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Pornography Use: Who Uses It and How It Is Associated with Couple Outcomes

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Very little is known about how pornography use is related to the quality of committed relationships. This study examined associations among pornography use, the meaning people attach to its use, sexual quality, and relationship satisfaction. It also looked at factors that discriminate between those who use pornography and those who do not. Participants were couples (N = 617 couples) who were either married or cohabiting at the time the data were gathered. Overall results from this study indicated substantial gender differences in terms of use profiles, as well as pornography's association with relationship factors. Specifically, male pornography use was negatively associated with both male and female sexual quality, whereas female pornography use was positively associated with female sexual quality. The study also found that meaning explained a relatively small part of the relationship between pornography use and sexual quality.

To date, research focused on the effects of pornography on committed relationships is fairly sparse (Manning, 2006), and, with few exceptions, the existing literature is limited to studies using therapy samples. Marriage and family scholars have done little, if any, research in this area, and, to our knowledge, there are only a few studies that have explored pornography use at the couple (dyadic) level. The purpose of this study was to explore how the use of pornography in a committed relationship is related to the sexual quality and relationship satisfaction reported by each partner.

Review of Literature

Theory and Ideologies Attributed to Pornography Use

As accessibility to pornography has increased, mostly due to the Internet, there has been a subsequent increase in research focusing on the effects of pornography. A simple search of the PsycINFO database resulted in only 161 peer-reviewed articles from 1970 to 1990 that included *pornography* in the title (implying a primary focus on the subject). In the two decades since then, more than 370 peer-reviewed articles with pornography in the title have been published. Along with this uptick in research, there has been an increase in the use of

theory, such as social exchange (Kontula, 2009), The Sexual Behavior Sequence (Fisher & Barak, 2001), and erotophilia/erotophobia (Fisher, Byrne, Kelley, & White, 1988) to explain how or why pornography use may impact individuals or relationships. One particular theoretical perspective that can apply to pornography use in the context of relationships is *symbolic interaction,* which recognizes meaning and interpretation as central to an individual's behavior (Snow, 2001). In Blumer's (1969) Symbolic Interaction Theory, he asserted that people interpret their world through the lens of meaning, and that this meaning is constructed based, in large part, on contemporary social values. Gecas and Libby (1976) extended this theory to sexual behavior, indicating that it is predominately a reaction to social scripts that define parameters for behavior in sexual contexts. More recently, Gagnon and Simon (1973) argued that all sexual behavior—including pornography—is socially scripted and that pornography, in particular, is a word and behavior that is laden with divergent meaning. Furthermore, they have theorized that people derive through social experience interpersonal scripts that provide a structure for representations of self and other, and that these scripts facilitate the occurrence of a sexual act, as well as the antecedents and consequences of the act (Simon & Gagnon, 1986). Utilizing these theoretical frameworks, we would assume that the relationship between pornography use and sexual quality varies, in large measure, depending on the meaning individuals attach to the use of pornography.

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In modern society, although there is likely a great deal of variation in the meanings individuals and couples attach to their personal or their partners' pornography use, there are nonetheless two broad ideologies that individuals utilize to construct meaning about pornography. One of these is the idea that pornography use is a form of sexual expression through which individuals can broaden their understanding of sexuality (Warner, 2000), or that it is a behavior that can create an erotic climate (Daneback, Traeen, & Mansson, 2009) in which the couple can experiment and enhance the sexual relationship.

The second major social script—consistent with the existing clinical literature—implies that pornography use is a form of infidelity (Schneider, 2002) in the relationship, or that pornography is deviant and objectifies women (Schneider, 2000). Individuals who adopt this perspective would likely be in opposition to the idea of pornography as expression or as a means of creating an erotic climate. This is consistent with literature that links lower usage of pornography with religious beliefs that categorize pornography use as sinful or destructive to relationships and spiritual health (Sherkat & Ellison, 1997).

Although much of the literature investigating pornography use in a couple context takes the perspective that pornography is destructive, substantial usage suggests that it may be turning into a normative behavior. Furthermore, because this literature is primarily from a clinical perspective, it may not represent the potentially positive influence of pornography on a relationship. In this study, we tested how these social scripts may explain the effects pornography may have on committed heterosexual relationships, and we accounted for the influence of religiosity by using it as a control variable.

The Potential Impact of Pornography Use on Couple Relationships

Studies attempting to identify how prevalent pornography use is within a population have not used consistent measures or definitions in terms of how they conceptualize pornography use. Consequently, statistics on the use of pornography in the United States and elsewhere are not easily interpretable. The following studies are nonetheless helpful. According to research by Cooper (2004), 20% to 33% of Americans used the Internet to view sexual content of some kind. More recent research of pornography use among a sample of 18- to 26-year-old college students showed that 87% of male respondents and 31% of female respondents reported using pornography at some level (Carroll et al., 2008). In a random sample of 10,000 Norwegians, 83% of the respondents said they had read a pornographic magazine, 84% had watched a pornographic film, and 32% had watched pornography on the Internet (Træen,

Nilsen, & Stigum, 2006). Because of how pervasive pornography use has become in the United States and around the world, it seems logical to investigate its potential impact on committed romantic relationships, especially because most Americans will enter into at least one marriage (Axinn & Thornton, 2000) or cohabiting relationship in their lifetime.

One of the more common findings in the pornography research literature is that sexual quality is often related to pornography use. Schneider (2002) found that pornography use by the male is often associated with disinterest in physical intimacy with the partner for both the using and the non-using partner. Researchers have also found that consistent exposure to pornography may influence an individual's satisfaction with their partner's affection, physical appearance, sexual curiosity, and sexual performance (Zillmann & Bryant, 1988). Thus, is seems that using pornography may impact the users', as well as the partners', sexual experiences. Because of the strong correlation between a couple's sexual satisfaction and the overall relationship satisfaction reported by the partners (Christopher & Sprecher, 2000)—such that increases in both the quality and quantity of sexual intimacy in a relationship correlate well with the increase in general relationship satisfaction (Aron & Henkemeyer, 1995)—the prior findings identify sexual quality as a potential pathway for pornography to negatively influence a committed relationship.

As most of the literature on pornography use and its effect on couple relationships has come from therapy research, the findings typically reveal negative effects. However, there is also some empirical support for an increase in sexual benefit associated with pornography use. One study—which used a random, non-therapy sample—looked at pornography use in a couple context and showed that couples who explicitly used pornography together as a means of enhancing their sexual relationship tended to report having more positive communication about their sexual relationship, less arousal problems for the male, and less negative views of self for the female (Daneback et al., 2009). Two other studies provided results suggesting that some women do not see pornography use as having any negative effects on their romantic relationships (Bergner & Bridges, 2002), and that men and women who use pornography believe doing so has mostly positive effects on their sexual relationships (Hald & Malumuth, 2008). Furthermore, the increasing use of pornography in modern society suggests that individuals may see it as beneficial in the process of sexual expression or to create an erotic climate.

Beyond both positive and negative associations with sexual quality, researchers have also shown that upon discovering their partner uses pornography, many women question whether their partner loves them or is still committed to them and the relationship (Bergner

& Bridges, 2002), that both men and women see online sexual activity as an act of betrayal (Bridges, Bergner, & Hesson-McInnis, 2003), and that Internet pornography is significantly correlated with emotional infidelity (Whitty, 2003). These studies have isolated meanings that individuals attach to pornography use, which could, in turn, explain the impact of pornography on couple dynamics. Furthermore, Stack, Wasserman, and Kern (2004) found that happily married people are 61% less likely to report using Internet pornography compared to those who report being unhappy in their marriage, suggesting there may be a link between pornography use and happiness in marriage. Because this body of research is thin, it is fertile ground for a deeper investigation.

Patterns and Predictors of Pornography Use

Although pornography use in a couple context has historically been considered a mostly male behavior—and, therefore, likely to impact a relationship only when the male uses it—our study looked at use by the female partner as well. Recent research has shown that, although women do indeed use pornography at a much lower rate than men, female pornography use is on the rise, with nearly one-half of female adolescents using some form of pornography in the last six months (Peter & Valkenburg, 2006). Research conducted in Sweden highlights this trend, showing that only 4% of women aged 50 to 65 years reported having watched pornography on the Internet, whereas about 25% of women aged 18 to 34 years reported having done so (Mansson, Daneback, Tikkanen, & Lofgren-Martenson, 2003). Interestingly, although female pornography use seems to be on the rise, there are different use patterns for men and women, with women typically viewing pornography with a partner (Mansson, 2000) and men usually doing so alone (Seidman 2004).

Another important aspect of pornography use that has been largely overlooked by researchers is the issue of what factors contribute to an individual's patterns of use. Based on the limited research, it seems that gender is one of the strongest predictors of pornography use, with men being far more likely to use pronography than women (Fisher & Byrne, 1978; Regnerus, 2007). Religious factors are also strong predictors of use or non-use. Specifically, individuals with strong ties to religion are less likely to report pornography use (Stack et al., 2004). Another possible predictor of pornography use is high sexual desire. Research conducted across Europe suggests that—especially for males and, to a lesser extent, females—higher levels of sexual desire is correlated with greater pornography use (Kontula, 2009).

There is also a body of research showing that, for certain men, exposure to violent pornography is associated with an increased risk for sexual aggression (Donnerstein & Linz, 1998; Malamuth, Addison, & Koss, 2000). Some authors have also found non-violent pornography to be associated with acceptance of violent or aggressive behavior toward women (Allen, Emmers, Gebhardt, & Giery, 1995; Ramasubramanian & Oliver, 2003). Because this study focused on the context of a committed relationship, we infer from this literature that pornography use may also be linked to negative forms of communication (e.g., criticism, contempt, and defensiveness) in a relationship. Although the aforementioned factors seem to be the only variables that have been explored with any frequency, there is also evidence that extramarital sex and participating in paid sex (Stack et al., 2004) are associated with online pornography use. Based on this latter finding, we extrapolate that sexual promiscuity as manifested by multiple partnerships and sexual intimacy early in the relationship may be associated with pornography use in a committed relationship.

Beyond these limited findings, there is no clear indication of what factors may discriminate between those who use pornography and those who do not. However, there is research revealing predictors of other sexual behaviors. For example, Danziger (1995) found that close family relationships were related to later age at first sexual intercourse. Miller, Sabo, Farrell, Barnes, and Melnick (1998) showed that family cohesion was related to older age at first intercourse, as well as lower frequency of intercourse and fewer partners. Because these other sexual behaviors are often associated with pornography use (Carroll et al., 2008), we anticipated that family of origin (FOO) processes and quality may be directly related to pornography use.

Research Questions

This study adds to the body of research literature on pornography by using dyadic data to explore what factors may contribute to pornography use and how this use is related to couple relationship quality in a non-clinical sample. The theory cited earlier suggests that social scripts from which people derive meaning about pornography use may explain how it affects their relationship. We used measures of attitudes about pornography use, which, although not scripts themselves, certainly reflect the social scripts that individuals have personally adopted. Because prior research has identified religiosity (Sherkat & Ellison, 1997), relationship length (Greeley, 1991), and general Internet use (Whang, Lee, & Chang, 2003) as possible moderators of pornography use and sexual quality, we controlled for these variables in the structural equation modeling (SEM) analyses. Based on our reading of the aforementioned literature, we put forward the following research questions:

RQ1: What factors are associated with pornography use versus non-use?

RQ2: Is pornography use in a committed relationship associated with lower sexual quality and relationship satisfaction?

RQ3: Are the social scripts, as reflected by respondents' stated attitudes about pornography, associated with scripts such as pornography as an expression of sexuality or the creation of an erotic climate, or are they associated with scripts such as pornography as infidelity?

Method

Sample

The sample was gathered in 2009 and 2010 as part of the RELATionship Evaluation (RELATE) questionnaire project (www.relate-institute.org/) with data on pornography use beginning in February of 2009. The RELATE project recruits couples to the Internet site from a variety of settings, including college professors, marriage and family therapists, Internet and newspaper ads, word of mouth, and relationship educators familiar with the RELATE instrument. RELATE was designed as a tool to help couples evaluate their relationship and engage in healthy discussions to improve their relationship. The validity and reliability of the measurement scales have been established in previous studies (for details, see Busby, Holman, & Taniguchi, 2001).

The total original sample included 1,523 couples in a variety of relationships. Because this study was interested in couples with a certain level of commitment, we excluded all participants ($N = 742$) who did not identify as currently married or cohabiting. One couple self-identified as homosexual in response to a question about sexual preference. This couple was also excluded from the analysis. Furthermore, because the RELATE project is more commonly administered in the Western United States where some religious denominations are overrepresented as compared to national norms, we excluded, at random ($N = 125$), individuals who identified as Latter-Day Saints to maintain a sample more consistent with America's religious population (Pew Forum on Religion & Public Life, 2007).

Participants in the final sample were 617 heterosexual couples (1,234 individuals); 221 were married and 396 were cohabiting at the time of the study. Couples individually completed the questionnaire online, and their results were matched using a couple code. Religious affiliation was 35% Protestant, 21% Catholic, 4% Jewish, 4% Latter-Day Saint, 1% Hindu, 1% Buddhist, 1% Islam, and 2% "other." Thirty-two percent reported no religious affiliation. Participants were predominantly White, non-Hispanic (83%), and the majority were well educated, with 56% of the men and 57% of the women having a bachelor's degree or higher. The age range of respondents was 17 to 58, and the median age for respondents was 32 for males and 29 for females.

When asked how they heard about RELATE, about 34% of the men and 37% of the women reported they were referred by a therapist, 24% of men and 37% of women reported they were referred by instructors, about 9% of both genders said they were referred by clergy, about 16% of men, but only 5% of women, said they had been referred by family, and 14% of men and 6% of women reported that they were referred by friends. The remainder of respondents reported that they found the site through some type of advertising via Web, newspaper, magazines, and so forth. Thus, the sample is one of convenience, composed of individuals who were referred to the site through a variety of sources and likely for a variety of reasons.

Measures

This study used measures from the RELATE questionnaire (Busby et al., 2001). RELATE is a 300+ item questionnaire designed to evaluate the relationship between romantically linked partners. We discussed the specific measures from the RELATE instrument used in this study.

Pornography use. Pornography use was measured with a single item that asked, "During the last twelve months, on how many days did you view or read pornography (i.e., movies, magazines, Internet sites, adult romantic novels)?" Response options were on a 6-point, Likert-type scale ranging from 1 (*never*) to 6 (*almost every day*).

Sexual quality. This scale was made up of two items; the first item asked respondents to indicate how satisfied they were with the physical intimacy they experienced, and the second item asked how often intimacy/sexuality had been a problem area in their relationship. For these items, response choices were gauged on a 5-point, Likert-type scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*). For this scale, Cronbach's $\alpha = .70$ for men and $\alpha = .67$ for women.

Meaning of pornography. The meaning people attach to pornography use was measured using four items that asked respondents to indicate their attitudes about pornography use. The items included, "Pornography is an acceptable way for couples to 'spice up' their love life," "Viewing pornography is an acceptable way for married adults to express their sexuality," "Pornography objectifies and degrades women," and "Pornography is a form of marital infidelity." The last two items were recoded to maintain consistent direction in the measure. We used these measures as reflections of the social scripts that individuals have subscribed to, based on their individual cultural, religious, and even socio-political leanings. The two scripts of pornography as expression or to create an erotic climate and

pornography as infidelity or degrading of women are encapsulated in the scale and are differentiated simply as low (infidelity/degrading) or high (expression/erotic) scores. Each item was measured using a 5-point, Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's $\alpha = .80$ for men and $\alpha = .83$ for women.

Religiosity. Religiosity was measured with a three-item scale. Two of the items were measured on 5-point, Likert scales ranging from 1 (*never*) to 5 (*very often*). These questions asked the respondents if spirituality was an important part of their lives and how often they prayed or communed with a higher power. In addition, one question assessed the frequency of attending religious services on a 5-point, Likert scale ranging from 1 (*never*) to 5 (*weekly*). Cronbach's $\alpha = .91$ for men and $\alpha = .90$ for women.

Relationship length. Relationship length was measured using two items: One asked, "How long have you and your partner been married," and the other asked, "How long has it been since you first started dating your partner? (If married, how long did you date your partner before marriage?)" Both items were on a scale ranging from 1 (*0–3 months*), 2 (*4–6 months*), 3 (*6–12 months*), 4 (*1–2 years*), 5 (*3–5 years*), and so on, to 11 (*more than 40 years*). These items were then summed so that the item would include both time married and time dating before marriage for the currently married respondents and total time dating for the cohabiting respondents.

General Internet use. General Internet use was a measure of how often individuals use the Internet, in general, outside of work. The item asked respondents how often in the last three months, on average, participants used the Internet other than for their employment. Response options ranged from 1 (*less than an hour a day*) to 7 (*more than 8 hours a day*). The item was recoded so that higher numbers meant more use.

Relationship satisfaction. Relationship satisfaction was measured on a 5-point, Likert-type scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*). The scale included five items to gauge how satisfied respondents were with how conflict was resolved, the love they experienced, amount of relationship quality, quality of communication, and the overall relationship with their partner. Validity and reliability of the measure has been established in previous studies (for details, see Busby et al., 2001). For the relationship satisfaction scale, Cronbach's $\alpha = .87$ for men and $\alpha = .84$ for women.

Timing of first sexual intimacy with partner. This was a single item that asked respondents how soon they

had sexual relations with their partner. There were 10 response options that included, "We had sexual relations before we started dating," "We had sexual relations on our first date," "We had sexual relations a few weeks after we started dating," "We had sexual relations from 1 to 2 months after we started dating," "We had sexual relations from 3 to 5 months after we started dating," "We had sexual relations from 6 to 12 months after we started dating," "We had sexual relations from 1 to 2 years after we started dating," "We had sexual relations more than 2 years after we started dating," "We have never had sexual relations," and "We had sexual relations only after we married." Our sample did not include any respondents that chose "We have never had sexual relations."

Number of sexual partners. This was a single item that asked respondents to indicate how many partners with whom they had sexual relationships in their lifetime.

Sexual desire. This was a single item that asked respondents, "How often do you desire to have sexual intercourse with your partner?" Response options ranged from 0 (*never*) to 6 (*more than once a day*).

Negative communication. Negative communication was measured using the contempt/defensiveness and the criticism scales, which were combined to create a general construct representing negative communication. Items were scored using a 5-point, Likert scale ranging from 1 (*never*) to 5 (*very often*). Criticism was a three-item scale asking the respondents about using tactless choice of words when they complain, not stopping once they started complaining, and not censoring complaints and letting their partner have it full force. Contempt/defensiveness was a four-item scale that asked respondents about having no respect for their partner when discussing an issue, getting upset and seeing the glaring faults of the partner's personality, warding off complaints of the partner, and feeling unfairly attacked when the partner is being negative. Cronbach's $\alpha = .92$ for men and $\alpha = .93$ for women.

Romantic relationship history. Romantic relationship history utilized four items that gauged the extent to which respondents considered romantic relationships safe, secure, and rewarding, whether they had trouble dealing with matters from their past romantic relationships, and if they felt at peace about anything negative that happened to them in their past romantic relationships. Items were measured using a 5-point, Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's $\alpha = .74$ for men and $\alpha = .79$ for women.

Family of Orgin (FOO). Items for FOO were measured using a 5-point, Likert-type scale ranging from 1
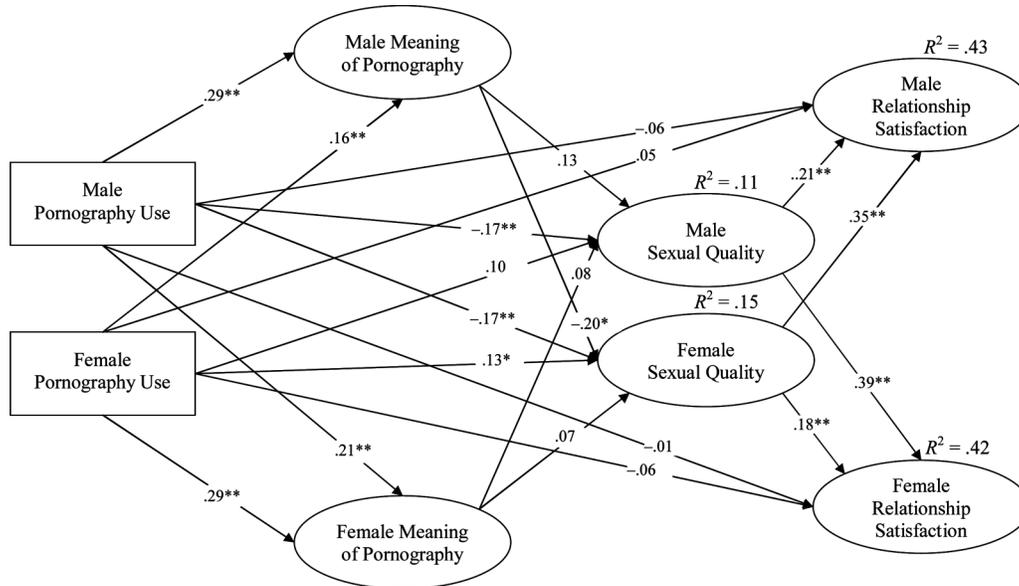
Figure 1. Actor–Partner Interdependence Model representing the relationship among pornography use, the meaning partners attach to the use, sexual quality, and relationship satisfaction. *Notes.* $N = 617$ couples. Bias-corrected p values: $^*p < .05$. $^{**}p < .01$. All factor loadings for latent variables were above .65. To allow for readability, correlations accounting for shared method variance between spouses are not shown. Religiosity, relationship length, and general Internet use were included as control variables.

(*strongly disagree*) to 5 (*strongly agree*). The scale included four items to gauge the extent to which respondents agreed with statements concerning the following: whether they considered family relationships safe, secure, and rewarding, whether they considered their family life to have had a loving atmosphere, whether they had trouble dealing with matters from their family experience, and if they felt at peace about anything negative that happened to them in their FOO. Cronbach's $\alpha = .77$ for men and $\alpha = .85$ for women.

Analysis Strategy

First, we computed a discriminant analysis to predict group membership for those who used pornography and those who did not. This analysis was conducted using the Statistical Package for the Social Sciences Version 18 (SPSS Inc., Chicago, IL). Next, we used SEM (see Figure 1) to examine the effects of pornography use on committed relationships. The model was analyzed using Mplus Version 6 (Muthén & Muthén, 1998–2007). As exploring the association between pornography use and couple functioning was central to the study, the analyses included both the male and the female paired reports for each variable. An Actor–Partner Interdependence Model (APIM) was used to analyze the interplay between each partner in the dyad (for details, see Kenny, Kashy, & Cook, 2006). To account for the non-independence of the data, we followed Kurdek's (2003) methodological suggestion for married couple analyses by correlating error terms between partners for all measures.

Although there were very few missing values in the predictor ($N = 3$), to deal with missing data in all variables, we used maximum likelihood (ML) with robust standard errors estimation in Mplus (Muthén & Muthén, 1998–2007). Methodologists regard ML estimation as a missing data technique that is more accurate and more powerful relative to other missing data handling methods (Schafer & Graham, 2002).

Results

Descriptive Analysis

Female pornography use was very low, with 64% reporting no pornography use and 30% using pornography once per month or less. Thus, 94% of our female sample used pornography very little, if at all. Less than 2% of women reported using pornography more than once per week. Pornography use among men, although still low (27% reporting no use), showed more variability, with 31% using once per month or less, 16% using two to three days per month, 16% using one to two times per week, and 10% using three or more days per week. A paired-samples t test was conducted to evaluate the differences between male and female pornography use. The test was significant, $t(613) = 20.085$, $p < .001$. On average, males used pornography more ($M = 1.55$, $SD = 1.33$) than females ($M = 0.450$, $SD = 0.646$). Males and females also reported significant differences in the meaning they attached to pornography use, $t(610) = 6.26$, $p < .001$, with males ($M = 3.30$, $SD = 0.97$) attaching more of an expression/erotic meaning than females

($M = 3.00$, $SD = 1.02$). These averages further revealed that, on the whole, women were neutral in the meaning they attached to pornography use, whereas men, in general, attached a slightly expression/erotic meaning to pornography use.

Discriminant Analysis

Observing the usage patterns for each gender, we conducted separate discriminant analyses to determine how accurately we could predict pornography use and non-use. For both male and female partners, variables included in the analyses were religiosity, sexual desire, timing of first sexual intimacy with partner, number of sexual partners, negative communication, romantic relationship history, and FOO. For men, the overall Wilks's lambda (.84) was significant, $\chi^2(6, N = 439) = 73.83$, $p < .001$, indicating that, overall, the predictors differentiated among the two groups. Box's M test was significant ($p < .001$); therefore, equal variance was not assumed. For detailed means comparisons, see Table 1.

Pooled, within-groups correlations between predictors and the standardized canonical discriminant function revealed that religiosity, timing of first sexual intimacy with partner, and number of sexual partners predicted group membership better than other variables. Pornography users were more likely to have reported low religiosity ($M = 2.74$), earlier sexual intimacy ($M = 3.61$) with their partner, and to have more sexual partners ($M = 12.92$), as compared to those who did not use pornography (religiosity, $M = 3.56$; timing of sexual intimacy, $M = 4.61$; and number of sexual partners, $M = 6.91$). To a lesser degree, but still significant, pornography users reported using more negative communication with their partner, experiencing lower quality FOO, and having lower quality relationship history as compared to their non-using counterparts. Sexual desire did not significantly discriminate between the two groups when considering the other predictors.

In our attempt to predict male pornography use group membership, we were able to correctly classify 323 individuals (74.1%) in the sample, and this accounted for a 91.2% accurate prediction of pornography users and a 33.3% accurate prediction of non-users.

The same analysis conducted for female pornography use was also significant ($\Lambda = .94$), $\chi^2(6, N = 439) = 27.14$, $p < .001$. Box's M was significant ($p < .001$). Pooled, within-groups correlations between predictors and the standardized canonical discriminant function revealed the same trend as male pornography use, such that religiosity, timing of first sexual intimacy with partner, and number of sexual partners were the strongest predictors. Female pornography users were more likely to have reported low religiosity ($M = 3.10$), earlier sexual intimacy ($M = 3.59$) with their partner, and to have more sexual partners ($M = 9.50$), as compared to females who reported no pornography use (religiosity, $M = 3.52$; timing of sexual intimacy, $M = 4.33$; and number of sexual partners, $M = 6.43$). Furthermore, female pornography users reported significantly higher sexual desire ($M = 3.62$) than their non-using counterparts ($M = 3.28$). No other variables discriminated between female users and non-users.

In our attempt to predict female pornography use group membership, we were able to correctly classify 301 individuals (69.1%) in the sample, and this accounted for a 16.4% prediction of pornography users and a 95.5% prediction of non-users. This difference in the extent to which our selected variables predicted male and female pornography use was substantial. Furthermore, the selected variables effectively classified use for the men, but non-use for the women. So, for example, low religiosity seems to be the most effective way to classify male pornography use or at least male self-report of use, whereas high religiosity does not as effectively explain non-use. Our findings revealed the reverse effect for females. High religiosity predicted self-report of non-use better than low religiosity predicted self-report of use.

SEM Analysis

To test the direct and indirect relationships among pornography use, the meaning individuals attach to

Table 1. *Estimated Means and Standard Deviations of Pornography Users and Non-Users*

	Male				Female			
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Variable	Pornography Users		Non-Users		Pornography Users		Non-Users	
Religiosity	2.75*	1.10	3.56*	1.10	3.10*	1.10	3.52*	1.10
Timing of first sexual intimacy with partner	3.61*	1.70	4.61*	2.40	3.59*	1.70	4.32*	2.20
Number of sexual partners	12.92*	16.10	6.90*	10.60	9.50*	11.40	6.43*	6.20
Relationship history	3.70*	0.79	3.99*	0.67	3.61	0.81	3.74	0.91
Family of origin	3.77*	0.78	4.00*	0.78	3.59	0.94	3.68	0.85
Negative communication	2.47*	0.86	2.27*	0.81	2.48	0.81	2.41	0.91
Depression	2.11*	0.69	1.95*	0.63	2.31	0.64	2.35	0.69
Sexual desire	4.07	1.10	3.96	1.20	3.59*	1.00	3.32*	1.20

*$p < .01$ (representing a significant difference between users and non-users of pornography).

pornography use, sexual quality, and relationship satisfaction, we constructed a SEM. In the model, pornography use was associated with sexual quality, which, in turn, was associated with relationship satisfaction. We included the meaning of pornography as a mediating variable and religiosity, relationship length, and general Internet use as control variables (see Figure 1). The model had acceptable fit: $\chi^2(412, N = 617) = 1,125.744$, $p < .000$, Tucker–Lewis Index $= .922$, comparative fit index $= .939$, and root mean square error of approximation $= .053$. For the sexual quality variable, squared multiple correlations for men was .11 and .14 for women. Squared multiple correlations for the relationship satisfaction variable were .43 for men and .42 for women. Of the 16 interpreted path coefficients in the model, 12 paths were significant and are denoted with an asterisk in Figure 1. To test mediation, we employed the bootstrap estimator command in Mplus (Muthén & Muthén, 1998–2007) to extract 1,000 bootstrap samples. This allowed us to get bias-corrected significance levels for the direct, indirect, and total effects (see Table 2).

In the model, significant path coefficients indicated that under the conditions of variance in religiosity, relationship length, and general Internet use, the actor effect of male pornography use on sexual quality was significant and negative ($\beta = -.17$). The partner effect of male pornography use on female sexual quality was also negative and significant ($\beta = -.17$). Analysis of female effects of pornography use revealed no significant partner effect from female pornography use to male

Table 2. *Decomposition of Effects from Structural Equation Modeling on Sexual Quality and Relationship Satisfaction*

Variable	Direct	Indirect	Total	R^2
Effects on male sexual quality				.11
Male pornography use	−.17**	−.01	−.20**	
Female pornography use	.10	.00	.10	
Male pornography as discovery/erotica	.13	—	.13	
Female pornography as discovery/ erotica	.08	—	.08	
Effects on female sexual quality				.14
Male pornography use	−.17**	−.02	−.22**	
Female pornography use	.13*	−.02	.12*	
Male pornography as discovery/ erotica	−.20*	—	−.20**	
Female pornography as discovery/ erotica	.07	—	.07	
Effects on male relationship satisfaction				.42
Male sexual quality	.21**	—	.21**	
Female sexual quality	.35**	—	.35**	
Male pornography use	−.06	−.09*	−.15	
Female pornography use	.05	.06*	.11	
Effects on female relationship satisfaction				.40
Male sexual quality	.39**	—	.39**	
Female sexual quality	.17**	—	.17**	
Male pornography use	−.01	−.10*	−.11	
Female pornography use	−.06	.05	−.11	

*$p < .05$. **$p < .01$ (bootstrap bias-corrected).

sexual quality. However, the actor effect of female pornography use on sexual quality was significant and positive ($\beta = .13$). Interestingly, male and female pornography use seemed to have some opposite effects in their relationship with sexual quality.

Based on this, we wondered whether the different viewing patterns of males and females might provide some explanation for this differing relationship between pornography use and sexual quality across genders. To test this interaction *post hoc,* we used an item that asked respondents to indicate what percentage of the time they used pornography by themselves versus with their partner, and inserted this into our SEM analysis as a mediating variable. Response options for the item were "never use pornography"; 100% alone, 0% with partner; 75% alone, 25% with partner; 50% alone, 50% with partner; 25% alone, 75% with partner; and 0% alone, 100% with partner. We divided responses into three groups—those who did not use, those who used with their partner to some degree, and those who used entirely alone—and called the variable "viewing pattern." Higher numbers indicate a pattern of couple use.

We then tested this variable as a mediator in the SEM to see if viewing patterns explained the relationship between pornography use and sexual quality in the APIM. Baron and Kenny (1986) defined a *mediator* as a variable that explains the relation between a predictor and an outcome. Using the model indirect command in Mplus with the bootstrap estimator revealed that the standardized indirect (mediated) effect of female pornography use on female ($\beta = .09$) sexual quality was significantly different than zero ($p = .03$), and was only mediated by female viewing pattern. The path coefficients from female pornography use to female viewing patterns was ($\beta = -.52$), which indicated that female pornography use was associated with using pornography together as opposed to alone, based on reports from the female respondent. Furthermore, the inclusion of viewing pattern in the model rendered the relationship between female pornography use and female sexual quality insignificant, suggesting complete mediation (MacKinnon, 2008). Viewing patterns did not significantly mediate any of the other relationships between pornography use and sexual quality.

An analysis of RQ2—"Is pornography use in a committed relationship associated with lower relationship satisfaction?"—revealed there was no direct actor or partner effect of male pornography use on relationship satisfaction, nor were there any direct actor or partner effects from female pornography use to relationship satisfaction. However, male pornography use had a significant mediated effect on both male and female relationship satisfaction, such that higher male pornography use was indirectly associated with lower male ($\beta = -.10$, $p < .01$) and female ($\beta = -.10$, $p < .01$) relationship satisfaction. Female pornography use also had a significant mediated effect on male but not female

relationship satisfaction, such that higher female pornography use was indirectly associated with higher male relationship satisfaction, through female sexual quality, ($\beta = .06$, $p < .05$).

RQ3—"Are the social scripts, as reflected by respondents' stated attitudes about pornography, associated with scripts such as pornography as expression of sexuality or the creation of an erotic climate, or are they associated with scripts such as pornography as infidelity?"—was analyzed by inserting the meaning individuals attached to pornography use into the model and testing it as a mediator. The two scripts are encapsulated in the scale and are differentiated simply as low (infidelity/degrading) or high (expression/erotic). This test revealed no significant mediating effects. Thus, the meaning that individuals attached to pornography use, as measured in this study, did not explain the associations between pornography use and sexual quality.

Discussion

In this study, we sought to understand the factors that may be associated with pornography use and how pornography use may have implications for couple relationships. We found a number of factors associated with use and non-use. We also observed that the factors associated with pornography use for men and women were different. Furthermore, we found that pornography use was associated with couple relationship quality, and that associations were different for men versus women. Contrary to our hypothesis, the meaning attributed to pornography played a very isolated role in the way use affected couples' relationships. We discuss each of these findings next.

We were able to provide new and unique information about the variables associated with individuals' reports of pornography use. For both genders, the variable with the strongest association with non-use was religiosity, closely followed by the timing of a couple's first sexual union and the number of sexual partners reported by individuals. Based on these findings, it seems that these sexual behaviors have a strong connection, and that pornography use often leads to, or is a product of, sexual permissiveness. The discriminant analysis also revealed that there were substantial differences between male and female pornography use profiles. Specifically, the variables selected were able to categorize male pornography use very well, but were not as effective for female use. These variables, however, were better predictors of non-use for females. This means that low religiosity, a high number of sexual partners, and early sexual intimacy were better predictors of male pornography use than the inverse of these variables for non-use. However, for females, being highly religious, having few sexual partners, and waiting to experience sexual intimacy until late in the relationship were much better

predictors of non-use. Interestingly, whereas negative communication, parents' marital effort, FOO, and relationship history were significant factors predicting male pornography use or non-use, none of these variables were significant predictors for women. Although there may be several possible explanations for this disparity, it is likely that, due to low usage patterns among the women in our sample, the power of the statistical procedures was limited, whereas the male sample offered more variability and, thus, more power to isolate differences with the selected variables. The difference in how these variables predicted male and female use may suggest that the impetus behind pornography use is very different for women than it is for men.

One final, interesting finding from the discriminant analysis was that sexual desire significantly discriminated between female pornography use and non-use, but not male pornography use and non-use. This is not to say that high male sexual desire does not predict pornography use, as previous research has suggested (Kontula, 2009). It only means that, in this sample, desire did not seem to discriminate between males who use and males who do not use. This is likely because of the fact that most men in our sample used pornography at some level. It is possible that for pornography to be an attractive activity, it requires a certain threshold of sexual desire, which most men possess. However, female pornography use is generally low, as is female sexual desire, when compared to that of men. Thus, for women, high sexual desire (relative to other women), or sexual desire more similar to that of men, may be necessary to induce a woman to use pornography. This is consistent with the Dual Control Model of sexual response, which proposes that "sexual arousal and associated behaviors depend on the balance between sexual excitation and inhibition" (Bancroft & Janssen, 2007, p. 197).

In regards to these findings, we acknowledge that a possible limitation to the results is the self-report nature of the data. Because pornography use has the potential for, and often is viewed as, deviance, it is possible that incidence of use within our sample was underreported. These findings should be considered in view of this limitation.

Results of the SEM analysis showed that male pornography use had a consistent, negative association with both male and female sexual quality. This finding was consistent with expectations that male pornography use would be negatively associated with female sexual quality. Although the association between male pornography use and male sexual quality was the strongest association of interest, this was unanticipated. Hald and Malumuth's (2008) findings suggested quite the opposite, showing that men who used pornography believed doing so had mostly positive effects. Furthermore, research has shown that the majority of, at least college-, men view pornography use as an acceptable

way to express sexuality (Carroll et al., 2008) and a valuable means of becoming educated about sex (Boise, 2002). Thus, in this study, the result may be due to the fact that the female partner knew of and did not approve of her partner's pornography use, and subsequently withdraws from the sexual relationship. Such circumstances are not uncommon, as indicated by Schneider's (2000) clinical study, showing that disapproving partners are often repulsed by the behavior and may lose interest in sex. Another possible explanation is that males who use pornography lose interest in relational sex. Schneider (2000) found that more than one-half of compulsive pornography users' spouses reported that their partner—the compulsive user—had lost interest in relational sex.

One shortcoming of this study is that it is not known whether the female partner was aware of her male partner's pornography use, or vice versa. To an extent, this limits what can be interpreted about why male pornography use has a negative association with sexual quality. Additional limitations resulting from the non-representative sample may also be influencing the results in unknown ways. What is clear, however, is that male pornography use seems to be associated with lower sexual quality.

The story of female pornography use and its effects is an interesting one. Female pornography use had a slightly positive association with male and female sexual quality. As indicated in the Results section, this association was explained by a pattern of using pornography with a partner instead of individually. Thus, couple pornography use—not female pornography by itself—seems to be driving higher sexual quality. This finding is consistent with a study by Daneback et al. (2009), showing that couples who are complicit in their use seem to avoid negative effects and may see some benefit to the sexual relationship. Furthermore, as indicated in the discriminant analysis, women who used pornography had higher sexual desire than females who did not use; thus, using pornography with their partner may be one way women express this higher sexual desire.

The second interest we had was to see if after accounting for prevailing social scripts—as reflected by respondents' attitudes about pornography—the associations between pornography use and sexual and relationship quality were still significant. Results were that neither male nor female meaning, as measured, mediated the relationship between pornography use and sexual quality. Rather, pornography use seems to be associated with sexual quality in a committed relationship, regardless of the meaning people attach to it. In addition, because we controlled for religiosity, these findings suggest that there is more than just religious values at play here. Thus, contrary to our assumption, social scripts—as we measured them—did not adequately explain the associations between pornography use and the sexual quality couples experience.

It is possible, at least for men, that pornography use changes perceptions of female partners, the sexual relationship, or both such that they are less satisfied with the sexual experiences in the relationship, whereas for women—as discussed earlier—the relationship between pornography use and sexual quality is explained by a pattern of couple use. It would seem that interpersonal sexual scripts of self and other (Gagnon & Simon, 1973) that respondents have adopted have little bearing on why pornography use is related to the sexual relationship. Future research that employs a longitudinal method may shed additional light on how meaning is associated with pornography use and its effects on the relationship. This study cannot, with certainty, establish the direction of these associations.

Finally, this study helps us understand something about the power of pornography use on the relationship, as it was found that male pornography use had a significant, indirect association with relationship satisfaction for both men and women, and female pornography use had a significant, indirect association with relationship satisfaction for males. Furthermore, these findings speak to how important the sexual relationship is to overall relationship quality.

Limitations

There exist several limitations to our findings and to this study overall. First, the cross-sectional nature of the data only tells us what is happening at a single point in time and, thus, precludes us from inferring anything about how pornography may impact relationships as they grow and change. Furthermore, cross-sectional data do not allow us to establish, with any certainty, the direction of the relationship. We acknowledge the possibility that the way in which the relationships are modeled may be reversed and that, for men, poor sexual quality may lead to more pornography use and explain the pattern of solitary use. It seems perfectly reasonable that individuals unsatisfied in their sexual relationships, for whatever reason, may turn to alternative means, such as pornography use, to satisfy their sexual desires or perceived needs. For women, we expect the relationship is different. Poor sexual quality is not likely the predictor of lower pornography use but, rather, as the discriminant analysis suggested, it is sexual desire that drives the use. Thus, lower sexual desire in a women would likely lead to lower pornography use. We recommend, and are in the process of conducting, longitudinal studies to further explore causation for both men and women. Future research in the area of female pornography use specifically would be helpful in increasing our understanding of how female pornography use is unique in both its nature and its influence on the relationship.

The sample itself was also limited, as it was a convenience sample and is composed of many individuals (about 35%) who were referred to the RELATE

instrument by therapists. Thus, although the sample was not, strictly speaking, a therapy sample, it did contain a substantial number of individuals who may have had a baseline level of relationship problems that were higher than the general population.

Another limitation to the study concerns some of the measures. Although sexual quality, as measured in this study, captured sexual problems and general sexual satisfaction, it was not a comprehensive measure of sexual quality. Using a more established and comprehensive measure, such as the Global Measure of Sexual Satisfaction (see Lawrance & Byers, 1995), would be useful to more accurately asses couples' sexual quality.

The measure of meaning was also fairly limited in its scope, as it only captured a small portion of the attitudes and meanings that individuals may attach to pornography use. As the idea of these scripts as mediators to pornography use has received little research attention, this study is exploratory and adds to the current body of research in this area. As we come to better explore this area, we will indeed need more and better measures of these scripts.

Implications and Conclusion

This study has several implications for educators, therapists, and researchers interested in how pornography use might impact marriages or other committed relationships. Perhaps the most apparent finding in this study is that pornography use by a husband or male partner is associated with lower quality of the couple's sexual relationship. This study also shows that this association may exist among cohabiting couples, as well as married couples, and that the association may persist, regardless of personal attitudes toward pornography. The data suggest that male pornography use may be an issue that needs consideration when and if a couple experience problems or dissatisfaction concerning their sexual relationship and their relationship overall. In regard to female use, the results suggest that if females use pornography, their use is likely to occur with the partner, and that this pattern (i.e., viewing pornography together) may benefit the sexual relationship, but not necessarily the relationship overall. Clearly, the implications suggest that those working with couples where pornography is an issue will need to explore the nature of pornography use by both partners and allow each couple to explain whether this use is solitary or mutual and how it may influence their relationship. In addition, because, in so many cases, pornography use is by the male partner and is solitary in nature, exploring awareness of use and the impact this use has on both partners' attitudes about self and the relationship would be valuable.

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