant couples.

### **Masturbation**

Masturbation is relatively common among those in the US. Historically, around 61% of men and 38% of women report having masturbated in the last year (Das, 2007), with similar numbers for those who have masturbated in the last two weeks (men: 61%; women: 35%; Regnerus et al., 2017). Recent literature places masturbation at the nexus of both SDD and pornography use when examining relational outcomes. Scholars hypothesize that masturbation may actually play a moderating or mediating role in the relationship between pornography use and outcomes, sometimes completely attenuating the relationship to insignificant levels (Leonhardt, Spencer, et al., 2019; Perry, 2019, 2020; Prause, 2019). For example, Perry (2019) found that when masturbation was included in the association between pornography use and relational happiness in two national surveys, the former relationship either became non-significant or did not exist at all. Leonhardt, Spencer, and colleagues (2019) questioned the validity of the assumption that masturbation alone can account for the negative associations between pornography and various outcomes; they pointed out that it is unlikely that masturbation could cause some of the increases in impersonal sexuality, viewing women as a sex object, and viewing marriage as less central component of life shown to be linked to pornography use in the literature without considering the influence of pornographic sexual scripting. Conversely, Miller and colleagues (2019) found that the negative effects of pornography use on sexual satisfaction became negligible or positive for men, even when accounting for the scripting effects pornography use may have on one’s sexual preferences (Štulhofer et al., 2010; Sun et al., 2016). It is likely that robust long-term research is required to better parse out the nature of this relationship.

Masturbation may also play a role in the relationships between pornography use, SDD, and relational outcomes. Prause (2019) made this connection by explaining that SDD could be the underlying cause of lower sexual satisfaction in couples than pornography use or masturbation. She hypothesized that pornography use is motivated by the desire to masturbate, which is motivated by SDD; given that SDD has been associated with similar outcomes to those shown in pornography literature (Prause, 2019; Santtila et al., 2008; Sutherland et al., 2015; Willoughby, Farero, & Busby, 2014), it could be that scholars who include only pornography use with or without masturbation as predictors fail to include the confounding variable of SDD and therefore produce invalid results. The limited amount of research done on the interrelationships between these three predictors makes the need for research examining them acute.

It is important to note that research on masturbation in relational contexts has found gendered associations between sexual frequency, masturbation, and sexual satisfaction. In a summative article on the topic, Regnerus and colleagues (2017) investigated the role of masturbation in relational contexts and found that for sexually discontented (similar to SDD) men only, masturbation was used as a compensatory practice that diminished as sexual frequency increased. For sexually contented women only, a complementary practice of masturbation was observed where more frequent sex was associated with more frequent masturbation. These findings are similar to those in previous literature (Carvalheira & Leal, 2013; Gerressu et al., 2008), although Regnerus and colleagues (2017) made it clear that sexual contentedness played a critical role in these associations, unlike previous studies.

### **Sexual Satisfaction**

As indicated in previous sections, sexual satisfaction is often used as a relational outcome measure in research on sexuality. One reason behind its use may be due to its strong, longitudinal association with relationship satisfaction (Byers, 2005; Fallis et al., 2016). This construct

captures an overall subjective evaluation of one's (usually partnered) sexual experiences, which are informed by sexual scripts that may have been influenced by pornography. Sexual satisfaction differs from SDD in that SDD captures more of a specific behavior and desire surrounding it (e.g., sexual intercourse) where sexual satisfaction is a broader assessment of one's general feelings surrounding the sexual relationship.

### **Directionality in SDD Research**

Unfortunately, a majority of the research on SDD, masturbation, and pornography use is cross-sectional and therefore unable to make causal, directional claims. Given the systemic nature of relationships (Hertlein et al., 2015; Weeks et al., 2016), these variables are likely both outcomes and predictors of relational processes over the long run. Sexual dysfunction in one partner can be the result of negative relational dynamics or sexual dysfunction in the other partner, particularly in the realm of sexual desire and arousal disorders (Girard & Woolley, 2017; Hertlein et al., 2015; Weeks et al., 2016). Therefore, there are likely reciprocal relationships between partners' levels of sexual desire, the practices used to cope with that difference (e.g., masturbation or pornography use), and sexual or relational satisfaction. On the whole, however, it is appropriate to conceptualize sexual desire discrepancy as a motivator for masturbation/pornography use and as a predictor of sexual satisfaction due to the strong theoretical basis for doing so (Perry, 2019, 2020; Prause, 2019; Vowels & Mark, 2020).

### **Current Study**

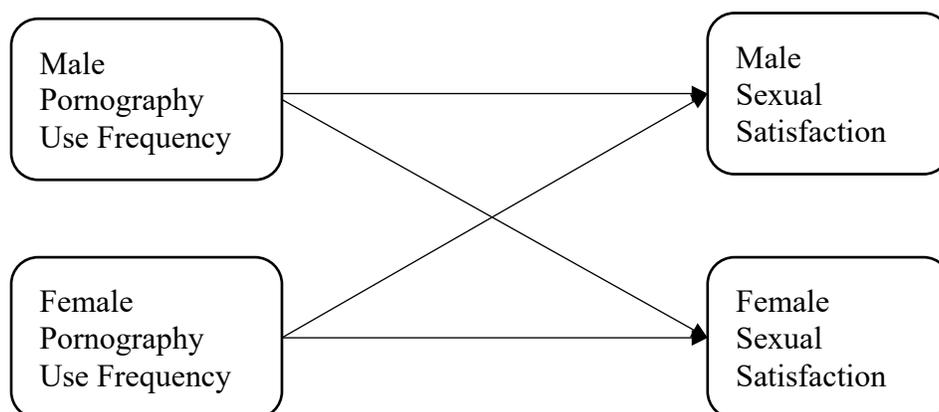
Recently, scholarship on pornography use has come under criticism due to a lack of accounting for potentially confounding variables such as masturbation and sexual desire discrepancy (Leonhardt, Spencer, et al., 2019; Perry, 2019, 2020; Prause, 2019). Given the high prevalence of pornography use (Miller et al., 2020; Regnerus et al., 2016) and the normality of sexual desire discrepancy in couple life (as sexual desire can fluctuate on a regular basis; Vowels

& Mark, 2020; Vowels et al., 2018), the need to empirically examine the interrelationships between these is pressing.

Scholars have specifically contended that measuring pornography use frequency is actually measuring masturbation frequency, which could be the result of sexual desire discrepancy. Therefore, these scholars argue that the supposed negative (or positive) effects of pornography use are actually the effects of either masturbation or sexual desire discrepancy. The purpose of this study is to isolate the effects of an individual's pornography use on sexual satisfaction by utilizing a robust measure of mainstream pornography use and by parsing out the effects attributable to masturbation frequency and sexual desire discrepancy. Additionally, the present study will explore the role of male and female pornography use on both their own and each others' sexual satisfaction, moderated by effects of different levels of these variables. This is done to further parse out the effects of masturbation frequency and sexual desire discrepancy on pornography's influence by evaluating their potential interaction.

Figure 1

*Base Actor-Partner Interdependence Model for Pornography Use and Sexual Satisfaction*



The guiding research question for this study is how does the relationship between pornography use and sexual satisfaction in dyads change as the effects (see H1-H5) and levels

(see H6-H7) of masturbation frequency and sexual desire discrepancy are accounted for? Using the literature cited previously in this review, several hypotheses are proffered:

H1: In the base model (see Figure 1), pornography use frequency will have a significant and negative relationship with sexual satisfaction for men.

H2: Adding masturbation frequency to the model will significantly improve model fit and reduce the strength of pornography use frequency's effect, suggesting that it is a critical variable to include in pornography use research.

H2a: Masturbation frequency will have a negative association with sexual satisfaction for men, as this association has been suggested in previous research (e.g., Regnerus et al., 2017).

H3: Adding sexual desire discrepancy to the model will significantly improve model fit and reduce the strength of masturbation frequency's effect.

H3a. Male and female sexual desire discrepancy will have a significantly negative relationship with sexual satisfaction for both men and women on both actor and partner levels as shown in previous research (see Mark, 2015).

H4: Adding sexual engagement to the model will significantly improve model fit and reduce the effects of sexual desire discrepancy in the model, as this controls for the baseline scores of the variables used to make the discrepancy score (Willoughby, Farero, & Busby, 2014). No specific directions are hypothesized as this has not yet been explicitly explored in sexual desire discrepancy research.

H5: Constraining masturbation, sexual desire discrepancy, and sexual engagement alone will result in significantly worse fitting models compared to the full, unconstrained model.

H6: If masturbation frequency were to be responsible for pornography's effect on sexual satisfaction, we would expect to see a significant interaction between the variables such that the relationship between pornography use frequency and sexual satisfaction becomes insignificant at

lower levels of masturbation and is significant at higher levels of masturbation. Moderation is used rather than mediation as the sample is cross-sectional, so utilizing mediation could return biased results (Maxwell et al., 2011; Maxwell & Cole, 2007).

H7: If sexual desire discrepancy were to be responsible for pornography's effect on sexual satisfaction, we would expect to see a significant interaction between the variables such that the relationship between pornography use frequency and sexual satisfaction becomes insignificant at lower levels of sexual desire discrepancy and is significant at higher levels of sexual desire discrepancy. As with the previous hypothesis, moderation is used rather than mediation because cross-sectional mediation can be very unreliable (Maxwell et al., 2011; Maxwell & Cole, 2007).

## **Methods**

### **Participants**

Participants for this study included 713 romantic heterosexual couples from a dataset provided by Qualtrics (see Procedure for details). The sampling frame for this study was adult, US-residents who were in romantic relationships and who had a partner willing to take the survey. Many of the individuals in the couples were married in their first marriage (53.8%), with 21.8% cohabiting, 17.6% remarried, 5.5% not living with their partner, and 1.3% in an open relationship. The average relationship length was 11.8 years (SD = 10.4). The largest racial group was Caucasian (79.1%) followed by African American (6.8%), Mixed Race (5.5%), Latinx (3.6%), Asian American (3.2%), and Other (1.9%) participants. Over fifty-seven percent (57.7%) reported a yearly household income between \$25,000 and \$75,000, while 15.1% of the sample reported an income less than \$25,000, and 12.7% were greater than \$100,000. In terms of religious affiliation, the largest group was Christian (47.6%), followed by No Affiliation (26.8%), Other (18.7%), and Atheist or Agnostic (6.9%). The average age of men in the sample

was 44 years ( $SD = 12.2$ ) and women was 41.7 ( $SD = 11.5$ ) with a combined range from 18 to 89. For educational attainment, the largest group were those having at least a four-year degree (37.9%), with those having some college (24.9%) or a two-year degree (13.6%) following. Just over twenty-three percent (23.6%) had never attended college.

### **Procedure**

All data collection procedures for this study were approved by the Institutional Review Board at the author's university. Participants for this study were identified and administered an online survey by Qualtrics. The sample was recruited from across the United States based on quotas for age, race, education and geographic region. To qualify for the study, participants were required to be over 18 and currently in a relationship. Participants were also asked to indicate that their partner would also be available to participate in the study. Participants provided their partner's email address and following completion of the survey, the partner was sent an email with a link and instructions on completing their survey. All participants for this study completed an informed consent form prior to being asked any questions in the survey. As part of that informed consent, participants were assured of the confidentiality of their data including that their partner would not have any access to their responses. Following completion of the survey, participants were compensated directly by Qualtrics, at the standard rates they utilize for online panels. In order to substantiate data quality, five attention checks were inserted throughout the survey. Examples of these items were "If you are reading this question, please select 'Somewhat important'" and "If you are reading this question please move the slider to '65'". Couples where both partners did not pass all attention checks throughout the survey were removed from the final sample.

## Measures

Most of the measures used in this study were validated in previous research. The study variables of interest included sexual desire discrepancy (and the associated control of sexual engagement), masturbation frequency, pornography use frequency, and sexual satisfaction. Control variables included demographics, general distress, and pornography acceptance.

### *Sexual Desire Discrepancy*

Sexual desire discrepancy represents the difference between one's desired and actual sexual interactions with a partner. This construct is a function of both individual background factors (sexual desire) and couple processes (frequency of sex in a relational setting as well as sexual desire for a particular partner; Willoughby et al., 2020). Previous research has operationalized this construct by calculating the difference between an individual's desired frequency of sex and actual frequency of sex with a partner (Willoughby, Farero, & Busby, 2014; Willoughby & Vitas, 2012). Desired frequency of sex was measured with the item, "how often do you desire to have sexual intercourse with your partner?" Actual sex frequency was assessed with the item "how often do you have sexual intercourse with your partner?" Both items were measured on a 7-point scale ranging from *never* (0) to *more than once a day* (6). Sexual desire discrepancy was calculated by subtracting the actual frequency of sex from the desired frequency, resulting in a new variable ranging from -6 to 6. Based on the low frequency of responses below zero for men (2.52%) and women (7.57%) and the need for the variable to be unidirectional (an increase in score is associated with an increase in discrepancy; the current variable represents an increase in discrepancy as scores deviate both positively and negatively from zero), the absolute value was taken. A value of zero represented no desire discrepancy, or that one was having the amount of sex one desired. An increase in score on this item represented

an increase in sexual desire discrepancy, whether that stemmed from having more or less frequent sex than desired.

**Sexual Engagement.** Discrepancy scores are often perceived as problematic, as they may actually represent the underlying variables used to make the score rather than the difference between the two (Edwards, 2001; Edwards & Parry, 2018; Zuckerman et al., 2002). Willoughby, Farero, and Busby (2014) address this issue for SDD by summing the desired sexual frequency and actual sexual frequency items into a new variable called sexual engagement. This allows the baseline levels of these variables to be controlled for in the analysis (see Busby et al., 2009). These were summed to buffer against the multicollinearity issues that might arise from using the same variables already used to create discrepancy scores. Scores on this variable ranged from 0 to 12, with a higher score associated with more sexual engagement. This construct can be interpreted as sexual engagement because it represents both the levels of psychological (desired sexual frequency) and behavioral (actual sexual frequency) sexual engagement in a relationship; an increase in either desired or actual sexual frequency represents an increase in overall engagement.

### ***Masturbation Frequency***

Masturbation frequency measured how often one generally masturbated. This is also an individual background factor that is influenced by couple processes (e.g., sexual frequency and desire for a partner) as well as relational contexts (e.g., sex may be more accessible as an alternative to masturbation in a committed romantic relationship; Willoughby et al., 2020). This was assessed using the question “how frequently do you masturbate?” Possible responses included *never* (1), *a few times per year* (2), *a few times per month* (3), *about once per week* (4), *a few times per week* (5), and *daily* (6). A greater value represented a higher frequency of masturbation.

### ***Pornography Use Frequency***

Pornography use frequency represented the regularity that one viewed mainstream sexually explicit media alone. This construct was measured using the short form of the Pornography Usage Measure (PUM-SF; Busby et al., 2020), which was shown to have content, concurrent, construct, and predictive validity. This measure was developed in response to the rampant criticism in pornography research surrounding the imprecise nature by which pornography use frequency has been operationalized (Fisher & Kohut, 2020; Marshall & Miller, 2019; Willoughby & Busby, 2016) and attempts to capture a representation of mainstream pornography usage across several different indicators. This measure helps to assess pornography use using a more valid measurement of pornography content that is parsed out from personal views and attitudes towards pornography (Willoughby et al., 2020), which has been conflated in previous research (see Willoughby & Busby, 2016). The short form of this measure comprises of seven items with the prompt “please indicate how often in the last 12 months you have viewed or used the following sexual content ALONE” and the possible responses of *never* (1), *once a month or less* (2), *2 or 3 days a month* (3), *1 or 2 days a week* (4), *3 to 5 days a week* (5), and *every day or almost every day* (6). Examples of items on the measure include “a video of a woman or man alone masturbating,” “an image of a woman alone posing in a suggestive way without any clothes on,” and “a short video depicting a couple having consensual sex. The woman’s breasts are shown but neither partner’s genitalia are shown.” A greater value on this measure was associated with more frequent pornography use. This construct had excellent reliability in this sample for both men ( $\alpha = .94$ ) and women ( $\alpha = .93$ ).

### ***Sexual Satisfaction***

Sexual satisfaction represented an individual’s contentment surrounding his or her sexual activities. This construct represents an individual’s assessment of a couple process (Willoughby

et al., 2020). Sexual satisfaction was measured using a short, 6-item form of the validated Golombok-Rust Inventory of Sexual Satisfaction (GRISS; Rust & Golombok, 1985). Examples of indicators included “do you find the sexual relationship with your partner satisfactory,” “are you dissatisfied with the amount of variety in your sex life with your partner” (reverse scored), and “are you satisfied with the amount of time you and your partner spend on foreplay.” Items were measured using a Likert-type scale with responses ranging from *never* (1) to *very often* (5). A greater score on this measure corresponded with greater levels of sexual satisfaction. This unidimensional construct had good reliability for men ( $\alpha = .85$ ) and women ( $\alpha = .85$ ).

### ***Control Variables***

As noted previously, literature has suggested that it is important to include controls for various factors related to sexual desire discrepancy, masturbation, pornography, and sexual satisfaction. These include individual background factors such as demographic variables like age (Ybarra & Mitchell, 2005), race (Perry & Schleifer, 2019), education level and income (Schrodt et al., 2014), and general distress (depressive symptoms; Willoughby, Carroll, et al., 2014). This also includes relational contexts such as marital status and relationship length (Leonhardt, Busby, et al., 2019). As noted previously, it is also important to control for personal views and attitudes towards pornography (Maas et al., 2018; Perry & Whitehead, 2019). As all of the variables in this analysis are supported by previous research as relevant, there are no extraneous variables included.

**Demographic Controls.** Due to the inherent collinearity between age and relationship length, only relationship length was used as a control variable in the present analysis. Race was measured using the following prompt: “what is your racial or ethnic background? Check all that apply.” Possible responses included *African (Black)* (0), *Asian* (1), *Caucasian (White)* (2), *Native American* (3), *Latino (Mexican American, Puerto Rican, Cuban, etc.)* (4), and *Other (please*

*specify*; 6). Due to the high frequency of Caucasian participants (79.1%) and need to meet regression's continuous variable assumption, this variable was dichotomized and dummy coded to represent *not White* (0) and *White* (1). Relationship status was determined using the question "which best describes your current relationship status?" and included the responses *exclusively dating* (1); *cohabiting, living with your partner in an intimate relationship* (2); *married, first marriage* (3); *married but separated* (4); and *remarried* (5). Given the high number of people who were married or remarried (72.0%), this variable was combined and dichotomized as *not currently married* (0) and *currently married* (1). Relationship length was assessed with "how long have you been in this relationship total (in months)" where a higher score represented a longer relationship length in months. For the purposes of structural equation modeling, relationship length was transformed into decade units to decrease its variance (see Kline, 2015). Education level was assessed using the prompt "your highest completed level in school." Possible responses ranged from *less than high school* (1) to *advanced degree (JD, Ph.D., MD, etc.)* (7). A higher value indicated a greater level of educational attainment. Income was assessed using the open-ended prompt "what is your best estimate of your gross monthly household income." A greater value indicated a greater income.

**General Distress.** General distress represents the level at which one experiences negative affect. This was measured using the General Distress subscale of Wardenaar and colleagues' (2010) 30-item adaptation of the Mood and Anxiety Symptoms Questionnaire. This adaptation was shown to demonstrate good construct validity, acceptable convergent validity, and similar psychometric properties to the original measure (Wardenaar et al., 2010; see also Watson et al., 1995). This 10-indicator measure prompted the participants to "please rate how much in the past week you have experienced the following feelings, sensations, problems and experiences that people sometimes have" and included items such as "felt worthless," "felt hopeless," "worried

about a lot of things,” and “felt inferior to others.” Possible responses included *not at all* (1), *a little bit* (2), *moderately* (3), *quite a bit* (4), and *extremely* (5). A higher value on this measure was associated with more distress, and it had excellent reliability in this sample for both men ( $\alpha = .93$ ) and women ( $\alpha = .94$ ).

**Pornography Acceptance.** One’s acceptance of pornography use was measured using a three-item scale created from items cited in previous research (Carroll et al., 2008; Maas et al., 2018; Willoughby et al., 2016). All three items were phrased “viewing pornography is an acceptable way for *X* to express their sexuality,” where *X* was replaced with *adults not in a relationship* for item 1, *adults in a relationship* for item 2, and *married adults* for item 3. Possible responses ranged from *Strongly Disagree* (1) to *Strongly Agree* (5). A greater value was associated with a greater acceptance of pornography use, and it had excellent reliability in the sample for both men ( $\alpha = .94$ ) and women ( $\alpha = .93$ ).

### **Analysis Plan**

The study hypotheses and research questions were examined in an actor-partner interdependence structural equation model analyzed in Mplus (Muthén & Muthén, 2017). An actor-partner interdependence model (APIM) was chosen as a framework for these analyses given its ability to account for non-independence between members of a couple relationship; covariance paths were added between observed variables that were similar between individuals to address this (Ledermann et al., 2011). This was implemented in a nested structural equation modeling framework, as it allows the user to simultaneously calculate regression paths between multiple predictors and outcomes, with the ability to include latent variables that parse out the variance for constructs created by observed items more accurately than a traditional scale (Kline, 2015). Nesting was used in order to examine the relative levels of model fit as each additional

predictor was added (unconstrained from 0). Sexual satisfaction, pornography use, pornography acceptance, and general distress were modeled as latent constructs with their items as indicators.

In order to examine the first hypothesis, an actor-partner interdependence model was created by simultaneously modeling male and female sexual satisfaction variables as outcomes with male and female pornography use frequencies as predictors of each outcome (see Figure 1). Male and female masturbation frequency, sexual desire discrepancy, and sexual engagement variables were also included, although their regression paths were constrained to zero depending on the model being examined. General control variables (pornography acceptance, general distress, relationship length, and demographics) were added to the regression paths in the model, with covariance relationships modeled between each exogenous variable. Covariance relationships were also modeled between the sexual satisfaction latent variables. Maximum likelihood estimation with robust standard errors (MLR) was used to address the skewness of the endogenous variables and to account for missing data.

Hypothesis H1 was explored by creating Model 1 to examine the baseline relationship between pornography use frequency and sexual satisfaction by constraining the paths of masturbation frequency, sexual desire discrepancy, and sexual engagement to zero. Hypothesis H2 (and H2a) was examined by releasing the parameter constraints on masturbation frequency in order to examine how this control variable influenced the relationship between pornography use frequency and sexual satisfaction (Model 2). The Satorra-Bentler scaled chi-square difference test (TRd) to correct for the effects of MLR was used for all nested model comparisons (Mplus, n.d.). Hypothesis H3 (and H3a) was tested by releasing the constraints on sexual desire discrepancy in addition to masturbation to compare these effects (Model 3), followed by Model 4, which also released sexual engagement variables to evaluate Hypothesis H4. Sexual engagement was added separately from sexual desire discrepancy to highlight any potential

changes in the model relationships when baseline measurements of the variables making up sexual desire discrepancy were controlled for (see Willoughby, Farero, & Busby, 2014). This has not been done in some previous desire discrepancy research and provided insight surrounding any of the claims those papers make. Hypothesis H5 was tested by constraining masturbation frequency, sexual desire discrepancy, and sexual engagement individually to compare their relative model fit versus the full model. This was done to test the importance of including all these variables compared to the full model rather than only a base model.

Hypotheses H6 and H7 examined the moderating effects of masturbation (H6) and sexual desire discrepancy (H7) on the relationship between pornography use frequency and sexual satisfaction. To test for these moderating effects, both the masturbation-moderating (Model 5) and sexual-desire-discrepancy-moderating (Model 6) models followed the guidelines of Garcia and colleagues (2015) for an actor-partner interdependence model with distinguishable dyads and a mixed moderator. Note that these models did not build upon each other as in H1; they were separate moderation analyses based on Model 4. Dyads were determined to be distinguishable if there was a variable upon which members were able to be separately identified (Garcia et al., 2015); in the case of these models, biological sex was the distinguishing variable separating members as these were heterosexual dyads. A moderator is considered to be mixed when it varies both between dyads and individual members of the dyad (Garcia et al., 2015). Both masturbation frequency and sexual desire discrepancy varied by individual, so they were considered to be mixed moderators.

This type of moderation analysis was set up by creating interaction terms between each moderator ( $M_{actor}$  and  $M_{partner}$ ) and independent variable ( $IV_{actor}$  and  $IV_{partner}$ ). This resulted in four total interactions:  $IV_{actor} \times M_{actor}$ ,  $IV_{actor} \times M_{partner}$ ,  $IV_{partner} \times M_{partner}$ , and  $IV_{partner} \times M_{actor}$ . These four interactions were added to the APIM.

Once the model was specified, Garcia and colleagues (2015) delineated three major steps for testing moderation, assuming the moderation results were significant. First, the moderation effects were examined for distinguishability in dyads; in other words, biological sex was tested as a moderator of the moderating effects in the study. If distinguishability were found, step two was to find the best mixed moderation pattern for each individual's predictor and moderating variable using Table 3 in the reference article (Garcia et al., 2015, p. 18). This involved imposing various constraints on the predicted regression paths and examining model fit comparisons using primarily the sampling-error-adjusted Bayesian information criterion (SABIC), which delivers a fit index for even saturated models. Step three was to determine which model fits best, which was determined based on four criteria: (a) the selected pattern model (from step two) should fit as well as the unrestricted model, or the model where no constraints were placed on moderator effects; (b) the selected pattern model should fit better than a model where moderator effects were set to 0; (c) the coefficients in the selected pattern model were robust, or significant; and (d) the selected pattern model should have the best model fit compared to all other plausible pattern models (Garcia et al., 2015).

## Results

Descriptive statistics and correlations were examined to explore the attributes of the study variables (see Table 1 for descriptive results and Table 2 for correlations between main study variables). It was determined that variables were not significantly non-normal, as histograms suggested relative normalcy and skewness and kurtosis indices did not pass the cutoffs suggested by Kline (skewness:  $|s| \leq 3$ ; kurtosis:  $|k| \leq 10$ ; 2015). Variables were checked for the assumptions of structural equation modeling, including that of multicollinearity, as this is often a concern when utilizing an APIM. Control variables and other study variables were added alone to the base model (see Figure 1) to acquire a baseline coefficient and standard error to compare with

each model's (Models 1-6) associated coefficients to be sure that standard errors and coefficients were not inflated. In addition, model coefficients were compared to their associated bivariate correlations to verify the direction of the associations were coordinating. Last, all nondichotomous variables were mean-centered after producing the descriptives table in order to reduce the probability of problematic results in the moderation models due to multicollinearity. Missingness patterns revealed that most study variables had missingness rates below 1.00%, with the highest rate being for male pornography acceptance (2.95%). In accordance with best practices, dummy variables were created to represent the missingness of each variable, and no significant associations were made with any study variables, implying that the missing values are missing completely at random (Acock, 2005; Schlomer et al., 2010). This indicates that the missingness patterns within the dataset should not influence the results of this analysis. When forming the overall model, each of the latent factors were estimated alone to examine fit statistics. Modification indices were checked and indicated that adding covariances between certain items would significantly improve model fit. Two covariances were added for the pornography use measure and sexual satisfaction measures after it was determined that the items were theoretically related enough to warrant a covariance. These steps were repeated in the full model to verify that those covariances would substantially improve model fit in the full model as well.

Table 1

*Descriptive Statistics for All Study Variables*

	N (M/F)	Skewness (M/F)	Kurtosis (M/F)	Mean (M/F)	SD (M/F)	Range	t value
Sexual Desire Discrepancy	713 / 713	0.94 / 1.41	0.40 / 2.16	1.30 / 0.98	1.26 / 1.13	0 -- 6	5.58***
Sexual Engagement	713 / 713	-0.38 / -0.26	-0.14 / -0.46	9.19 / 8.53	2.62 / 2.81	2 -- 14	8.90***
Masturbation	693 / 705	-0.02 / 0.38	-1.16 / -0.90	3.38 / 2.87	1.54 / 1.45	1 -- 6	7.79***
Sexual Satisfaction	709 / 707	-0.45 / -0.50	-0.31 / -0.46	3.65 / 3.58	0.94 / 1.00	1 -- 5	1.73
Pornography Use	704 / 708	1.01 / 2.05	0.23 / 4.74	2.30 / 1.65	1.30 / 0.92	1 -- 6	14.35***
Pornography Acceptance	692 / 704	-0.86 / -0.68	0.20 / -0.24	3.69 / 3.46	1.12 / 1.17	1 -- 5	5.44***
General Distress	709 / 702	1.04 / 0.72	0.58 / -0.35	19.71 / 21.95	8.75 / 9.47	10 -- 50	-6.49***
White	713 / 713	-1.84 / -1.82	1.38 / 1.33	--	--	0 -- 1	0.10
Education	713 / 713	0.24 / 0.22	-0.99 / -0.91	3.67 / 3.92	1.56 / 1.40	1 -- 7	-4.52***
Married	713	-0.99	-1.02	--	--	0 -- 1	
Relationship Length <sup>a</sup>	708	1.21	1.37	1.18	1.04	0.01 -- 5.42	
Income	711	0.49	-0.68	4.79	2.60	0 -- 10	

<sup>a</sup> Relationship length was transformed from months into decades to decrease its variance for the purposes of structural equation modeling.

\*\*\* p<.001

Table 2

*Bivariate Correlations Between Main Study Variables*

	1	2	3	4	5	6	7	8	9	10
1. M Sexual Desire Discrepancy	--									
2. F Sexual Desire Discrepancy	0.17***	--								
3. M Sexual Engagement	-0.08*	-0.25***	--							
4. F Sexual Engagement	-0.35***	-0.10**	0.73***	--						
5. M Masturbation	0.17***	0.01	0.15***	0.11**	--					
6. F Masturbation	-0.13***	0.09*	0.17***	0.25***	0.36***	--				
7. M Pornography Use	0.05	0.04	0.12**	0.10**	0.54***	0.29***	--			
8. F Pornography Use	-0.13***	0.04	0.22***	0.31***	0.24***	0.50***	0.45***	--		
9. M Sexual Satisfaction	-0.42***	-0.14***	0.40***	0.49***	-0.11**	0.10*	-0.16***	0.07	--	
10. F Sexual Satisfaction	-0.20***	-0.41***	0.49***	0.50***	-0.01	-0.07	-0.07	0.00	0.51***	--

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

## Descriptive Results

Descriptive results of the main study variables revealed that for men, the average sexual desire discrepancy was 1.30 (SD = 1.26), suggesting that desire discrepancy was generally low among the sample. The average male masturbation frequency was 3.38 (SD = 1.54), meaning that the men masturbated just over a few times per month on average. Their average pornography use frequency was 2.30 (SD = 1.30), suggesting that they viewed pornography just over once a month on average. Sexual satisfaction for males averaged at 3.65 (SD = 0.94), meaning that they were between sometimes and often sexually satisfied in their sexual relationship. For women, the average sexual desire discrepancy significantly differed from men ( $t = 5.58, p < .001$ ) at 0.98 (SD = 1.13), suggesting that desire discrepancy was generally low among the sample. The average female masturbation frequency differed from the men ( $t = 7.79, p < .001$ ) and was 2.87 (SD = 1.45), meaning that they masturbated just under a few times per month on average. Their average pornography use frequency significantly differed from the men ( $t = 14.35, p < .001$ ) and was 1.65 (SD = 0.92), suggesting that they viewed pornography between never and once a month or less on average. Sexual satisfaction for females did not differ significantly from the men ( $t = 1.73, p = 0.08$ ) and averaged at 3.58 (SD = 1.00), meaning that they were between sometimes and often sexually satisfied in their sexual relationship.

## Study Results

Specific hypotheses are discussed in terms of their results in the following section. See Table 3 for the factor loadings of the latent variables in the model. All model results are shown in Table 4 (actor effects) and Table 5 (partner effects).

Table 3

*Factor Loadings and Standardized Residuals for Model Latent Variables*

		Males				Females			
		$\beta^a$	b	SE	Residual <sup>b</sup>	$\beta^a$	b	SE	Residual <sup>b</sup>
Sexual Satisfaction	SS1	0.56***	1.00	0.00	0.68***	0.58***	1.00	0.00	0.66***
	SS2	0.79***	1.24	0.10	0.37***	0.77***	1.21	0.10	0.41***
	SS3	0.64***	1.10	0.09	0.59***	0.64***	1.21	0.08	0.59***
	SS4	0.76***	1.26	0.11	0.42***	0.76***	1.30	0.10	0.43***
	SS5	0.77***	1.39	0.12	0.41***	0.81***	1.40	0.11	0.35***
	SS6	0.59***	1.03	0.09	0.66***	0.54***	0.93	0.07	0.71***
Pornography Use Frequency	PU1	0.80***	1.00	0.00	0.36***	0.76***	1.00	0.00	0.42***
	PU2	0.78***	0.90	0.04	0.39***	0.75***	0.94	0.05	0.44***
	PU3	0.76***	0.84	0.04	0.42***	0.75***	0.87	0.04	0.43***
	PU4	0.86***	1.05	0.03	0.26***	0.85***	1.23	0.07	0.28***
	PU5	0.89***	1.05	0.04	0.21***	0.87***	1.20	0.08	0.24***
	PU6	0.84***	0.93	0.05	0.29***	0.84***	1.06	0.06	0.30***
	PU7	0.86***	0.97	0.04	0.26***	0.85***	1.13	0.08	0.28***
Pornography Acceptance	PA1	0.81***	1.00	0.00	0.34***	0.80***	1.00	0.00	0.36***
	PA2	0.97***	1.16	0.04	0.06**	0.98***	1.22	0.04	0.04**
	PA3	0.96***	1.15	0.04	0.08***	0.96***	1.17	0.04	0.09***
General Distress	GD1	0.70***	1.00	0.00	0.52***	0.67***	1.00	0.00	0.55***
	GD2	0.85***	1.31	0.07	0.27***	0.85***	1.39	0.07	0.29***
	GD3	0.68***	1.17	0.08	0.53***	0.74***	1.18	0.06	0.45***
	GD4	0.87***	1.38	0.07	0.25***	0.86***	1.44	0.08	0.25***
	GD5	0.79***	1.39	0.08	0.38***	0.82***	1.47	0.07	0.33***
	GD6	0.79***	1.27	0.07	0.38***	0.84***	1.33	0.08	0.29***
	GD7	0.73***	1.22	0.09	0.47***	0.75***	1.24	0.08	0.43***
	GD8	0.72***	1.07	0.07	0.48***	0.71***	1.14	0.08	0.50***
	GD9	0.70***	1.06	0.07	0.51***	0.68***	1.10	0.06	0.54***
	GD10	0.76***	1.44	0.08	0.42***	0.78***	1.43	0.08	0.39***

<sup>a</sup> For sake of parsimony, only standardized coefficients were marked for significance.

<sup>b</sup> The standardized residual error for each factor loading

\*\*\*  $p < .001$ ; \*\*  $p < .01$

Table 4

*APIM Actor Effect Results for Sexual Satisfaction*

		Model 1 <sup>a</sup>			Model 2 <sup>b</sup>			Model 3 <sup>c</sup>			Model 4 <sup>d</sup>		
		$\beta$	b	SE	$\beta$	b	SE	$\beta$	b	SE	$\beta$	b	SE
Male	Porn Use Frequency	-0.24***	-0.14	0.03	-0.21***	-0.12	0.04	-0.20***	-0.12	0.03	-0.16***	-0.09	0.03
	Masturbation	--	--	--	-0.06	-0.03	0.03	0.02	0.01	0.02	-0.05	-0.02	0.02
	Sexual Desire Discrepancy	--	--	--	--	--	--	-0.34***	-0.20	0.03	-0.27***	-0.16	0.03
	Sexual Engagement	--	--	--	--	--	--	--	--	--	0.25***	0.07	0.02
	Porn Acceptance	0.02	0.01	0.04	0.03	0.02	0.04	0.03	0.02	0.04	0.03	0.02	0.03
	General Distress	-0.26***	-0.28	0.06	-0.26***	-0.28	0.06	-0.21***	-0.23	0.05	-0.16***	-0.17	0.05
	White	-0.02	-0.03	0.07	-0.01	-0.02	0.07	-0.01	-0.03	0.07	0.01	0.03	0.06
	Education	-0.08*	-0.04	0.02	-0.07*	-0.03	0.02	-0.07*	-0.03	0.02	-0.04	-0.02	0.01
	Married	-0.08	-0.13	0.07	-0.08	-0.13	0.07	-0.05	-0.09	0.07	-0.02	-0.04	0.06
	Relationship Length	-0.15***	-0.11	0.03	-0.15***	-0.11	0.03	-0.13**	-0.09	0.03	-0.01	-0.01	0.02
Income	-0.06	-0.02	0.01	-0.07	-0.02	0.01	-0.07	-0.02	0.01	-0.07*	-0.02	0.01	
Female	Porn Use Frequency	0.08	0.07	0.05	0.14*	0.13	0.06	0.12*	0.11	0.05	-0.04	-0.04	0.05
	Masturbation	--	--	--	-0.12*	-0.07	0.03	-0.10*	-0.05	0.03	-0.11**	-0.06	0.02
	Sexual Desire Discrepancy	--	--	--	--	--	--	-0.39***	-0.27	0.03	-0.32***	-0.22	0.03
	Sexual Engagement	--	--	--	--	--	--	--	--	--	0.42***	0.11	0.02
	Porn Acceptance	0.02	0.01	0.04	0.04	0.03	0.04	0.02	0.01	0.04	0.06	0.04	0.03
	General Distress	-0.29***	-0.31	0.07	-0.29***	-0.31	0.07	-0.20***	-0.21	0.06	-0.17***	-0.18	0.05
	White	0.01	0.02	0.08	0.01	0.01	0.08	0.01	0.02	0.07	0.03	0.06	0.06
	Education	-0.03	-0.01	0.02	-0.03	-0.01	0.02	-0.04	-0.02	0.02	0.00	0.00	0.02
	Married	-0.04	-0.08	0.08	-0.04	-0.08	0.08	-0.04	-0.08	0.08	-0.01	-0.01	0.06
	Relationship Length	-0.18***	-0.13	0.03	-0.18***	-0.14	0.03	-0.15***	-0.11	0.03	-0.01	-0.01	0.02
Income	0.01	0.00	0.01	0.00	0.00	0.01	-0.02	-0.01	0.01	-0.02	-0.01	0.01	

<sup>a</sup> Model fit indices were  $\chi^2(1804) = 3828.69$ ,  $p < .001$ ; RMSEA = 0.040, 90% CI 0.038/0.041; SRMR = 0.053; CFI = 0.92

<sup>b</sup> Model fit indices were  $\chi^2(1800) = 3811.93$ ,  $p < .001$ ; RMSEA = 0.040, 90% CI 0.038/0.041; SRMR = 0.052; CFI = 0.92

<sup>c</sup> Model fit indices were  $\chi^2(1796) = 3633.69$ ,  $p < .001$ ; RMSEA = 0.038, 90% CI 0.036/0.040; SRMR = 0.046; CFI = 0.93

<sup>d</sup> Model fit indices were  $\chi^2(1792) = 3365.71$ ,  $p < .001$ ; RMSEA = 0.035, 90% CI 0.033/0.037; SRMR = 0.039; CFI = 0.94

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$

Table 5

*APIM Partner<sup>a</sup> Effect Results for Sexual Satisfaction*

		Model 1 <sup>b</sup>			Model 2 <sup>c</sup>			Model 3 <sup>d</sup>			Model 4 <sup>e</sup>		
		$\beta$	b	SE									
Male	Porn Use Frequency	0.22***	0.19	0.05	0.19**	0.17	0.06	0.14*	0.12	0.05	0.01	0.01	0.05
	Masturbation	--	--	--	0.06	0.03	0.03	0.01	0.01	0.03	0.00	0.00	0.02
	Sexual Desire Discrepancy	--	--	--	--	--	--	-0.09*	-0.06	0.03	-0.01	-0.01	0.03
	Sexual Engagement	--	--	--	--	--	--	--	--	--	0.27***	0.07	0.02
	Porn Acceptance	0.03	0.03	0.04	0.03	0.02	0.04	0.04	0.03	0.04	0.08	0.06	0.03
	General Distress	-0.17**	-0.18	0.06	-0.18**	-0.18	0.06	-0.10	-0.10	0.05	-0.08	-0.08	0.05
Female	Porn Use Frequency	-0.05	-0.03	0.03	-0.09	-0.06	0.04	-0.09	-0.05	0.03	-0.04	-0.02	0.03
	Masturbation	--	--	--	0.09	0.04	0.03	0.08	0.04	0.03	0.01	0.01	0.02
	Sexual Desire Discrepancy	--	--	--	--	--	--	-0.10*	-0.06	0.03	0.01	0.01	0.02
	Sexual Engagement	--	--	--	--	--	--	--	--	--	0.21***	0.06	0.02
	Porn Acceptance	-0.04	-0.03	0.05	-0.05	-0.04	0.05	-0.02	-0.01	0.04	-0.01	-0.01	0.04
	General Distress	-0.09	-0.10	0.06	-0.10	-0.11	0.06	-0.08	-0.09	0.06	-0.01	-0.02	0.05

<sup>a</sup> Partner effects are presented so that the coefficients represent the partner variable's effect on the actor's sexual satisfaction (e.g.,  $\beta = 0.22$  represents female porn use frequency's standardized effect on male sexual satisfaction).

<sup>b</sup> Model fit indices were  $\chi^2(1804) = 3828.69$ ,  $p < .001$ ; RMSEA = 0.040, 90% CI 0.038/0.041; SRMR = 0.053; CFI = 0.92

<sup>c</sup> Model fit indices were  $\chi^2(1800) = 3811.93$ ,  $p < .001$ ; RMSEA = 0.040, 90% CI 0.038/0.041; SRMR = 0.052; CFI = 0.92

<sup>d</sup> Model fit indices were  $\chi^2(1796) = 3633.69$ ,  $p < .001$ ; RMSEA = 0.038, 90% CI 0.036/0.040; SRMR = 0.046; CFI = 0.93

<sup>e</sup> Model fit indices were  $\chi^2(1792) = 3365.71$ ,  $p < .001$ ; RMSEA = 0.035, 90% CI 0.033/0.037; SRMR = 0.039; CFI = 0.94

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$

### *Hypothesis One*

Hypothesis H1 was tested using Model 1 (see Figure 2), where the effects of masturbation frequency, sexual desire discrepancy, and sexual engagement for each individual were constrained to be zero. Absolute fit indices revealed that the model had adequate fit ( $\chi^2(1804) = 3828.69, p < .001$ ; RMSEA = 0.040, 90% CI 0.038/0.041; SRMR = 0.053; CFI = 0.92). It should be noted that while the comparative fit index did not fall above .95 as recommended by Hu and Bentler (1999), there has been some controversy concerning the use of absolute fit indices (Barrett, 2007; Hayduk et al., 2007), and all of the indices must be considered in tandem to determine adequate model fit. As each of the other fit indices indicate adequate fit (with the significant  $\chi^2$  likely due to a large sample size), model-specific results will be reported.

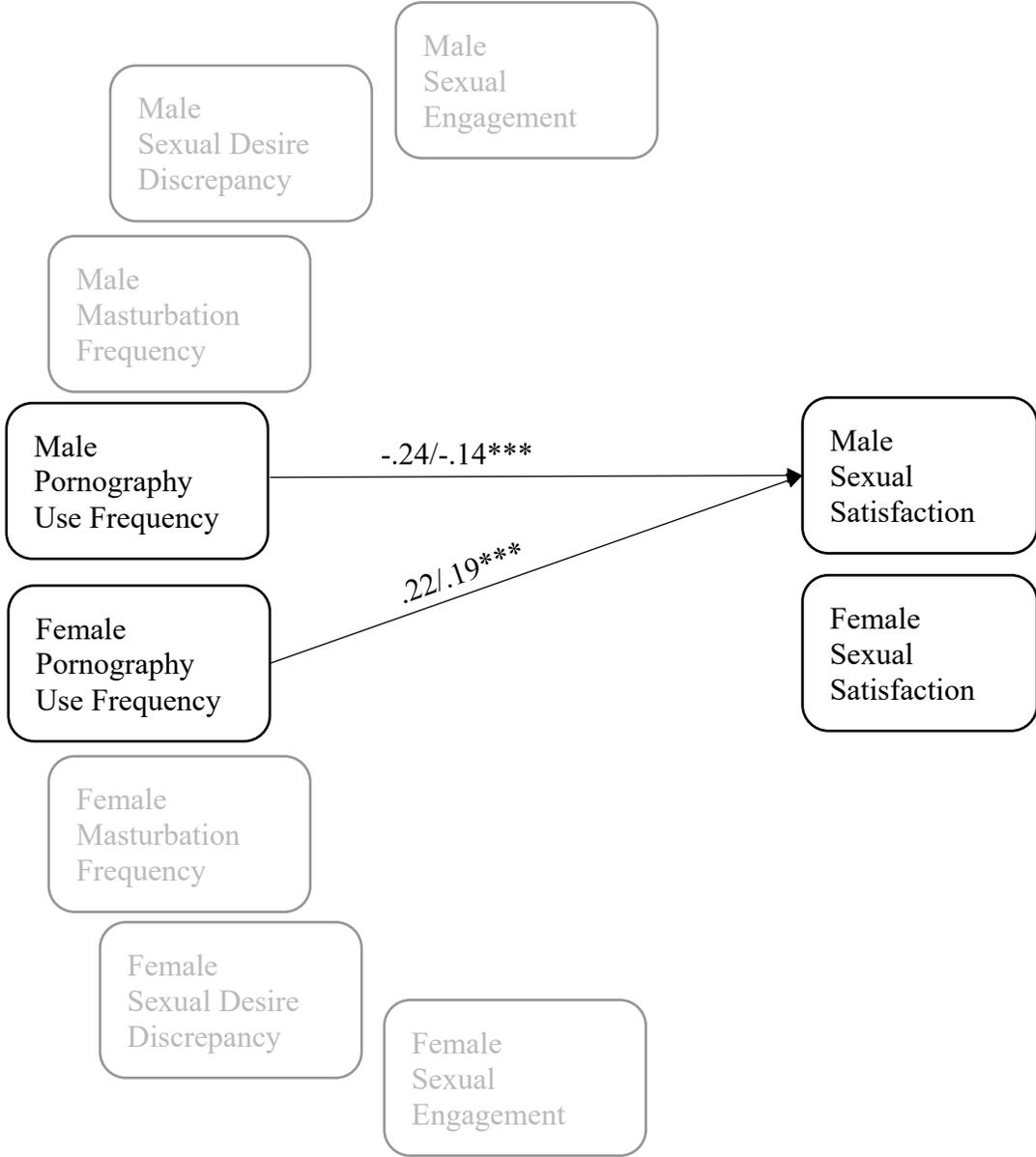
Results revealed that Hypothesis H1 was supported, as men had a significantly negative association between their pornography use frequency and their own sexual satisfaction ( $\beta = -0.24, b = -0.14, p < .001$ ). A one-standard deviation increase in male pornography use frequency was associated with a 0.24-standard deviation decrease in male sexual satisfaction, controlling for the other variables in the model.

Other results for Model 1 revealed both actor and partner effects existed among certain variables. For actor effects (see Model 1 in Table 4), male pornography use frequency ( $\beta = -0.24, b = -0.14, p < .001$ ), male general distress ( $\beta = -0.26, b = -0.28, p < .001$ ), male education level ( $\beta = -0.08, b = -0.04, p = .04$ ), and couple relationship length ( $\beta = -0.15, b = -0.11, p < .001$ ) all had a significantly negative association with male sexual satisfaction. Only female general distress ( $\beta = -0.29, b = -0.31, p < .001$ ) and couple relationship length ( $\beta = -0.18, b = -0.13, p < .001$ ) had significant associations with female sexual satisfaction, and these were negative. For partner effects (see Model 1 in Table 5), female pornography use frequency had a significantly positive association with male sexual satisfaction ( $\beta = 0.22, b = 0.19, p < .001$ ), and female

general distress had a significantly negative association with male sexual satisfaction ( $\beta = -0.17$ ,  $b = -0.18$ ,  $p < .001$ ).

Figure 2

Model 1 Results for Pornography Use and Sexual Satisfaction



Note. Results are shown with standardized estimates followed by unstandardized estimates ( $\beta$  / B). Non-significant, indirect, and control variable paths were removed for figure clarity. Model fit indices were  $\chi^2(1804) = 3828.69, p < .001$ ; RMSEA = 0.040, 90% CI 0.038/0.041; SRMR = 0.053; CFI = 0.92

\*\*\* $p < .001$

### *Hypothesis Two*

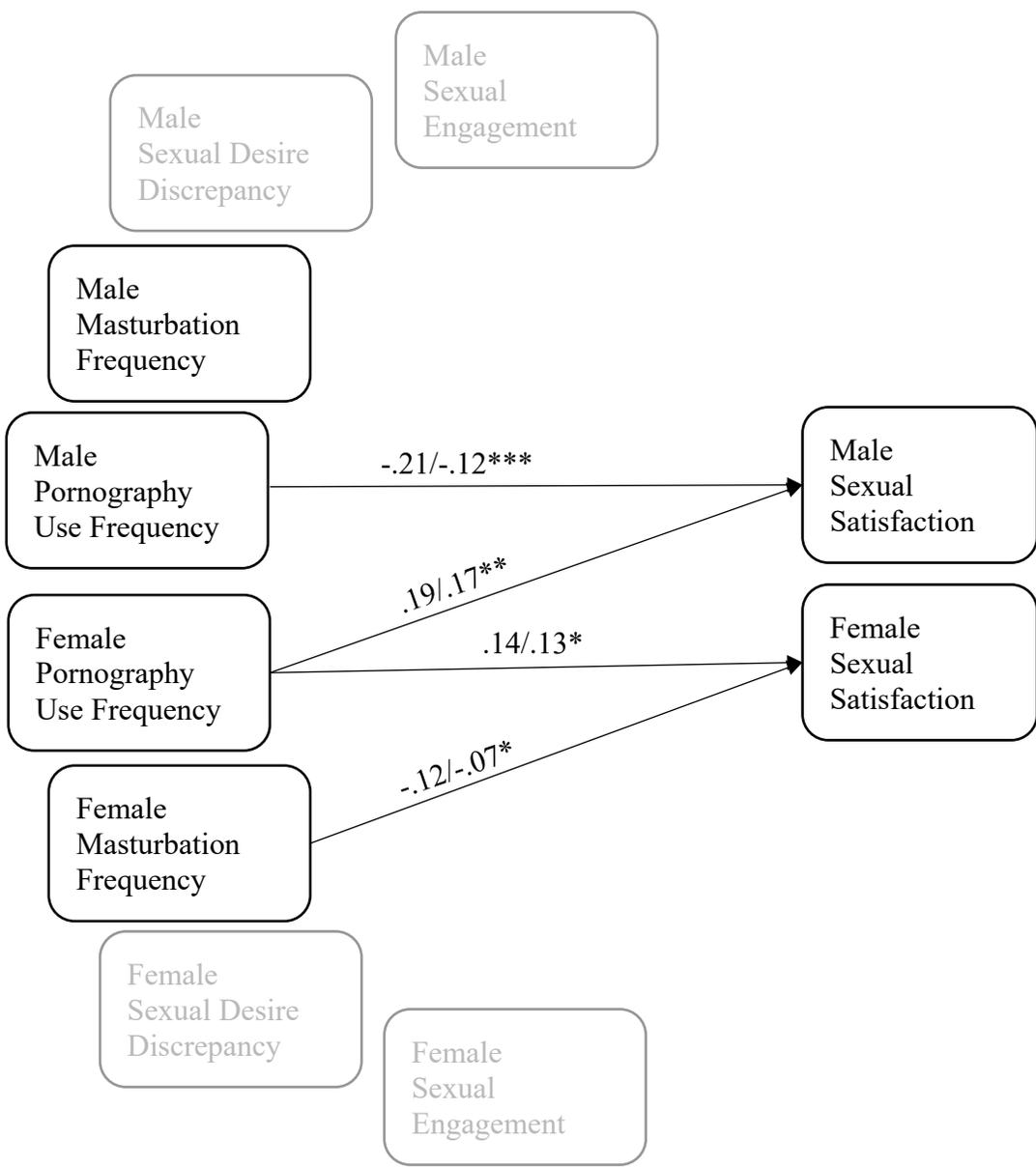
Hypotheses H2 and H2a were tested using Model 2 (see Figure 3), where the parameter constraints on masturbation frequency were removed but the effects of sexual desire discrepancy and sexual engagement for each individual were still constrained to be zero. Absolute fit indices revealed that the model had adequate fit ( $\chi^2(1800) = 3811.93, p < .001$ ; RMSEA = 0.040, 90% CI 0.038/0.041; SRMR = 0.052; CFI = 0.92). See Hypothesis H1 for more information surrounding the level of the CFI index.

Results revealed that Hypothesis H2 was only partially supported, as adding masturbation to the model did significantly improve model fit (TRd = 17.11,  $p = .002$ ), but it did not eliminate the significant relationship between male pornography use frequency and male sexual satisfaction (Model 1:  $\beta = -0.24, b = -0.14, p < .001$ ; Model 2:  $\beta = -0.21, b = -0.12, p < .001$ ). Additionally, Hypothesis H2a was not supported, as male masturbation did not have a significantly negative relationship with male sexual satisfaction ( $\beta = -0.06, b = -0.03, p = 0.26$ ). See Model 2 in Table 4 and Table 5 for details.

Other results for Model 2 revealed that all of the significant actor and partner associations from Model 1 still existed, with two additions: actor effects for both female pornography use frequency ( $\beta = 0.14, b = 0.13, p = .03$ ) and masturbation frequency ( $\beta = -0.12, b = -0.07, p = .03$ ). See Model 2 in Table 4 and Table 5 for details.

Figure 3

Model 2 Results for Pornography Use, Sexual Satisfaction, and Masturbation



Note. Results are shown with standardized estimates followed by unstandardized estimates ( $\beta / B$ ). Non-significant, indirect, and control variable paths were removed for figure clarity. Model fit indices were  $\chi^2(1800) = 3811.93, p < .001$ ; RMSEA = 0.040, 90% CI 0.038/0.041; SRMR = 0.052; CFI = 0.92

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

### *Hypothesis Three*

Hypotheses H3 and H3a were tested using Model 3 (see Figure 4), where the parameter constraints on masturbation frequency and sexual desire discrepancy were removed but the effects of sexual engagement for each individual were still constrained to be zero. Absolute fit indices revealed that the model had adequate fit ( $\chi^2(1796) = 3633.69, p < .001$ ; RMSEA = 0.038, 90% CI 0.036/0.040; SRMR = 0.046; CFI = 0.93). See Hypothesis H1 for more information surrounding the level of the CFI index.

Results from both Model 3 and Model 2 revealed that Hypothesis H3 was only partially supported. Adding sexual desire discrepancy to the model significantly improved model fit (TRD = 165.46,  $p < .001$ ), but, as Model 2 demonstrated, male masturbation frequency did not have a significant effect that could then be attenuated by male sexual desire discrepancy (Model 2:  $\beta = -0.06, b = -0.03, p = 0.26$ ; Model 3:  $\beta = 0.02, b = 0.01, p = 0.76$ ). On the other hand, Hypothesis H3a was supported, in that both males and females had significantly negative associations with sexual desire discrepancy on both the actor and partner levels (male SDD actor:  $\beta = -0.34, b = -0.20, p < .001$ ; male SDD partner:  $\beta = -0.10, b = -0.06, p = .01$ ; female SDD actor:  $\beta = -0.39, b = -0.27, p < .001$ ; female SDD partner:  $\beta = -0.09, b = -0.06, p = .04$ ). In other words, a one-standard deviation increase in male sexual desire discrepancy was associated with a 0.34-standard deviation decrease in male sexual satisfaction as well as a 0.10-standard deviation decrease in female satisfaction. A one-standard deviation increase in female sexual desire discrepancy was associated with a 0.39-standard deviation decrease in female sexual satisfaction as well as a 0.09-standard deviation decrease in male sexual satisfaction. See Model 3 in Table 4 and Table 5 for details.

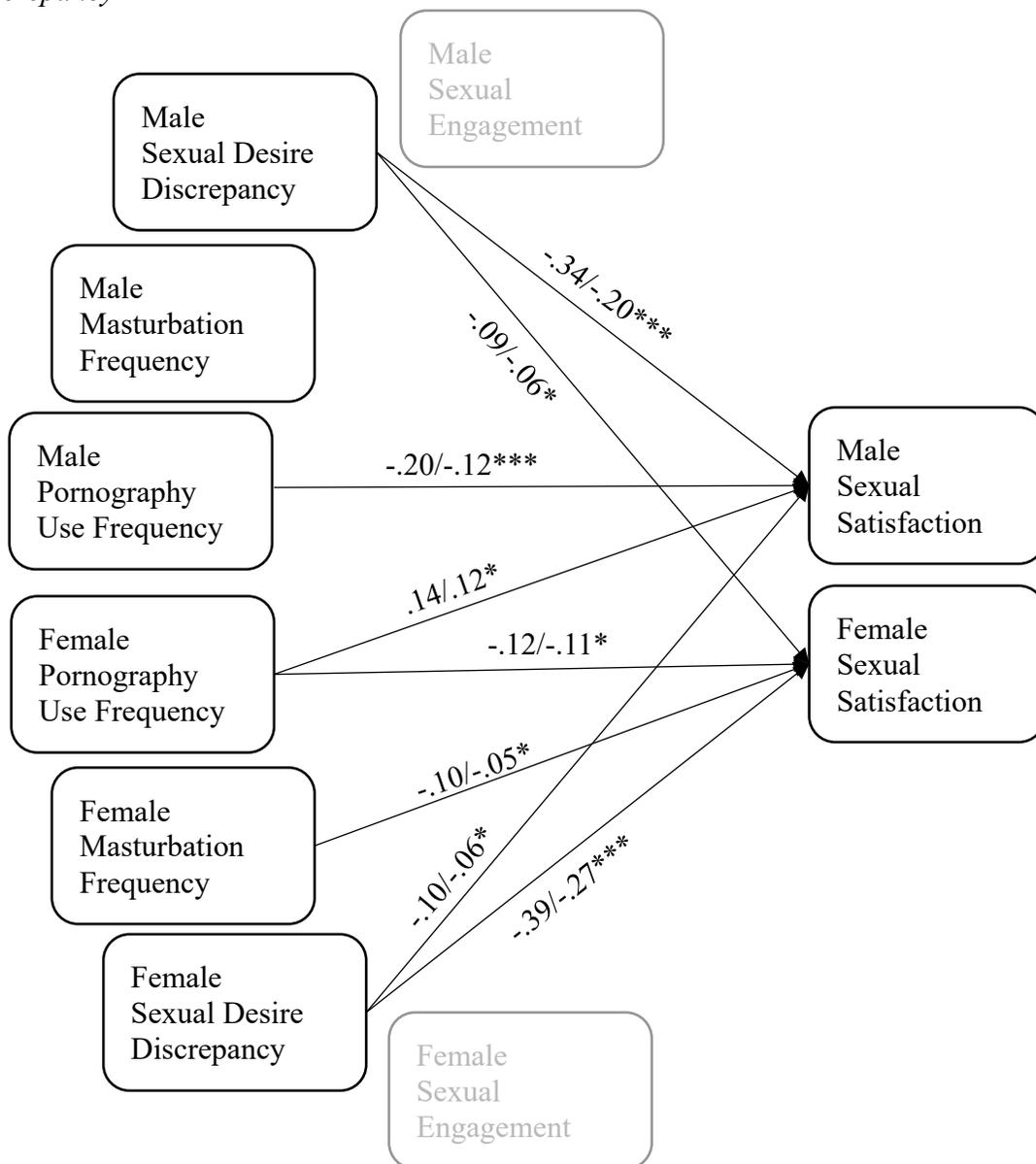
Other results for Model 3 revealed that all of the significant actor and partner associations from Model 2 still existed, although the significance level decreased for the effects of couple

relationship length on male sexual satisfaction ( $\beta = -0.13$ ,  $b = -0.09$ ,  $p = .002$ ) as well as the partner effects of female pornography use frequency ( $\beta = 0.14$ ,  $b = 0.12$ ,  $p = .02$ ) and general distress ( $\beta = -0.10$ ,  $b = -0.10$ ,  $p = .05$ ). See Model 3 in Table 4 and Table 5 for details.

Figure 4

Model 3 for Pornography Use, Sexual Satisfaction, Masturbation, and Sexual Desire

Discrepancy



Note. Results are shown with standardized estimates followed by unstandardized estimates ( $\beta$  / B). Non-significant, indirect, and control variable paths were removed for figure clarity. Model fit indices were  $\chi^2(1796) = 3633.69$ ,  $p < .001$ ; RMSEA = 0.038, 90% CI 0.036/0.040; SRMR = 0.046; CFI = 0.93

\* $p < .05$ ; \*\*\* $p < .001$

### ***Hypothesis Four***

Hypothesis H4 was tested using Model 4 (see Figure 5), where all the parameter constraints on masturbation frequency, sexual desire discrepancy, and sexual engagement for each individual were removed. Absolute fit indices revealed that the model had adequate fit ( $\chi^2(1792) = 3365.71, p < .001$ ; RMSEA = 0.035, 90% CI 0.033/0.037; SRMR = 0.039; CFI = 0.94). See Hypothesis H1 for more information surrounding the level of the CFI index.

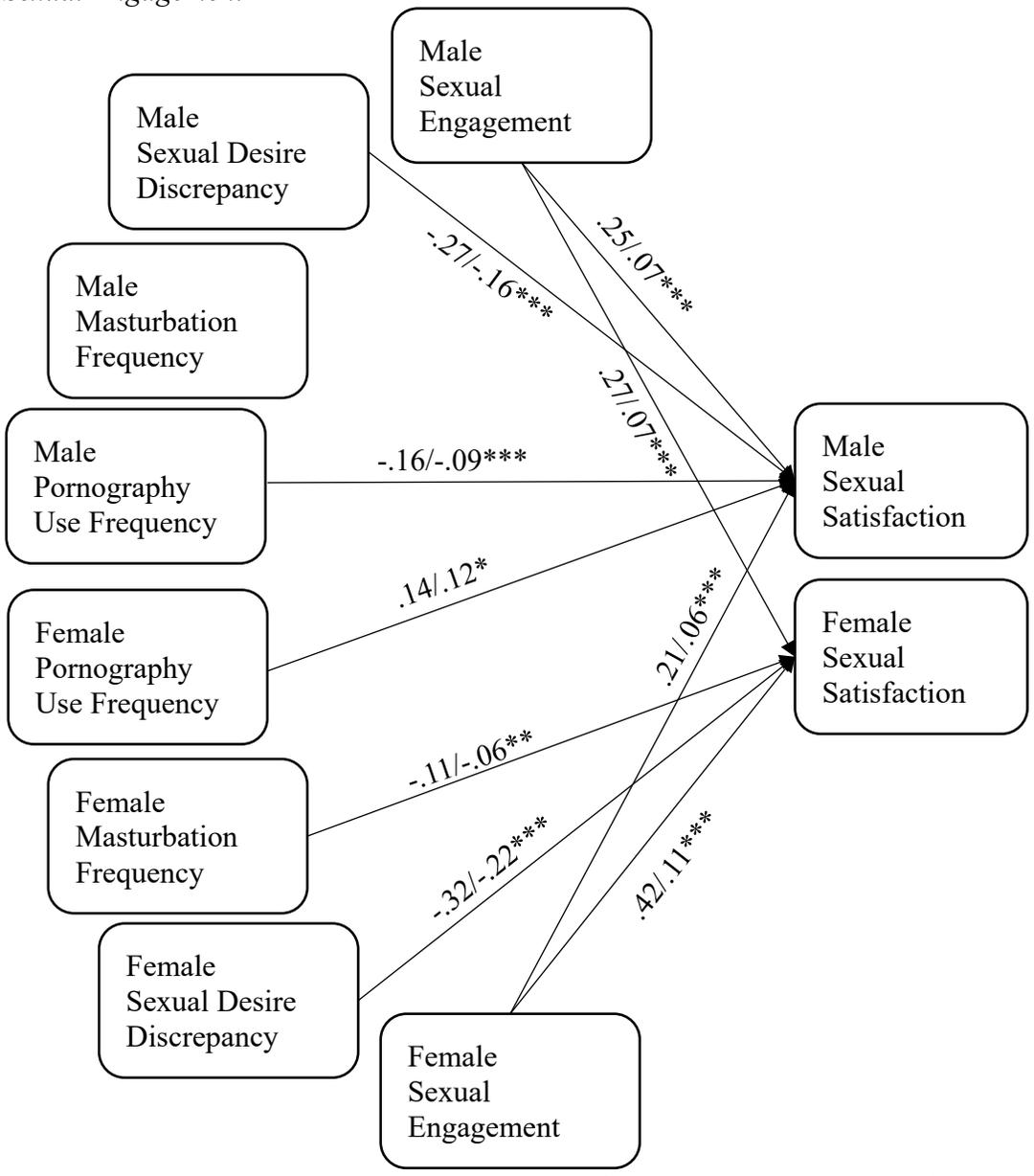
Results from Model 4 revealed that Hypothesis H4 was supported, as the addition of the sexual engagement variables significantly improved model fit (TRd = 231.66,  $p < .001$ ) and resulted in significant changes in the effects of sexual desire discrepancy. SDD's actor effects became less strong (Model 3 male:  $\beta = -0.34, b = -0.20, p < .001$ ; Model 4 male:  $\beta = -0.27, b = -0.16, p < .001$ ; Model 3 female:  $\beta = -0.39, b = -0.27, p < .001$ ; Model 4 female:  $\beta = -0.32, b = -0.22, p < .001$ ), and its partner effects were eliminated (Model 3 male:  $\beta = -0.10, b = -0.06, p = .01$ ; Model 4 male:  $\beta = 0.01, b = 0.01, p = .80$ ; Model 3 female:  $\beta = -0.09, b = -0.06, p = .04$ ; Model 4 female:  $\beta = -0.01, b = -0.01, p = .80$ ).

Sexual engagement (SE) itself had significant actor and partner effects, with the association being positive with sexual satisfaction in all cases (male SE actor:  $\beta = 0.25, b = 0.07, p < .001$ ; male SE partner:  $\beta = 0.21, b = 0.06, p < .001$ ; female SE actor:  $\beta = 0.42, b = 0.11, p < .001$ ; female SE partner:  $\beta = 0.27, b = 0.07, p < .001$ ). In other words, a one-standard deviation increase in male sexual engagement was associated with a 0.25-standard deviation increase in his own sexual satisfaction as well as 0.21-standard deviation increase in his partner's sexual satisfaction. A one-standard deviation increase in female sexual engagement was associated with a 0.42-standard deviation increase in her own sexual satisfaction as well as a 0.27-standard deviation increase in her partner's sexual satisfaction. See Model 4 in Table 4 and Table 5 for details.

Other results for Model 4 revealed that several other results changed from Model 3. Male education level ( $\beta = -0.04$ ,  $b = -0.02$ ,  $p = .24$ ), couple relationship length (male:  $\beta = -0.01$ ,  $b = -0.01$ ,  $p = .72$ ; female:  $\beta = -0.01$ ,  $b = -0.01$ ,  $p = .70$ ), and female pornography use frequency on both an actor and partner level (actor:  $\beta = -0.04$ ,  $b = -0.04$ ,  $p = .42$ ; partner:  $\beta = 0.01$ ,  $b = 0.01$ ,  $p = .91$ ) became non-significant. On the other hand, couple income became significant for males ( $\beta = -0.07$ ,  $b = -0.02$ ,  $p = .03$ ). See Model 4 in Table 4 and Table 5 for details.

Figure 5

Model 4 for Pornography Use, Sexual Satisfaction, Masturbation, Sexual Desire Discrepancy, and Sexual Engagement



Note. Results are shown with standardized estimates followed by unstandardized estimates ( $\beta$  / B). Non-significant, indirect, and control variable paths were removed for figure clarity. Model fit indices were  $\chi^2(1792) = 3365.71, p < .001$ ; RMSEA = 0.035, 90% CI 0.033/0.037; SRMR = 0.039; CFI = 0.94

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

### *Hypothesis Five*

Hypothesis H5 was tested using Model 4 (see Figure 5) as a base model and comparing that to separate, nested models constraining masturbation frequency (Model 4.1), sexual desire discrepancy (Model 4.2), and sexual engagement (Model 4.3) individually. Each nested model had adequate absolute fit (Model 4.1:  $\chi^2(1796) = 3376.40$ ,  $p < .001$ ; RMSEA = 0.035, 90% CI 0.033/0.037; SRMR = 0.039; CFI = 0.94; Model 4.2:  $\chi^2(1796) = 3501.89$ ,  $p < .001$ ; RMSEA = 0.036, 90% CI 0.035/0.038; SRMR = 0.041; CFI = 0.93; Model 4.3:  $\chi^2(1796) = 3633.69$ ,  $p < .001$ ; RMSEA = 0.038, 90% CI 0.036/0.040; SRMR = 0.046; CFI = 0.93). See Hypothesis H1 for more information surrounding the level of the CFI index.

The Satorra-Bentler scaled chi-square difference test (TRd) was used to compare each of these models to the base model. Results revealed that Hypothesis H5 was supported, as each of the constrained models fit significantly worse than the base model (Model 4), which included all of the variables (Model 4.1: TRd = 10.97,  $p = .03$ ; Model 4.2: TRd = 126.54,  $p < .001$ ; Model 4.3: TRd = 231.66,  $p < .001$ ).

### *Hypotheses Six and Seven*

The sixth and seventh hypotheses posit that the relationship between pornography use frequency and sexual satisfaction changes by levels of masturbation (H6) or sexual desire discrepancy (H7). These were tested by utilizing Garcia and colleagues' (2015) guide for moderated actor-partner interdependence models as described in the analysis plan section of the current paper.

**Hypothesis Six.** In testing the moderating effects of masturbation on the relationship between pornography use frequency and sexual satisfaction (Hypothesis 6), four interaction terms were created as masturbation levels likely vary both by dyad (distinguishable dyads) and by individual (mixed moderator) as outlined in the analysis plan section of this paper. These

interaction terms were created using the XWITH command in MPlus as pornography use frequency is a latent variable and can only be combined with sexual desire discrepancy using that command. MPlus required the analysis type to be random to allow for random slopes (created in the interaction), and the algorithm was required to be set to integration in order to obtain standardized results (Muthén & Muthén, 2017). The MLR estimator was still used as in the previous models.

Absolute fit indices for this model (Model 5) were not provided by MPlus, as these are not available when performing analyses using random slopes (Muthén & Muthén, 2017). It should be noted that MPlus included only 685 of the couples in this model, as some observations had missing data on variables necessary to create the latent interactions, and the Montecarlo integration technique normally used to include these cases repeatedly failed. This model also resulted in a non-positive definite first-order derivative product matrix, which can sometimes cause parameters in the model to be untrustworthy. Technical output was reviewed to examine the negative variance parameter indicated by MPlus as problematic. The model was rerun using the starts command to compare 10 analyses with different estimation starting values in order to check whether the starting values alone were responsible for this warning. The warning was still present, so standard errors, variances, and standardized covariances (correlations) were examined to verify that none were out of range. Given the identification status of the model and the lack of out-of-range parameters, it was hypothesized that this warning was the result of a data singularity created by several dichotomous and interrelated control variables (being white, being married, income, and education level for both males and females) that was not evident in previous models due to their less complex analysis type (general rather than random; Muthén & Muthén, 2017). Control variables were removed from the analysis, resulting in this warning disappearing. As the study variable results of this analysis revealed similar results to the full model including control

variables (Model 5), it was decided to use the results of the controlled model to test this hypothesis.

As shown in Table 6, results revealed that none of the interactions were significant for either male sexual satisfaction (Porn<sub>male</sub> x Mast<sub>male</sub>:  $\beta = 0.07$ ,  $b = 0.02$ ,  $p = .12$ ; Porn<sub>male</sub> x Mast<sub>female</sub>:  $\beta = -0.01$ ,  $b = -0.00$ ,  $p = .84$ ; Porn<sub>female</sub> x Mast<sub>male</sub>:  $\beta = -0.00$ ,  $b = -0.00$ ,  $p = .93$ ; Porn<sub>female</sub> x Mast<sub>female</sub>:  $\beta = 0.01$ ,  $b = 0.01$ ,  $p = .74$ ) or female sexual satisfaction (Porn<sub>male</sub> x Mast<sub>male</sub>:  $\beta = -0.03$ ,  $b = -0.01$ ,  $p = .39$ ; Porn<sub>male</sub> x Mast<sub>female</sub>:  $\beta = 0.04$ ,  $b = 0.02$ ,  $p = .32$ ; Porn<sub>female</sub> x Mast<sub>male</sub>:  $\beta = 0.08$ ,  $b = 0.05$ ,  $p = .10$ ; Porn<sub>female</sub> x Mast<sub>female</sub>:  $\beta = 0.00$ ,  $b = 0.00$ ,  $p = .99$ ). As including multiple interaction terms based on similar variables in a single model might induce multicollinearity, each interaction term was separately added to the base model and compared to its result in this model. All coefficients and significance levels reflected the levels in the reported results.

Given these results, it was determined that Hypothesis H6 was not supported, as masturbation frequency did not moderate any of the relationships between individuals' pornography use frequencies and sexual satisfaction ratings. As a note, the steps outlined in the present paper's analysis plan from Garcia and colleagues (2015) were not followed as no significant results existed.

Table 6

*APIM Actor and Partner Effect Results for Sexual Satisfaction with Masturbation Moderator*

		Model 4						Model 5					
		Actor			Partner <sup>a</sup>			Actor			Partner <sup>a</sup>		
		$\beta$	b	SE	$\beta$	b	SE	$\beta$	b	SE	$\beta$	b	SE
Male	Porn Use Frequency	-0.16***	-0.09	0.03	0.01	0.01	0.05	-0.18***	-0.11	0.03	0.00	0.00	0.06
	Masturbation	-0.05	-0.02	0.02	0.00	0.00	0.02	-0.07	-0.03	0.02	0.00	0.00	0.02
	Sexual Desire Discrepancy	-0.27***	-0.16	0.03	-0.01	-0.01	0.03	-0.27***	-0.16	0.03	-0.04	-0.02	0.03
	Sexual Engagement	0.25***	0.07	0.02	0.27***	0.07	0.02	0.23***	0.06	0.02	0.30***	0.08	0.02
	Porn Acceptance	0.03	0.02	0.03	0.08	0.06	0.03	0.03	0.02	0.03	0.08	0.06	0.03
	General Distress	-0.16***	-0.17	0.05	-0.08	-0.08	0.05	-0.14**	-0.16	0.05	-0.09	-0.09	0.05
	White	0.01	0.03	0.06	--	--	--	0.01	0.02	0.06	--	--	--
	Education	-0.04	-0.02	0.01	--	--	--	-0.04	-0.02	0.01	--	--	--
	Married	-0.02	-0.04	0.06	--	--	--	-0.04	-0.06	0.06	--	--	--
	Relationship Length	-0.01	-0.01	0.02	--	--	--	0.00	0.00	0.02	--	--	--
	Income	-0.07*	-0.02	0.01	--	--	--	-0.08*	-0.02	0.01	--	--	--
	PUF * Masturbation <sup>Male</sup>	--	--	--	--	--	--	0.07	0.02	0.02	0.00	0.00	0.03
	PUF * Masturbation <sup>Female</sup>	--	--	--	--	--	--	-0.01	0.00	0.02	0.01	0.01	0.02
	Female	Porn Use Frequency	-0.04	-0.04	0.05	-0.04	-0.02	0.03	-0.09	-0.09	0.07	-0.02	-0.01
Masturbation		-0.11**	-0.06	0.02	0.01	0.01	0.02	-0.13**	-0.07	0.02	-0.01	0.00	0.02
Sexual Desire Discrepancy		-0.32***	-0.22	0.03	0.01	0.01	0.02	-0.31***	-0.22	0.03	0.03	0.02	0.03
Sexual Engagement		0.42***	0.11	0.02	0.21***	0.06	0.02	0.45***	0.13	0.02	0.19**	0.06	0.02
Porn Acceptance		0.06	0.04	0.03	-0.01	-0.01	0.04	0.08	0.06	0.03	-0.02	-0.01	0.04
General Distress		-0.17***	-0.18	0.05	-0.01	-0.02	0.05	-0.17***	-0.19	0.05	-0.01	-0.01	0.05
White		0.03	0.06	0.06	--	--	--	0.03	0.06	0.06	--	--	--
Education		0.00	0.00	0.02	--	--	--	0.00	0.00	0.02	--	--	--
Married		-0.01	-0.01	0.06	--	--	--	-0.02	-0.03	0.06	--	--	--
Relationship Length		-0.01	-0.01	0.02	--	--	--	-0.01	0.00	0.03	--	--	--
Income		-0.02	-0.01	0.01	--	--	--	-0.03	-0.01	0.01	--	--	--
PUF * Masturbation <sup>Male</sup>		--	--	--	--	--	--	0.08	0.05	0.03	-0.03	-0.01	0.02
PUF * Masturbation <sup>Female</sup>		--	--	--	--	--	--	0.00	0.00	0.03	0.04	0.02	0.02

*Note.* Absolute model fit indices were not available for this model.

<sup>a</sup> Partner effects are presented so that the coefficients represent the partner variable's effect on the actor's sexual satisfaction.

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$

**Hypothesis Seven.** To test Hypothesis 7 that sexual desire discrepancy moderated the relationships between pornography use frequency and sexual satisfaction, four interaction terms were created as sexual desire discrepancy levels likely vary both by dyad (distinguishable dyads) and by individual (mixed moderator) as outlined in the analysis plan section of this paper. This model (Model 6) followed the same procedure as Model 5 in creating the interaction terms with the XWITH command.

Absolute fit indices were again not provided by MPlus, as these are not available when performing analyses using random slopes (Muthén & Muthén, 2017). Unlike Model 5, this model consisted of all 713 study couples. This model also resulted in a non-positive definite first-order derivative product matrix for the same negative variance parameter as Model 5; the same procedure was followed and it was determined that a data singularity likely existed. As the study variable results of this analysis revealed similar results to the full model including control variables (Model 6), it was decided to use the results of the controlled model to test this hypothesis.

As shown in Table 7, results revealed that none of the interactions were significant for either male sexual satisfaction ( $\text{Porn}_{\text{male}} \times \text{SDD}_{\text{male}}$ :  $\beta = 0.00$ ,  $b = 0.00$ ,  $p = .90$ ;  $\text{Porn}_{\text{male}} \times \text{SDD}_{\text{female}}$ :  $\beta = 0.04$ ,  $b = 0.02$ ,  $p = .38$ ;  $\text{Porn}_{\text{female}} \times \text{SDD}_{\text{male}}$ :  $\beta = 0.04$ ,  $b = 0.03$ ,  $p = .44$ ;  $\text{Porn}_{\text{female}} \times \text{SDD}_{\text{female}}$ :  $\beta = 0.00$ ,  $b = 0.00$ ,  $p = .97$ ) or female sexual satisfaction ( $\text{Porn}_{\text{male}} \times \text{SDD}_{\text{male}}$ :  $\beta = 0.03$ ,  $b = 0.02$ ,  $p = .38$ ;  $\text{Porn}_{\text{male}} \times \text{SDD}_{\text{female}}$ :  $\beta = -0.03$ ,  $b = -0.02$ ,  $p = .45$ ;  $\text{Porn}_{\text{female}} \times \text{SDD}_{\text{male}}$ :  $\beta = 0.03$ ,  $b = 0.02$ ,  $p = .54$ ;  $\text{Porn}_{\text{female}} \times \text{SDD}_{\text{female}}$ :  $\beta = 0.08$ ,  $b = 0.07$ ,  $p = .09$ ). As including multiple interaction terms based on similar variables in a single model might induce multicollinearity, each interaction term was separately added to the base model and compared to its result in this model. All coefficients and significance levels reflected the levels in the reported results.

It was determined that Hypothesis H7 was not supported, as sexual desire discrepancy did not significantly moderate any of the relationships between individuals' pornography use frequencies and sexual satisfaction ratings. Therefore, the steps outlined in the present paper's analysis plan from Garcia and colleagues (2015) were not followed as no significant results existed.

Table 7

*APIM Actor and Partner Effect Results for Sexual Satisfaction with Sexual Desire Discrepancy Moderator*

		Model 4						Model 6					
		Actor			Partner <sup>a</sup>			Actor			Partner <sup>a</sup>		
		$\beta$	b	SE	$\beta$	b	SE	$\beta$	b	SE	$\beta$	b	SE
Male	Porn Use Frequency	-0.16***	-0.09	0.03	0.01	0.01	0.05	-0.16***	-0.10	0.03	0.02	0.02	0.06
	Masturbation	-0.05	-0.02	0.02	0.00	0.00	0.02	-0.05	-0.03	0.02	0.00	0.00	0.02
	Sexual Desire Discrepancy	-0.27***	-0.16	0.03	-0.01	-0.01	0.03	-0.27***	-0.16	0.03	-0.02	-0.01	0.03
	Sexual Engagement	0.25***	0.07	0.02	0.27***	0.07	0.02	0.26***	0.07	0.02	0.27***	0.07	0.02
	Porn Acceptance	0.03	0.02	0.03	0.08	0.06	0.03	0.03	0.02	0.03	0.08	0.06	0.03
	General Distress	-0.16***	-0.17	0.05	-0.08	-0.08	0.05	-0.16***	-0.17	0.04	-0.09*	-0.09	0.05
	White	0.01	0.03	0.06	--	--	--	0.02	0.04	0.06	--	--	--
	Education	-0.04	-0.02	0.01	--	--	--	-0.03	-0.02	0.01	--	--	--
	Married	-0.02	-0.04	0.06	--	--	--	-0.02	-0.03	0.06	--	--	--
	Relationship Length	-0.01	-0.01	0.02	--	--	--	-0.01	-0.01	0.02	--	--	--
	Income	-0.07*	-0.02	0.01	--	--	--	-0.08*	-0.02	0.01	--	--	--
	PUF * SDD <sup>Male</sup>	--	--	--	--	--	--	0.00	0.00	0.02	0.04	0.03	0.04
	PUF * SDD <sup>Female</sup>	--	--	--	--	--	--	0.04	0.02	0.02	0.00	0.00	0.04
	Female	Porn Use Frequency	-0.04	-0.04	0.05	-0.04	-0.02	0.03	-0.02	-0.02	0.05	-0.04	-0.03
Masturbation		-0.11**	-0.06	0.02	0.01	0.01	0.02	-0.12**	-0.06	0.02	0.01	0.01	0.02
Sexual Desire Discrepancy		-0.32***	-0.22	0.03	0.01	0.01	0.02	-0.32***	-0.22	0.03	0.00	0.00	0.03
Sexual Engagement		0.42***	0.11	0.02	0.21***	0.06	0.02	0.41***	0.12	0.02	0.21***	0.06	0.02
Porn Acceptance		0.06	0.04	0.03	-0.01	-0.01	0.04	0.05	0.04	0.03	-0.01	-0.01	0.04
General Distress		-0.17***	-0.18	0.05	-0.01	-0.02	0.05	-0.17***	-0.18	0.05	-0.01	-0.02	0.05
White		0.03	0.06	0.06	--	--	--	0.04	0.08	0.06	--	--	--
Education		0.00	0.00	0.02	--	--	--	0.00	0.00	0.02	--	--	--
Married		-0.01	-0.01	0.06	--	--	--	-0.01	-0.01	0.06	--	--	--
Relationship Length		-0.01	-0.01	0.02	--	--	--	-0.02	-0.01	0.02	--	--	--
Income		-0.02	-0.01	0.01	--	--	--	-0.02	-0.01	0.01	--	--	--
PUF * SDD <sup>Male</sup>		--	--	--	--	--	--	0.03	0.02	0.04	0.03	0.02	0.02
PUF * SDD <sup>Female</sup>		--	--	--	--	--	--	0.08	0.07	0.04	-0.03	-0.02	0.02

*Note.* Absolute model fit indices were not available for this model.

<sup>a</sup> Partner effects are presented so that the coefficients represent the partner variable's effect on the actor's sexual satisfaction.

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$

## Discussion

Given the recent criticism that has come upon pornography research for not including critical control variables and other methodological issues (Marshall & Miller, 2019; Willoughby et al., 2020), the purpose of this paper was to isolate the influence individual pornography use has on sexual satisfaction by parsing out the effects of sexual desire discrepancy, sexual engagement, and masturbation in heterosexual dyads. This was done by examining the changing effects of pornography use on sexual satisfaction as each potentially confounding variable was added, examining the influence those additions had on model fit, and examining how pornography use's effect varied by levels of masturbation and sexual desire discrepancy.

The most significant finding of this study was that an individual's mainstream pornography use frequency still had significant effects on sexual satisfaction when parsing out the effects of masturbation, sexual desire discrepancy, and sexual engagement. Further, in support of H5, the best-fitting model predicting sexual satisfaction in dyads included all of those variables; in other words, it is both statistically and conceptually important to include these measures when examining pornography use's effects in order to gain an accurate understanding of its influence.

As shown in the progression from Model 1 to Model 4, the actor and partner relationships between pornography use frequency and sexual satisfaction for males and females changed dramatically depending on the variable being added to the model. The changes in these effects may provide tentative insights into why there are many diverse and sometimes contradictory findings in pornography research. The present study's results suggest that some of these contradictory findings may be explained by omitted variable bias, where measures of masturbation and sexual desire discrepancy (including baseline scores for sexual desire and

sexual frequency, operationalized here as sexual engagement) were not included in studies when they should have been.

To highlight these changes, each of the first four models will be discussed relative to one another. First, the baseline model (Model 1) excluding masturbation frequency, sexual desire discrepancy, and sexual engagement demonstrated that a higher male pornography use frequency was negatively associated with a higher male sexual satisfaction, but a higher female pornography use frequency was associated with a higher male sexual satisfaction. Female pornography use was not associated with their own sexual satisfaction. These findings reflect those found in previous studies, specifically Bridges and Morokoff (2011), who found a strikingly similar pattern of actor and partner effects. Like the baseline model in the present study, Bridges and Morokoff's (2011) models also omitted any measure of masturbation or sexual desire discrepancy. As was shown in the next models, adding these variables changed these effects.

When masturbation frequency was added to create Model 2, the male actor and female partner effects of pornography use frequency on male sexual satisfaction decreased only slightly, although the model fit significantly improved. This finding stands in opposition to what Perry (2020) found concerning the addition of masturbation as a control. In that study, he found that adding masturbation frequency to ordinary least squares regressions predicting relational happiness caused the effects of pornography use frequency to either disappear (if it was previously significant and negative) or to reverse and positively predict relational happiness, depending on the dataset being utilized and the sex of the participant. The differences between the present study's results and Perry's (2020) results are likely influenced by several factors. First, the measurement of pornography use frequency was assessed by a single item in each of the two datasets Perry (2020) utilized, with one asking how recently the participant had viewed

pornography as a measure of frequency. Given the methodological issues surrounding the measurement of pornography use (Fisher & Kohut, 2020; Marshall & Miller, 2019; Willoughby & Busby, 2016), it stands to reason that the items used in Perry's (2020) study do not form an equivalent construct of pornography use frequency to the one used in the present study. In fact, one of the strengths of the present study is that it utilizes a validated, reliable measure of mainstream pornography use frequency that was developed in response to inadequate measurement of the construct (Busby et al., 2020). Second, the measure of masturbation frequency used by Perry (2020) was assessed using an item asking how recently the participant had masturbated rather than how regularly they masturbate, the latter being what was assessed in the present study. Third, Perry (2020) did not include a measure of sexual desire discrepancy, which may have significantly altered the nature of the study relationships had it been added. Last, Perry (2020) used a different outcome variable (relational happiness) than the present study, so some differences may be attributable to that. Therefore, it is likely that the difference in results is related to differences in measurement as well as omitted variable bias on the part of Perry (2020).

Interestingly, female pornography use frequency became a significant and positive predictor of female sexual satisfaction in Model 2. This positive effect for females has been found in previous scholarship both including a dedicated measure of masturbation (Perry, 2020) and excluding one (Poulsen et al., 2013). One explanation that has been offered for this result is that women generally lack sexual knowledge surrounding their bodies, including how to orgasm; pornography acts as both an educational tool and a stimulant of sexual desire that allows them to better communicate their wants and needs and therefore achieve more sexual satisfaction (Willoughby & Leonhardt, 2018a). Other possible interpretations are proffered in the discussion of Model 4. While these tentative results are intriguing, the study findings revealed that these

effects are not to be trusted without the inclusion of sexual desire discrepancy and sexual engagement.

A surprising finding in Model 2 was the negative association between female masturbation frequency and female sexual satisfaction. Regnerus and colleagues (2017) cited the complementary model of masturbation as being more common in women, meaning that as they are sexually content and experience more sex, they tend to masturbate more often. The findings in Model 2 may suggest the reverse: women might follow a more compensatory model of masturbation, utilizing it when their needs are not being met by their partner (Vowels & Mark, 2020). It could also be that the direction of the relationship in Model 2 is actually reversed: women might consider masturbation an alternative to partnered sexual activities (e.g., sexual intercourse) when partnered sexual satisfaction is low. Masturbation, then, would be the result of low sexual satisfaction and not necessarily the result of a desire discrepancy or other causes. Unfortunately, the cross-sectional nature of the data make this difficult to discern.

Model 3 included sexual desire discrepancy in addition to the other variables. Again, the male actor and female partner effects of pornography use frequency on male sexual satisfaction decreased only slightly, although model fit significantly improved. The strength of the actor effect of female pornography use frequency also decreased only slightly. The purpose of Model 3 was to demonstrate the effects that including sexual desire discrepancy had without including the necessary control for baseline scores of sexual desire and sexual frequency (i.e., sexual engagement). The results of Model 3 suggest that, in the present sample, the effects of sexual desire discrepancy (without the needed baseline controls) on pornography use frequency's effects appear relatively negligible when added to those of masturbation frequency.

When the construct representing the baseline controls for sexual desire discrepancy, sexual engagement, was added (Model 4), the effects of pornography use frequency changed

dramatically. This was most apparent for the female actor and partner effects of pornography use frequency: what were once significant and positive associations with both their own and their partner's sexual satisfaction were brought to non-significance. Male pornography use frequency's actor effect was still significant but experienced a reduction in strength. All these changes were accompanied by significant actor and partner effects from both male and female sexual engagement. One possible explanation for the attenuation of female pornography use's effects could be that female pornography use was simply a behavioral manifestation of a higher level of general sexual engagement; females who viewed pornography more frequently may have done so as the result of a higher drive to be sexually engaged in the relationship. Therefore, it would not be pornography use that contributes to their own and their partner's sexual satisfaction (as suggested by Bridges and Morokoff (2011)), but rather their level of engagement as manifested by pornography use. This interpretation aligns well with the other explanations scholars have offered to explain the positive actor and partner effects of female pornography use. Specifically, women may use pornography in unique ways that are motivated by a desire to augment couple sexual experiences, to learn about their own sexual functioning, or to increase their sexual desire (Grubbs et al., 2019; Willoughby & Leonhardt, 2018a).

This should not be confused with previous interpretations of the positive effects of female pornography use. Willoughby and Leonhardt (2018a) hypothesized that some measures of pornography use did not robustly measure individual use, so studies showing positive effects from female pornography use may actually be measuring couple, or joint pornography use because of the often couple-centered motivations and contexts for female use (see Grubbs et al., 2019). The associations found in the present study, however, were determined based on a robust measure of individual pornography use. This adds further insight into the effects that solo use may have on sexual satisfaction.

Both Hypotheses 6 and 7 were not supported by the results of this study. In other words, the actor and partner relationships between male and female pornography use frequency scores and male and female sexual satisfaction scores did not change significantly on different levels of masturbation frequency (Hypothesis 6) or sexual desire discrepancy (Hypothesis 7). If pornography use were to be motivated by a desire to masturbate, it would be expected that the relationship between pornography use frequency and sexual satisfaction becomes less significant at lower levels of masturbation and more significant at higher levels. As sexual desire discrepancy was postulated to motivate masturbation, the same effect was expected of this potentially moderating variable. This was not the case. One interpretation of these non-significant results could be that pornography use is not motivated solely by masturbation or sexual desire discrepancy; this would need to be tested using longitudinal data. Another interpretation of both these results and the results from the previous hypotheses (H1-H5) could be that pornography use has deleterious effects on sexual satisfaction outside of a sexual desire discrepancy and masturbatory context. This perspective is supported by the sexual scripts perspective, which posits that pornography use can affect one's arousal templates, manner of engaging in sexual behavior, meanings behind sexuality, and so on (Gagnon & Simon, 1973; Wiederman, 2015). Preliminary research findings suggest that this can happen for some (Perry, 2019; Štulhofer et al., 2010; Wosick, 2015). Future research should be conducted to continue elucidating this relationship.

The progression from Model 1 to Model 4 produced intriguing results among other variables that were not the primary focus of this study but still relevant to the topic at hand. For example, the relationships between actor and partner sexual desire discrepancy and sexual satisfaction changed when sexual engagement was added to create Model 4. In previous literature on sexual desire discrepancy, results have varied widely as to the direction and strength

of both actor and partner effects (e.g., Mark, 2012; Mark & Murray, 2012; Willoughby, Farero, & Busby, 2014; Willoughby & Vitas, 2012). One of the factors that likely contributes to this phenomenon is a misunderstanding of discrepancy scores within a statistical framework that leads to a misrepresentation of the construct that scholars attempt to create using a discrepancy score. Zuckerman and colleagues (2002) explain that creating a difference score utilizing two constructs (a and b) that are combined using subtraction to represent a third construct (c) do not represent the difference score (c) as a predictor of a dependent variable (criterion). Rather, “if a and b are not controlled for, the difference correlation with the criterion reflects the main effect correlations of a and b with the criterion” (Zuckerman et al., 2002, p. 292). Therefore, it is critical to control for the main effect correlations of a and b when using a difference score in statistical models. When social scientists utilize a sexual desire discrepancy score without controlling for the variables used to make that score, their results are likely misrepresentative. The differences in sexual desire discrepancy’s effects between Model 3 and Model 4 highlight the dramatic way in which controlling for the main effects of the underlying variables can change results.

In addition to this, the effects of relationship length went from significantly negative for both males and females to non-significance when sexual engagement was added to the model. One study demonstrated that an interaction between sexual desire discrepancy and relationship length exists such that the longer a relationship has lasted, the more of a negative influence sexual desire discrepancy had on it (Willoughby & Vitas, 2012). This study did not control for the baseline effects of the variables used to create the discrepancy score, so its results must be interpreted with an eye of caution. Given the results of the present study, it may be that relationship length interacts with sexual desire discrepancy and negatively associates with

relational outcomes due to a diminishing of sexual engagement over time rather than anything inherently related to the discrepancy or length of relationship itself.

### **Limitations**

Several limitations exist for the current study. While the study uses a national sample, the sample is not nationally representative due to the convenience nature of the sampling process. Therefore, the results of this study may not be generalizable to the US population or other groups. Additionally, although the study attempted to address the statistical issues with using a discrepancy score, the method used in the study has not been as rigorously tested as others have been (see Edwards & Parry, 2018; Zuckerman et al., 2002). This means that the variables used to create sexual desire discrepancy could still be influencing the results of this study in significant and unforeseen ways. Another limitation of the study was that it only included heterosexual couples, and most of these were white; these results may not represent the experiences of sexual or ethnic minorities. Last, the cross-sectional nature of the dataset prevented any ability to make claims concerning directionality or cause; it could be that some of the significant relationships found in the study would be better explained if they were reversed.

### **Future Research**

This study addressed one of the major criticisms of pornography research generally: whether the effects attributed to pornography use were reducible to such use or other relational processes such as sexual desire discrepancy, sexual engagement, or masturbation. Based on the results of this study, future research should investigate the relationships between pornography use, masturbation, and sexual desire discrepancy (including sexual engagement) longitudinally to allow for directionality between the variables to be better established in addition to testing any mediating relationships the variables may have with one another. Future research should also

consider the effects of sexual scripting, as this likely plays a role in the influence pornography has on one's sexual satisfaction.

### **Clinical Implications**

Several clinical implications can be derived from the results of this study. First, clinicians should be aware that sexual desire discrepancy was a strong, negative predictor of sexual satisfaction among both men and women. Conversely, sexual engagement was a strong, positive predictor of sexual satisfaction for both men and women, and this variable was the only with significant partner effects. This could indicate that in therapeutic settings, it may be important for clinicians to assess couples presenting with low sexual satisfaction for both their levels of sexual desire discrepancy and their levels of sexual engagement. According to the study results, utilizing interventions to increase sexual engagement and address sexual desire discrepancy may be an effective way to help couples to increase sexual satisfaction. This will likely involve increasing sexual desire, among other things. See Hertlein and colleagues (2015) for more information and helpful interventions.

In addition, clinicians should be aware that pornography use may have deleterious effects on sexual satisfaction, especially for men. It is wise to have open conversations about the types of pornography being viewed by clients and how they see that is affecting their sexual life. For example, the study results suggest that it may be helpful to assess how pornography affects one's sexual engagement with their spouse. Last, clinicians should be aware that according to the results of this study, male masturbation may not have as much of an influence on sexual satisfaction for men, while female masturbation was shown to have a negative association with female sexual satisfaction. This could be a point of assessment for heterosexual couples presenting in therapy.

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