

# Young Adult Women's Reports of Their Male Romantic Partner's Pornography Use as a Correlate of Their Self-Esteem, Relationship Quality, and Sexual Satisfaction

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**Abstract** Pornography is both prevalent and normative in many cultures across the world, including United States' culture; however, little is known about the psychological and relational effects that it can have on young adult women involved in heterosexual romantic relationships in which their male partners view pornography. The purpose of this study was to examine the relationships between men's pornography use, both frequency and problematic use, on their heterosexual female partner's psychological and relational well-being among 308 young adult college women. In addition, psychometric properties for the Perceived Partner's Pornography Use Scale are provided. Participants were recruited at a large Southern public university in the United States and completed an online survey. Results revealed women's reports of their male partner's frequency of pornography use were negatively associated with their relationship quality. More perceptions of problematic use of pornography was negatively correlated with self-esteem, relationship quality, and sexual satisfaction. In addition, self-esteem partially mediated the relationship between perceptions of partner's problematic pornography use and relationship quality. Finally, results revealed that relationship length moderated the relationship between perceptions of partner's problematic pornography use and sexual satisfaction, with significant dissatisfaction being associated with longer relationship length.

**Keywords** Pornography · Scale · Relationship quality · Sexual satisfaction · Self-esteem

## Introduction

Pornography refers to “written or pictorial matter intended to arouse sexual feelings” (Boyer et al. 1983, p. 534). Pornography and its corresponding promotion of body evaluation are both prevalent and normative in many cultures across the world, including United States' (U.S.) culture (Szymanski et al. 2011). In fact, ‘sex’ is one of the most searched for words on the internet (Cooper et al. 2000; Ropelato 2007). Access to pornography is quite simple via video rentals and sales, the internet, and magazines; the three most popular forms of pornography (Cooper et al. 2000; Ropelato 2007). In addition, consumption of pornography has increased over the past decade (Ropelato 2007). The pornography industry continues to be one of the most lucrative economies, generating an estimated annual income of more than \$13 billion dollars in the U.S. alone and having greater revenues than Google, Yahoo, Microsoft, Apple, Amazon, eBay, and Netflix combined (Hughes 1999; Ropelato 2007).

Previous research using U.S. samples has found that men tend to use pornography more than women with differences producing large effect sizes (for a meta analysis see Petersen and Hyde 2010), and women tend to feel more negatively about pornography than men (c.f., Carroll et al. 2008; Lottes et al. 1993; Shaw 1999). Furthermore, women are often the main “characters” and men the main “audience” in heterosexual pornography. In this context, pornography can be seen as a form of sexual objectification, in which women are often portrayed merely as objects for men's sexual pleasure and immediate gratification. The *Longford Report* (as cited in Linton 1979, p. 57), differentiated pornography from erotica by stating that pornography “treats sexual practices divorced from any tender consideration for one's partner,” whereas

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erotica “deals with the pleasure and art of sexuality, but always in terms of a positive emotional relationship.” U.S. mainstream pornography often features women as props for men’s sexual pleasure: giving oral sex to men, receiving anal sex, and as participants in (or victims of) gang bangs and double penetration (Jensen 2007). Men’s anger toward women is increasingly present in mainstream pornography. For example, in a content analysis of top selling pornography videos in the U.S., Sun et al. (2008) found that verbal and physical aggression were common, women were the primary targets of aggression, and negative reactions to aggression were scarce. In addition, a steady rise in hard core pornography in the U.S. over the past decade has been documented (Ropelato 2007). Finally, mainstream pornography often creates fantasy relationships with the illusion of an attractive, thin, voluptuous, perfect, but realistically non-existent, woman.

With the abundance and wide-spread use of pornography particularly by men, we have to question how this affects women they are in relationships with. However, very little research exists examining the psychological, relational, and sexual correlates of men’s pornography use on young adult college women in romantic heterosexual relationships. Thus, the purpose of this study was to examine the relationship between men’s pornography use, both frequency of use and problematic use, on their heterosexual female partner’s self-esteem, relationship satisfaction, and sexual satisfaction. This study examined attitudes of U.S. undergraduate women and all studies cited use U.S. samples unless otherwise noted. In addition, it examined the potential mediating role of self-esteem and the potential moderating role of relationship length in the pornography use-relationship and sexual satisfaction links among young adult college women in romantic heterosexual relationships.

Young adulthood can be viewed as a particular time of interest to researchers because it includes an exploration of sexuality and identity in and out of romantic relationships and often involves more sexual risk taking as well (Arnett 2004). Furthermore, college is a prime setting for these explorations because it brings together large numbers of young adults who are mostly unmarried with greater levels of freedom, more autonomy from parents, and less adult supervision (Arnett 2004; Lefkowitz 2005). Changes in sexual attitudes (e.g., becoming more liberal and knowledgeable about sex), behaviors (e.g., having sex for the first time, experimenting with sex more), partners (e.g., becoming more selective about partners, becoming less trusting of partners), and environment (more exposure to sex, more social acceptance of sex) also occur among students as a result of the transition to college (Lefkowitz 2005). Other research has shown that pornography use is highest among young adults (Buzzell 2005), and the most important

motivations for use are to stimulate sexual arousal and fulfill curiosity about sex (Boies 2002; Goodson et al. 2001). Although young adults in college may experiment and use pornographic materials more; little research on pornography has focused on this population. In addition, during this developmental time period romantic relationships are central contexts for promoting individual development and become more salient and tend to involve deeper levels of intimacy than during adolescence (Arnett 2004; Galliher et al. 2004).

#### Theorized Psychological, Relational, and Sexual Correlates of Men’s Pornography Use on Their Female Romantic Partners

Several, mostly qualitative studies, have begun to examine the links between pornography and women’s psychological, relational, and sexual health. For example, Shaw (1999) interviewed an Eastern Canadian community sample of 32 women about their reactions to magazine pornography and to their male partner’s pornography use. She found that women often had feelings of inadequacy and lowered self-esteem relative to these magazines. In addition, many women complained that the images in pornographic magazines were unrealistic, in that very few women look like the women in the photos. Participants commented about how these images of ideal women and sexy bodies made them feel inadequate and unhappy with themselves and their own bodies. Shaw’s study found the following statements to be typical of female respondents in reference to their partners’ pornography use:

It makes you think that you’re supposed to look really good, and that that’s a very important thing. It makes it seem as if it’s one of the most important things. (p. 206)

These men look at these pictures and say, ‘Look at her. She’s just beautiful. Why can’t you be like that?’ (p. 206)

In another qualitative study of 100 U.S. women whose male partners’ were heavily involved in pornography, Bergner and Bridges (2002) found that the vast majority of women in their sample reported that their male partners’ pornography viewing made them feel sexually undesirable. Participants used descriptors of themselves such as “fat” or “ugly,” (p. 198) in reaction to their partners’ preference for pornography. The resounding message was one of inadequacy and an inability to measure up to the images of perfection depicted in pornographic media. Similarly, Zitzman (2007) asked a clinical sample of conservative Christian married women in the U.S. to discuss the emotional ramifications of their husbands’ pornography usage. All of the women ( $n=14$ ) reported lower self esteem and

more self doubt. For example, one participant stated that her “self- esteem plummeted” (p. 38) and she started feeling like “an awful person” (p. 38). Other representative comments made by the women were:

I feel like I’m in competition with skinnier, prettier girls, you know that are on the internet or in movies or whatever. Just how the world and Hollywood portrays women and makes me feel like, well, if I was prettier, if I was sexier, or this or that, then he wouldn’t have this problem. That’s been hard for me. (p. 38)

I started doubting myself. I started doubting my worth. I started doubting the things that made me feel special and meaningful. Because if I was so special and meaningful, why was he going to that? (p. 39)

Lastly, two quantitative studies have explored the links between pornography use and psychological health. In a U.S. based study of 100 female Internet message board users who were involved in a relationship with a man who viewed pornography, women who reported the highest levels of male partner’s frequency and duration of pornography use were most distressed about this use (Bridges et al. 2003). In addition, they found that married women reported more distress over a male partner’s pornography use than those who were dating, but relationship length was more complex. In a Norway based study of 399 heterosexual couples, discriminant function analyses revealed that couples where only one partner used online pornography were characterized by a man with sexual arousal problems and a female partner who frequently thinks negatively about herself (Daneback et al. 2009).

In addition to psychological consequences, qualitative research also indicates that men’s pornography use may negatively affect their female partner’s relationship quality and sexual satisfaction. In Bergner and Bridges’ (2002) study, women were asked to post letters to an online message board about their partner’s pornography use; the majority of women described their partner’s viewing of porn as “betrayal” (p. 196) and an “affair” (p. 196). The women participants in this study typically experienced their partner’s pornography use as infidelity and expressed in their letters themes that the love between couples should only be shared between those two individuals and not countless fantasy women. These women also reported feeling very isolated from their partners upon discovering their pornography usage; they felt their partner had an entire secret life that was separate and barred from them. Relatedly, Zitzman (2007) found that after wives discovered their husband’s pornography use, themes of uncertainty, lack of confidence, and loss of trust in the relationship arose, which generally damaged their relationship. In addition, the results suggested that pornography use by a spouse can have a tremendously devastating impact on the marriage relationship and

on a general sense of well-being, because the women whose male partners viewed porn felt betrayed, isolated, and confused.

In terms of sexual satisfaction, Shaw (1999) reported lowered sexual interest after discovering a partner’s use of pornographic materials as fairly common among female participants. To illustrate, one of her participants reported:

One thing I hate about it . . . say my husband had a long day at work . . . he’ll tell me he’ll look at *Playboy* . . . and if he wants to have sexual relations with me it turns me off completely. I hate it. I don’t know why . . . psychologically. If you have to be turned on by somebody else besides me, I don’t like it at all. (p. 207)

Relatedly, a study by Bergner and Bridges (2002) found that when women continued to be sexual with their partners after the discovery of their partner’s pornography use, they often felt their partner was using them as a “warm body” (p. 197) or thinking of other women depicted in pornography resulting in dissatisfaction with their sex life.

Lastly, three quantitative studies have explored the links between pornography use and relational outcomes. In a general population survey of 531 U.S. male and female Internet users, individuals who reported being in a happy marriage were 61 % less likely to have visited a sexually explicit website during the past month than those who were not in a happy marriage (Stack et al. 2004). In another U.S. based study of 1,291 unmarried individuals in romantic relationships, individuals who reported viewing erotic websites, magazines, and movies alone reported less relationship quality and less sexual satisfaction than those who never viewed sexually explicit materials (Maddox et al. 2011). Finally, a U.S. based Internet survey of 217 heterosexual couples found that the relationship between men’s reports of their pornography use and their female partner’s relationship satisfaction was only marginally significant (Bridges and Morokoff 2011).

Taken together, previous research examining links between pornography use and psychological and relational outcomes has been limited by heavy reliance of qualitative studies using small, selective clinical samples or samples where women reported heavy involvement of pornography use by their male partners, which limits the generalizability of findings. In addition, none of the studies reviewed focused on young adult college women and several studies were conducted outside the U.S., which limits the generalizability of these findings to this population. The handful of quantitative studies that have been conducted are limited by the use of one item measures to assess pornography use which lack reliability and validity support and fail to distinguish between

frequency of pornography use and problematic pornography use, that is when the amount of use becomes a concern to others and results in secondary problems (e.g. life and relationship problems) related to that use. Finally, none of the quantitative studies moved beyond the basic question of “Does pornography use predict distress?” to theory-driven examination of mediators and moderators of these relationships.

For example, in addition to the theorized direct effects, it may be that men’s pornography use has indirect effects (via self-esteem) on their female partner’s relationship quality and sexual satisfaction. That is, a male partners’ pornography use may lead to lowered self-esteem which in turn leads to poor relationship quality and less sexual satisfaction. According to the *looking glass self* theory proposed by sociologists such as Cooley (1956) and Mead (1934), self-esteem develops through interactions with others and is a reflection of those others’ appraisals of oneself. This perspective suggests that women who are aware that their partners use pornography use may incorporate the negative attitudes and images into their self-concept, and consequently, be lower in self-esteem (Crocker and Major 1989). Drawing from models of stress and coping (e.g., Lazarus and Folkman 1984), it could also be that a male partner’s pornography use might be experienced as a stressful and oppressive event that threatens his partners self image. This threat may then have consequences for a female partner’s self-esteem or self-worth, which in turn directly affects relational outcomes. Supporting these assertions, research has shown that self-esteem mediates the relationship between sexist events and depression and anxiety among women (Fischer and Bolton Holz 2007).

Furthermore, the relationship between men’s pornography use on their female partner’s relational outcomes may be moderated/intensified by relationship length. That is, the relationship between relationship men’s pornography use and their female partner’s relationship quality and sexual satisfaction may be stronger for women who have been in their relationship for a long time versus those who have been in their relationship for a short time. Because longer relationships have more shared history and are more likely to exhibit stronger commitment and trust levels, participants in shorter relationships may be less emotionally and psychologically affected by their partner’s behavior and attitudes.

### Current Study

In sum, pornography is prevalent in U.S.’ culture; however, little is known about the psychological, relational, and sexual influences that it can have on young adult college women in heterosexual romantic relationships. The

purpose of this study was to begin examining some of these links. More specifically, we examined the following hypotheses:

Hypothesis 1: Women’s reports of their male romantic partners’ pornography use, both frequency of use and problematic use, would be negatively related to their self-esteem, relationship quality, and sexual satisfaction.

Hypothesis 2: Self-esteem would partially mediate the relationship between women’s reports of their male romantic partners’ frequency of pornography use and problematic pornography use and relationship quality and sexual satisfaction.

Hypothesis 3: Relationship length would moderate the relationship between women’s reports of their male romantic partners’ frequency of pornography use and problematic pornography use and relationship quality and sexual satisfaction.

To test hypothesis 1, correlations between women’s reports of their male romantic partners’ frequency of pornography use and problematic pornography use and self-esteem, relationship quality, and sexual satisfaction were conducted. To test hypothesis 2, bootstrap analyses for mediation was conducted (Mallinckrodt et al. 2006). To test hypothesis 3, hierarchical multiple regressions was used because it is recognized as the best method to detect the presence or absence of interaction/moderating effects (Aiken and West 1991; Frazier et al. 2004). In these analyses, the predictor and proposed moderator variables were entered at Step 1. Next, at Step 2, the interaction terms were entered. Evidence for an interaction/moderator effect is noted at Step 2 by a statistically significant increment in  $R^2$  and beta weight.

## Method

### Participants

The initial sample comprised 330 female participants who completed an online survey.

One self-identified man, four self-identified bisexual participants, three participants who were over 30 years old, six participants who indicated that they were not in a current relationship or their relationship duration was for less than 3 months, one participant who failed one or more of the validity check items (e.g. For this item, click the button labeled blue), and seven participants who left at least one measure completely blank were eliminated from the dataset, which resulted in a final sample of 308 participants. There were no other missing data.

Participants ranged in age from 18 to 29 years, with a mean age of 18.81 years ( $SD=1.87$ ). The sample was 8 % African American, 3 % Asian American/Pacific Islander,



86 % White, 2 % Multiracial, and 1 % Other. All participants were currently enrolled in college, with 72 % being first year undergraduates, 14 % Sophomores, 8 % Juniors, 4 % Seniors, 2 % Graduate Students, and 1 % Other. Participants reported being a member of the following social classes: 3 % Wealthy, 39 % Upper-Middle Class, 46 % Middle Class, 10 % Lower-Middle Class, and 2 % Working Class. Twenty four percent of participants indicated that they were first generation college students. Relationship length ranged from .25 to 7.33 years, with a mean relationship length of 1.51 years ( $SD=1.30$ ). Participants reported hearing about the study from their undergraduate psychology course/psychology department's human research pool system (96 %), a friend or colleague (3 %), and from a student group, organization or listserve (1 %). Percentages may not add up to 100 % due to rounding.

## Measures

### *Women's Reports of their Male Romantic Partner's Pornography Use*

To date, there have been no validated scales that measure women's reports of their male romantic partner's frequency of pornography use or problematic pornography use. Thus, women's reports of their male romantic partner's pornography use was assessed via a 17 item scale developed for this study, the Perceived Partner's Pornography Use Scale, which includes nine items assessing perceptions of frequency of use and eight items assessing perceptions of problematic use (see Appendix A for scale items and response options). Items were developed based on a review of the literature on pornography use and were reviewed by two doctoral level counseling psychologists and one doctoral level counselor educator, thus providing support for content validity. Means scores are used with higher scores indicating more pornography use.

To establish structural validity for the Partner's Pornography Use Scale, an exploratory factor analyses using principal axis factoring (PAF) with promax rotation was conducted. The chi-square test of sphericity was significant ( $p<.001$ ), which indicates that the data was appropriate for factor analysis (Kahn 2006). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy yielded a value of .91, which indicates that the sample size was large enough to evaluate the factor structure (Kahn 2006). Five criteria were used to determine the number of factors to be extracted and rotated for the final solution: (a) parallel analysis, (b) Velicer's minimum average partial (MAP) test, (c) a minimum loading of three items on each factor, (d) percentage of total variance explained by each

factor, and (e) interpretability of the solution, using a factor loading cutoff of .40 and no cross-loadings with less than .15 difference from an item's highest factor loading (Kahn 2006; Tabachnick and Fidell 2001; Worthington and Whittaker 2006).

Results of the parallel analysis and Velicer's MAP test conducted using O'Connor's (2000) programs for SPSS both indicated a two factor solution that accounted for 64 % of the variance. Because we assumed that the factors would be correlated we used promax rotation. Inspection of the factor correlation matrix supported this choice with the two factor solution at .33 (Tabachnick and Fidell 2001). All the perceptions of pornography frequency of use items loaded on Factor 1 and accounted for 43 % of the variance. All of the perceptions of problematic pornography use items loaded on Factor 2 and accounted for 21 % of the variance. Table 1 shows factor loadings, possible range, means, and standard deviations for the Perceived Partner's Pornography Use Scale items. Factor loadings ranged from .54 to .94 for the perceptions of frequency of use subscale and .46 to .92 for the perceptions of problematic use subscale. Internal consistencies (alpha) for scores were .92 for the frequency of use subscale, .90 for the problematic use subscale, and .91 for the full scale. Initial evidence for construct validity was provided by positive correlations between the perceptions of frequency of pornography use and perceptions of problematic pornography use subscales ( $r=.37, p<.05$ ). In addition, discriminate validity was supported by no significant relationships between perceptions of frequency of pornography use subscale, perceptions of problematic pornography use subscale, and perceptions of pornography use full scale and the short-form of the Marlowe-Crowne Social Desirability Scale (Crowne and Marlowe 1960; Reynolds 1982;  $rs=-.05, -.10, -.09, ps>.05$ , Cronbach Alpha=.72) and relationship length ( $rs=.10 -.01, .06, ps>.05$ ).

### *Self-esteem*

Self-esteem was assessed using the Rosenberg (1965) Self-Esteem Scale (RSE), which consists of 10 statements reflecting self-worth and self-acceptance. Example items include, "On the whole, I am satisfied with myself," and, "I take a positive attitude toward myself." Each item is rated on a 4-point Likert scale from 1 (*strongly disagree*) to 4 (*strongly agree*). Mean scores are used with higher scores greater self-esteem. Reported reliability coefficient of reproducibility was .93 and scalability was .73 for scores on the RSE. Validity of RSE scores was supported by its positive correlations with measures of peer-group reputation and negative correlations with anxiety and depression (Rosenberg 1965). Alpha for the current sample was .88.

**Table 1** Items, factor loadings, possible range, means, and standard deviations for the perceived partner's pornography use scale

Item No.	Item	Factor 1	Factor 2	Possible Range	Mean (SD)
6	More specifically, how frequently does your boyfriend/partner view sexually explicit/pornographic material (such as magazines, movies, and/or Internet sites)?	.94	-.08	1–6	1.92 (1.16)
5	Taken together, how frequently does your boyfriend/partner view sexually explicit/pornographic material (such as magazines, movies, and/or Internet sites)?	.87	-.01	1–5	1.63 (.90)
4	How frequently does your boyfriend/partner view sexually explicit materials/pornography via the Internet?	.85	.02	1–5	1.68 (.94)
8	When using/viewing sexually explicit/pornographic materials (including online, magazines, DVD/videos/movies) in one sitting, your boyfriend/partner spends approximately _____ amount of time doing such.	.81	-.02	1–6	1.71 (.87)
7	Taken together, how many hours per week does your boyfriend/partner view sexually explicit/pornographic material (such as magazines, movies, and/or Internet site)?	.78	.06	1–6	1.37 (.73)
1	Circle the statement that most accurately describes your situation; a. To my knowledge, my partner has NOT used pornographic materials (including online, magazines, DVD/videos/movies). b. To my knowledge, my partner HAS used pornographic materials (including online, magazines, DVD/videos/movies)	.74	-.09	1–2	1.44 (.50)
3	How frequently does your boyfriend/partner view sexually explicit materials/pornography via adult videos, movies, and/or films?	.69	.11	1–5	1.44 (.74)
9	I do not have any awareness of my partner's use of pornography (including online, books/magazines, DVD/videos), at this time.	.61	-.07	1–2	1.43 (.50)
2	How frequently does your boyfriend/partner view sexually explicit materials/pornography via adult magazines (e.g., Playboy, Hustler)?	.54	.14	1–5	1.33 (.61)
12	My boyfriend/partner's use of sexually explicit materials/ pornography (including online, magazines, DVD/videos) use has interfered with certain aspects our relationship.	-.04	.92	1–5	1.49 (.92)
14	My boyfriend/partner's use of sexually explicit materials/ pornography is a problem in our relationship currently.	-.10	.91	1–5	1.43 (.86)
11	My boyfriend/partner's use of sexually explicit materials/ pornography (including online, magazines, DVD/videos) has interfered with certain aspects of his life.	-.07	.90	1–5	1.37 (.81)
16	My boyfriend/partner's use of sexually explicit materials/ pornography has negatively affected me.	-.07	.86	1–5	1.56 (.97)
17	I believe my boyfriend/partner is addicted to sexually explicit materials/pornography.	-.01	.77	1–5	1.28 (.74)
15	I believe that my boyfriend/partner uses pornography more than what would be considered a "normal" or "average" amount.	.09	.57	1–5	1.55 (.97)
10	My boyfriend/partner uses sexually explicit materials/pornography (including online, magazines, DVD/videos) more than I would like him to.	.35	.53	1–5	1.95 (1.22)
13	I wish my boyfriend/partner would stop using sexually explicit materials/pornography.	.18	.46	1–5	2.46 (1.37)

Factor 1 = Perceptions of Frequency of Pornography Use; Factor 2 = Perceptions of Problematic Pornography Use

### Relationship Quality

Relationship quality was assessed using the Dyadic Adjustment Scale (DAS; Spanier 1976), which consists of 32 items reflecting the quality of adjustment in romantic relationships along four dimensions: Dyadic Consensus, Dyadic Satisfaction, Dyadic Cohesion, and Affectional Expression. Participants are asked to rate the extent of agreement between themselves and their partner on a variety of items such as "handling family finances and "leisure time interests and activities." Response options

vary with 28 of the items being rated on a 6-point Likert scale from 1 to 6, one item being rated on a 7-point Likert scale from 0 to 6, and two items being rated on a 2-point Likert scale from 1 to 2. Mean scores are used with higher scores indicating greater relationship quality. Reported alpha for scores on the DAS was .96. Validity was supported by expert judges, positive correlations between the DAS and other measures of relationship adjustment, and discriminating between divorced and married individuals on each item (Spanier 1976). Alpha for the current sample was .91.

## Sexual Satisfaction

Sexual satisfaction was assessed using the sexual satisfaction subscale of the Multidimensional Sexuality Questionnaire (MSQ; Snell et al. 1993), which consists of five items measuring the tendency to be highly satisfied with the sexual aspects of one's life. Examples items include, "I am very satisfied with the way my sexual needs are currently being met" and "My sexual relationship is very good compared to most." Each item is rated on a 5-point Likert scale ranging from 0 (*not at all characteristic of me*) to 4 (*very characteristic of me*). Mean scores are used; higher scores indicate more sexual satisfaction. Reported alpha for scores on the sexual satisfaction subscale was .90 and test retest reliability was .76 (Snell et al. 1993). Validity was supported via exploratory factor analysis and by demonstrating that scores on the MSQ subscales were related in the expected directions to sexual attitudes, sexual behaviors, contraceptive behaviors, exchange and communal approaches to sexual relations, and other instruments conceptually similar to the MSQ (Fisher and Snell 1995; Snell et al. 1993). Alpha for the current sample was .95.

## Procedure

Participants were primarily recruited through a department of psychology human research pool at a large Southern university. In addition, participants were also recruited by a research announcement sent via email to the contact person of a variety of organizations and student groups at the same university who were asked to forward the research announcement to their student group, listserve, and/or eligible friends. The research announcement and the informed consent stated that the researchers were conducting a study on gender-related attitudes and experiences and how these may relate to various aspects of women's relationship and sexual satisfaction. It also stated that the research survey would ask questions about feelings, thoughts, and experiences

they may have had in their romantic relationship and as a woman, their male partner/boyfriend's use of sexually explicit materials, and demographics. Those participants recruited through the department of psychology's human research pool received course credit in their undergraduate classes or the option to enter a raffle awarding a \$100 Amazon.com gift card to ten randomly selected participants. In addition, participants recruited outside of the human research pool system (student groups/list-serves) were able to enter the \$100 Amazon.com gift card raffle.

Participants completed an online web-based survey, which included a demographic questionnaire and the aforementioned randomly ordered measures. Once respondents went to the first page and read the informed consent they indicated consent to take the survey by clicking a button. Then they were directed to the webpage containing the survey. Procedures for this website survey were based on published suggestions (Buchanan and Smith 1999; Michalak and Szabo 1998; Schmidt 1997). Methods for protecting confidentiality included having participants access the survey via a hypertext link rather than e-mail and the use of a separate course credit/gift certificate raffle database so there was no way to connect a person's on-line course credit/gift certificate raffle submission with her submitted survey. Methods used for ensuring data integrity included the use of a secure server protected with a firewall to prevent tampering with data and programs by "hackers" and inadvertent access to confidential information by research participants

## Results

Means, standard deviations, skew, kurtosis, and correlations among the study variables are presented in Table 2. Examination of the distributions revealed that all of the main variables (perceptions of frequency of pornography use, perceptions of problematic pornography use, self-esteem, relationship quality, sexual satisfaction and relationship

**Table 2** Descriptives and correlations among pornography use and theorized psychological and relational outcomes

Variable	Possible Range	M (SD)	Skew Statistic/Std Error	Kurtosis Statistic/Std Error	1	2	3	4
1. Perceptions of Frequency of Pornography Use	.67–4.33	1.55 (.62)	1.20/.14	1.14/.28	–			
2. Perceptions of Problematic Pornography Use	1–5	1.63 (.76)	1.61/.14	2.57/.28	.37*	–		
3. Self-esteem	1–4	3.20 (.50)	-.41/.14	.32/.28	.01	-.13*	–	
4. Relationship Quality	.97–5.75	4.60 (.53)	-.84/.14	.28/.28	-.16*	-.21*	.33*	–
5. Sexual Satisfaction	1–5	3.93 (1.17)	-1.03/.14	.04/.28	-.09	-.25*	.18*	.41*

\* $p < .05$

length) had significant skew and/or kurtosis at the  $p < .05$  level; however, these are unlikely to make a substantive difference in the analyses given this study's large sample size (Tabachnick and Fidell 2001).

Subsequently, transformations (square root or log) of these variables resulted in acceptable, non-significant values for skew and kurtosis for self-esteem, relationship quality, and relationship length. The perceptions of frequency of pornography use, perceptions of problematic pornography use, and sexual satisfaction were still skewed but much improved by the transformation. Next, all the analyses were conducted first with non-transformed data and then again with the transformed values. Significance levels and the directions of the relationships (i.e., signs on the beta weights) did not change meaningfully from those obtained with the non-transformed data. Thus, for clarity in presentation of the data and because the transformation process did not alter the results, the statistical results that were obtained using the non-transformed data are presented.

To test hypothesis 1, a Pearson  $r$  correlation was conducted to examine the relationship between women's reports of their male romantic partners' pornography use and self-esteem, relationship quality, and sexual satisfaction. Results from the analyses revealed that greater perceptions of frequency of pornography use by a male partner was negatively correlated with relationship quality ( $r = -.16$ ,  $p < .05$ ). More perceptions of problematic use of pornography was negatively correlated with self-esteem ( $r = -.13$ ,  $p < .05$ ), relationship quality ( $r = -.21$ ,  $p < .05$ ), and sexual satisfaction ( $r = -.25$ ,  $p < .05$ ). These results are consistent with our hypothesis that the greater use of pornography will be negatively related to self-esteem, relationship quality, and sexual satisfaction.

To test the mediation model outlined in hypothesis 2, we used bootstrap analyses as recommended by Mallinckrodt et al. (2006). For mediation to be interpreted there must be a significant relationship between the predictor and the criterion and a significant indirect relationship between the predictor and the criterion through the mediators. Note that scholars have recently observed that it is not necessary for both the component paths of the indirect effect to be statistically significant (Mallinckrodt et al. 2006). As noted above, partner's frequency of pornography use was significantly related to relationship quality but not to sexual satisfaction. Partner's problematic pornography was significantly related to relationship quality and sexual satisfaction. Thus, we examined the mediational role of self-esteem only in the partner's perceptions of frequency of pornography-relationship quality, perceptions of partner's problematic pornography use-relationship quality, and perceptions of partner's problematic pornography use-sexual satisfaction links.

To test the significance of these hypothesized mediated effects, we used a bootstrap analysis to create 1,000 bootstrap samples from our dataset and to compute 95 % confidence interval (CI) for the hypothesized indirect relations. If the 95 % CI does not include 0, then the indirect link is statistically significant at  $p < .05$ . Results indicated that self-esteem did not mediate the relationship of perceptions of partner's frequency of pornography use and women's relationship quality nor perceptions of partner's problematic pornography use and women's sexual satisfaction. However, results indicated that self-esteem partially mediated the relationship between perceptions of partner's problematic pornography use and women's relationship quality (unstandardized coefficients for indirect path =  $-.03$ ;  $se = .017$  and for 95 % CI =  $-.070$   $-.001$ ). The standardized indirect effect of perceptions of partner's problematic pornography use on women's relationship quality via self-esteem was  $\beta = -.04$  [i.e.,  $-.13$  (perceptions of problematic pornography use  $\rightarrow$  self-esteem)  $\times .30$  (self-esteem  $\rightarrow$  relationship quality)]. The standardized total effect of perceptions of problematic pornography use on relationship quality was  $-.21$  and the direct effect (i.e., perceptions of problematic pornography use  $\rightarrow$  relationship quality) was  $-.17$ . Furthermore, the path between the predictor (perceptions of problematic pornography) and the outcome (relationship quality) variable was significantly reduced when the mediator (self-esteem) was included in the equation, indicating partial mediation ( $c = -.21$  and  $c' = -.17$ ). Finally, the variables in the model accounted for more 13 % of the variance in relationship quality.

To test hypothesis 3, a series of hierarchical multiple regression analyses were conducted to examine the potential moderating role of relationship length in the links between perceptions of pornography use, both frequency and problematic use, and relationship quality and sexual satisfaction. Reported sample power analyses based on Aiken and West (1991) suggested that the sample size of 308 was large enough to detect an interaction of large and moderate effect sizes but well under what is needed to detect a small effect size. Prior to these analyses, scores for measures of perceptions of frequency of pornography use, perceptions of problematic pornography use, and relationship length were centered (i.e., put into deviation units by subtracting their sample means to produce revised sample means of zero) to reduce multicollinearity between the interaction terms and other predictor variables (Tabachnick and Fidell 2001). The centered scores were used to create the interaction terms and multicollinearity was not a problem as absolute value correlations were below .90, condition indexes were below 30, and variance inflation



**Table 3** Summary of hierarchical regressions predicting relationship quality

Step	Variables	$\beta$	$t$	$R^2$	$R^2$ change	Sig. $F$ change	$df$
1	Perceptions of Frequency of Pornography Use	-.163*	-2.86	.025	.027	.016	(2, 305)
	Relationship Length	-.010	-.169				
2	Perceptions of Frequency of Pornography Use	.008	.14	.025	.000	.892	(1, 304)
	X Relationship Length						
1	Perceptions of Problematic Pornography Use	-.211*	-3.75	.043	.043	.001	(2, 305)
	Relationship Length	-.021	-.37				
2	Perceptions of Problematic Pornography Use	-.054	-.95	.046	.003	.343	(1, 304)
	X Relationship Length						

$\beta$  and  $t$  reflect values from the final regression equation, \* $p < .05$

factors were below 10 (Myers 1990; Tabachnick and Fidell 2001).

Main effects were entered at Step 1 and interaction effects at Step 2. Evidence for a moderator effect is noted at Step 2 by a statistically significant increment in  $R^2$  and beta weight.

Results from the analyses predicting relationship quality are presented in Table 3. Contrary to the hypothesis, relationship length did not moderate the perceptions of frequency of pornography use-relationship quality link, and relationship length did not moderate the perceptions of problematic pornography use-relationship quality link.

Results from the analyses predicting sexual satisfaction are presented in Table 4. Contrary to the hypothesis, relationship length did not moderate the perceptions of frequency of pornography use-sexual satisfaction link. Supporting the hypothesis, relationship length did moderate the relationship between perceptions of problematic pornography use and sexual satisfaction,  $R^2 = .10$ ,  $F(1, 304) = 10.28$ ,  $p < .05$ . Perceptions of problematic pornography use ( $\beta = -.27$ ) and the interaction of perceptions of problematic pornography use and relationship length ( $\beta = -.18$ ) were the only significant predictors of sexual satisfaction (see Table 4). The interaction of perceptions of problematic pornography use and relationship length accounted for 3 % of the variance above and beyond that accounted for by the

variables entered at step 1. Relationship length was not a significant predictor of sexual satisfaction.

To interpret the statistically significant interaction, regression lines for the full sample were plotted using Aiken and West's (1991) procedure. Sexual satisfaction scores for perceptions of problematic pornography scores of one standard deviation below and above the mean and short relationship length (one standard deviation below the mean) versus long relationship length (one standard deviation above the mean) were plotted on a graph (see Fig. 1). Aiken and West's (1991) simple slope analysis showed that perceptions of partner's problematic pornography did not predict sexual satisfaction for women with short relationship length ( $\beta = -.094$ ,  $t = -1.278$ ,  $p = .202$ ), whereas perceptions of partner's problematic pornography use did predict sexual satisfaction for women with long relationship length ( $\beta = -.442$ ,  $t = -5.526$ ,  $p = .000$ ).

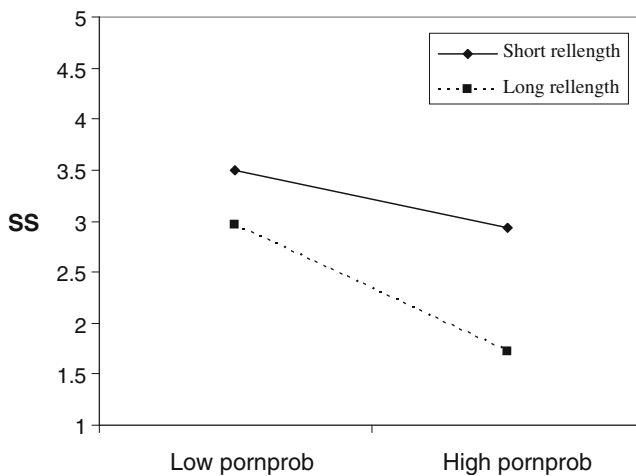
## Discussion

The findings of the current study revealed that women's reports of their male partner's problematic pornography use were negatively associated with their self-esteem, relationship quality, and sexual satisfaction. In addition, perceptions of frequency of pornography use were also

**Table 4** Summary of hierarchical regressions predicting sexual satisfaction

Step	Variables	$\beta$	$t$	$R^2$	$R^2$ change	Sig. $F$ change	$df$
1	Perceptions of Frequency of Pornography Use	-.084	-1.46	.009	.009	.264	(2, 305)
	Relationship Length	-.013	-.22				
2	Perceptions of Frequency of Pornography Use	-.074	-1.24	.014	.005	.214	(1, 304)
	X Relationship Length						
1	Perceptions of Problematic Pornography Use	-.268*	-4.91	.067	.067	.000	(2, 305)
	Relationship Length	-.018	-.32				
2	Perceptions of Problematic Pornography Use	-.178*	-3.21	.097	.031	.001	(1, 304)
	X Relationship Length						

$\beta$  and  $t$  reflect values from the final regression equation, \* $p < .05$



**Fig. 1** Interaction of partner's problematic pornography use and relationship length on women's sexual satisfaction. Note: SS = Sexual Satisfaction; rlength = relationship length; pornprob = perceptions of partner's problematic pornography use

negatively related to relationship quality. These findings are consistent with previous qualitative descriptions of women's experiences after they discover their male partner's heavy involvement in pornography. For example, Bergner and Bridges (2002) reported a common theme among female participants was that felt they could not compete with the sexual and physical ideals portrayed in pornographic materials, resulting in conflictual feelings about their self-worth. Relatedly, perceived negative effects of pornography on relational and sexual outcomes were evident in qualitative studies conducted by Shaw (1999) and Zitzman (2007). Furthermore, the findings are consistent with research indicating that young adult women's perceptions of their male partners' behaviors (e.g., conflictual behavior, balance of support and conflict) are important in predicting their relationship quality (Galliher et al. 2004).

The findings of the present study also suggest that perceptions of partner's problematic pornography use may be more important than perceptions of partner's frequency of use on their feelings about themselves and their romantic relationships. One explanation for this finding may be that some pornography use by men is considered normative in U.S. culture. It may be that only when the use becomes problematic and begins to interfere with day to day functioning that it may have damaging effects. In addition, men who view pornography compulsively or addictively may be more likely to become isolated and emotionally detached from their female partner's experiences and needs, which in turn leads to lower relationship quality and less sexual satisfaction (Cooper et al. 2001).

The current study examined the potential mediating role of self-esteem in the links between perceptions of

pornography use, both frequency of use and problematic use, and relationship quality and sexual satisfaction. Our study found that self-esteem partially mediated the relationship between perceptions of partner's problematic pornography use and relationship quality. Thus, not only does perceptions of partner's problematic pornography use directly affect relationship quality, it also appears that this relationship is partly based on perceptions of partner's problematic pornography use's diminishment of one's self-esteem.

The current study examined the potential moderating role of relationship length in the links between perceptions of pornography use, both frequency of use and problematic use, and relationship quality and sexual satisfaction. The only significant finding occurred for the interaction of perceptions of problematic pornography use and relationship length in predicting sexual satisfaction. The results indicated that significant risk or dissatisfaction was associated with longer relationship length. This is consistent with the notion that participants in shorter relationships may be less affected by their partner's behavior and attitudes. Future research might examine actual commitment or relationship investment levels and sexual intimacy as potential moderators in the partner pornography use-relational quality and sexual satisfaction links.

The findings of the present study provide initial support the reliability and validity of the Perceived Partner's Pornography Use Scale for assessment of women's reports of their male partner's frequency and problematic pornography use. Structural validity was supported via exploratory factor analysis. Construct validity was supported by expert review, positive correlations between the perceptions of frequency of pornography use and perceptions of problematic pornography use subscales, and by theorized negative correlations between perceptions of pornography use and self-esteem and relational outcomes. Discriminate validity was supported by demonstrating that perceptions of pornography use were conceptually distinct from social desirability and relationship length. While the results of the current study are encouraging, further support for reliability and validity for the Perceived Partner's Pornography Use Scale is needed. Future research is needed to examine test-retest reliability of scores of the Perceived Partner's Pornography Use Scale. Additional support for structural validity could be accomplished through confirmatory factor analysis and cross-validation using more diverse female samples.

#### Limitations

The current study is limited by a convenience sample that did not have many women of color or women from economically disadvantaged families and was predominately

short term relationships. In addition, women in shorter or less committed relationships may have less awareness of their partner's behavior and attitudes due to the nature of the relationship. For example, in a marital or more long-term, committed relationship, partners may live together, share a space, and be more aware of each other's behaviors and interpersonal patterns. Partners in a close relationship tend to share goals and plans with their significant other in addition to developing a pattern of communicating (Simpson 1987). College students may not experience as much commitment, intimacy, and awareness of another person during this developmental stage of life. Acker and Davis (1992) reported participants indicated greater levels of commitment in married or more serious relationships versus unmarried relationships.

Additionally, college students, particularly students just leaving high school and their hometowns may find themselves in a long-distance relationship. The physical separation experienced in these relationships may also attribute to less intimacy or closeness, and in return, less awareness of a partner's general behaviors and patterns. The current study did not inquire about long-distance relationship status, although previous research reports that approximately 66 % of college students in long-distance relationships did not believe their partnerships would endure for the remainder of the school-year (Helgeson 1994). Furthermore, participants in long-distance relationships reported less relational satisfaction when they spent time with their partner for less than one visit a month (Holt and Stone 1988). Given the restricted sample and distribution of scores on the partner's pornography use measure, it is likely that Pearson's  $r$  may have underestimated the magnitude of the relationship between partner's pornography use and psychological and relational outcomes assessed in this study (Kirk 1990).

Individual differences regarding attitudes and beliefs about pornography may have contributed to participant's endorsement of survey items. For example, Senn (1993) found that women's attitudes about pornography ranged from anti-pornographic and scathing to mildly positive. It is likely that our sample consisted of women who experience different attitudes and beliefs about pornography; therefore, their feelings about their perceptions of partner's pornography use may have been viewed as non-problematic, acceptable, or even positive. Finally, the correlational and cross-sectional nature of this study precludes definitive answers about the causal sequence proposed in our study, and alternative explanations are plausible. For example it could be that women with poor self-esteem seek out partners who will continue to reinforce those negative images and the partners will tend toward the use of pornographic materials. Relatedly, men could increase their use of pornography due to women's poor self-image or to the low quality of their relationship.

## Directions for Future Research

Clearly, more research about how women are affected by their partner's use of pornography is needed. Future research should include samples of longer-term relationships, married women, women living with their partners, more varied age ranges, and groups recruited from other contexts (e.g., church groups, community organizations, professional organizations, counseling and psychological centers). Because all the pornography studies reviewed above focused either exclusively on heterosexual persons, future research is needed on sexual minority persons. In addition, investigations are needed that assess men's reports of their pornography use as predictors of their female partner's psychological, relational, and sexual outcomes and to examine if there are differences between women who are aware of and women who are not aware of their male partner's use pornography on psychological and relational outcomes; that is, "Is ignorance bliss?"

While much of the previous literature indicates that women's views about pornography are generally less favorable than men, assessing women's perspectives about pornography may give a clearer picture of how pornography affects them. As such, future research might examine the potential moderating effects of women's attitudes toward pornography in the link between their male partner's pornography use and psychological and relational outcomes. For example, the link between perceptions of pornography use and relational and sexual satisfaction may be stronger for women who hold more negative views toward pornography. Longitudinal research is needed to establish a cause and effect relationship between partner pornography use and psychological and relational outcomes. Building on the findings from qualitative research (Bergner and Bridges 2002; Shaw 1999; Zitzman 2007), future research might examine the meditational roles of attachment styles and relationship commitment, trust, betrayal, and conflict in the link between partner's pornography use and psychological distress, relationship quality, sexual satisfaction.

In conclusion, the current study adds to the small but burgeoning body of research demonstrating the negative impact that a male partner's problematic pornography use may have on their female partner's self-esteem, relationship quality, and sexual satisfaction. This study extends prior research by employing a multiple-item measure to assess perceptions of pornography use, using a large non-clinical sample of young adult college women, and examining both simple and complex relationships between men's pornography use and their female partner's relational outcomes. The results of this study also support the use of the Perceived Partner's Pornography Use Scale as a research tool to further our understanding of the impact of a male partner's pornography use on women in heterosexual relationships.

## Appendix A. Perceived Partner's Pornography Use Scale

### *Perceptions of Frequency of Use Subscale*

1. Circle the statement that most accurately describes your situation;
  - a. To my knowledge, my partner has NOT used pornographic materials (including online, magazines, DVD/videos/movies).
  - b. To my knowledge, my partner HAS used pornographic materials (including online, magazines, DVD/videos/movies)

<b>Never</b>	<b>Rarely</b>	<b>Sometimes</b>	<b>Frequently</b>	<b>Most of the time</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

2. How frequently does your boyfriend/partner view sexually explicit materials/pornography via adult magazines (e.g., Playboy, Hustler)?

3. How frequently does your boyfriend/partner view sexually explicit materials//pornography via adult videos, movies, and/or films?

4. How frequently does your boyfriend/partner view sexually explicit materials/pornography via the Internet?

5. Taken together, how frequently does your boyfriend/partner view sexually explicit/pornographic material (such as magazines, movies, and/or Internet sites)?

6. More specifically, how frequently your boyfriend/partner view sexually explicit/pornographic material (such as magazines, movies, and/or Internet sites)?

0 = none

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 = everyday or almost everyday

7. Taken together, how many hours per week does your boyfriend/partner view sexually explicit/pornographic material (such as magazines, movies, and/or Internet site)?

0 = none

1 = about 1 hour per week

2 = between 2 and 4 hours per week

3 = between 4 and 6 hours per week

4 = between 6 and 8 hours per week

5 = more than 8 hours per week

8. When using/viewing sexually explicit/pornographic materials (including online, magazines, DVD/videos/movies) in one sitting, your boyfriend/partner spends approximately \_\_\_\_\_ amount of time doing such

0 = He does not ever use/view such materials



- 1 = less than 15 minutes  
 2 = between 15 minutes and 30 minutes  
 3 = between 31 minutes and 60 minutes  
 4 = between 61 minutes and 90 minutes  
 5 = more than 90 minutes

9. I do not have any awareness of my partner's use of pornography (including online, books/magazines, DVD/videos), at this time.

True, False

#### *Perceptions of Problematic Pornography Use Subscale*

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

10. My boyfriend/partner uses sexually explicit materials/pornography (including online, magazines, DVD/videos) more than I would like him to.
11. My boyfriend/partner's use of sexually explicit materials/ pornography (including online, magazines, DVD/videos) has interfered with certain aspects of his life.
12. My boyfriend/partner's use of sexually explicit materials/ pornography (including online, magazines, DVD/videos) use has interfered with certain aspects our relationship.
13. I wish my boyfriend/partner would stop using sexually explicit materials/pornography.
14. My boyfriend/partner's use of sexually explicit materials/ pornography is a problem in our relationship currently.
15. I believe that my boyfriend/partner uses pornography more than what would be considered a "normal" or "average" amount.
16. My boyfriend/partner's use of sexually explicit materials/ pornography has negatively affected me.
17. I believe my boyfriend/partner is addicted to sexually explicit materials/pornography.

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