

Pornography and the Male Sexual Script: An Analysis of Consumption and Sexual Relations

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Abstract Pornography has become a primary source of sexual education. At the same time, mainstream commercial pornography has coalesced around a relatively homogenous script involving violence and female degradation. Yet, little work has been done exploring the associations between pornography and dyadic sexual encounters: What role does pornography play inside real-world sexual encounters between a man and a woman? Cognitive script theory argues media scripts create a readily accessible heuristic model for decision-making. The more a user watches a particular media script, the more embedded those codes of behavior become in their worldview and the more likely they are to use those scripts to act upon real life experiences. We argue pornography creates a sexual script that then guides sexual experiences. To test this, we surveyed 487 college men (ages 18–29 years) in the United States to compare their rate of pornography use with sexual preferences and concerns. Results showed the more pornography a man watches, the more likely he was to use it during sex, request particular pornographic sex acts of his partner, deliberately conjure images of pornography during sex to maintain

arousal, and have concerns over his own sexual performance and body image. Further, higher pornography use was negatively associated with enjoying sexually intimate behaviors with a partner. We conclude that pornography provides a powerful heuristic model which is implicated in men's expectations and behaviors during sexual encounters.

Keywords Pornography · Male sexuality · Sex education · Cognitive script theory · Relationships

Introduction

The explosion of pornography online as well as its infiltration into the popular culture has raised questions about its influence on the sexual lives of adolescents and emerging adults. Pornography is a multi-billion dollar industry and is easily accessible to all ages by virtue of its affordability, accessibility, and anonymity (Cooper, 1998). As such, a majority of boys and girls will be exposed to pornography before age 16 (Sabina, Wolak, & Finkelhor, 2008), before the average age of first intercourse of 17.1 years (Centers for Disease Control, 2012). These high rates of pornography exposure come at a time when federally mandated abstinence-only sexual education programs have been shown to be ineffective at helping adolescents make informed and healthy sexual choices (Kohler, Manhart, & Lafferty, 2008). The absence of an effective sexual health narrative coupled with the growing proliferation of pornography raises important questions about pornography and its associations with sexual experiences and expectations. Does pornography inform sexual choices? Specifically, we ask how pornography use, particularly frequent use, is associated with intimate dyadic heterosexual sexual behavior in college men.

By age 17, an overwhelming majority of boys (93 %) and girls (62 %) have been exposed to pornography (Sabina et al.,

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2008), with 66 % of boys and 39 % of girls having seen at least one form of pornography within the past year (Brown & L'Engle, 2009). A majority of those exposures (66 %) were accidental or unwanted (Wolak, Mitchell, & Finkelhor, 2007). Another report indicated that 87 % of men and 31 % of women report using pornography for sexual purposes, with 11 % of users viewing pornography once a week or more (Boies, 2002; Carroll et al., 2008). Rates of exposure and use are relatively uncommon among children under the age of 13 (Sabina et al., 2008). Research shows that these rates represent increases in exposure and are not limited to the United States (Flood, 2007; Häggström-Nordin, Sandberg, Hanson, & Tydén, 2006; Lo & Wei, 2005; Wolak et al., 2007).

High rates of pornography exposure and use are due in part to the leading role the internet plays in the sexual education of teens and young adults (Buhi, Daley, Fuhrmann, & Smith, 2009). Adolescents are online about 12.5 h per week (Chartier, 2008), with 75 % of “online youth” using the Internet to find health information, often with a sexual focus (Rideout, 2001). Research shows that online pornography is a significant source of sex education for young people (Alexy, Burgess, & Prentky, 2009; Häggström-Nordin et al., 2006; Häggström-Nordin, Tydén, Hanson, & Larsson, 2009; Hunter, Figueredo, & Malamuth, 2010), that it is lacking in information about the consequences of risky sexual choices (Pardun, L'Engle, & Brown, 2005), and that it portrays inaccurate and unrealistic expectations about sexual encounters (Tsitsika et al., 2009).

Research shows that increased pornography exposure is associated with earlier and/or quicker onset of sexual activity, more permissive attitudes toward casual sex, and a higher likelihood of engaging in risky sexual behaviors such as anal sex, sex with multiple partners, and using drugs or alcohol during sex (Braun-Courville & Rojas, 2009; Brown & L'Engle, 2009; Peter & Valkenburg, 2006). Exposure is also associated with less progressive gender roles, an acceptance of more negative gender stereotypes including a sexual hierarchy of dominant men and subservient women, more acceptance of sexual violence, as well as more sexual harassment perpetration among male adolescents (Brown & L'Engle, 2009; Häggström-Nordin et al., 2006; Malamuth & Impett, 2001; Villani, 2001). Pornography use has also been shown to have a negative impact on the self-esteem of girls (Stewart & Szymanski, 2012) and an increase in physical insecurities related to sexual performance and body image among both men and women (Lofgren-Mårtensson & Månsson, 2010).

On the other hand, some researchers have found evidence that pornography is associated with neutral (Garos, Bettan, Kluck, & Easton, 2004) or potentially positive (Kimmel, 1990; McKee, 2007) outcomes. For example, pornography has been found to function as a form of sex education for young people that can provide information about the human body and sexual practices, thus increasing a sense of sexual competence and liberalization and decreasing sexual shame (Brown et al., 2006; Huston,

Wartella, & Donnerstein, 1988; Johansson & Hammarén, 2007; MacDonald, 1990; McKee, Albury, & Lumby, 2008).

Nevertheless, with online mainstream pornography overwhelmingly centered on acts of violence and degradation toward women, the sexual behaviors exemplified in pornography skew away from intimacy and tenderness and typify patriarchal constructions of masculinity and femininity. Content analysis of best-selling pornographic videos, for example, reveals that over 88 % of scenes involve acts of physical aggression, with 70 % of the aggressive acts being perpetrated by men, and 87 % of the acts being committed against women (Bridges, Wosnitzer, Scharrer, Sun, & Liberman, 2010). Such acts stand in sharp relief against more intimate acts, which were relatively infrequent, such as issuing verbal compliments, embracing, kissing, and laughing.

These forms of violent mainstream pornography have been shown to have negative associations with relationship quality and feelings of intimacy. Stewart and Szymanski (2012) found that pornography was negatively associated with relationship quality, particularly in longer-term relationships, and that female consumers of pornography experienced feelings of inadequacy and lower self-esteem compared to women who did not use pornography. Additionally, other research on women has documented a decrease in self-esteem and feelings of sexual desirability associated with the male partner's use of pornography (Bergner & Bridges, 2002; Shaw, 2010; Zitzman, 2007). Pornography use, particularly among men, also increases the amount of non-relational, “isolated and solitary” (Cooper, Putnam, Planchon, & Boies, 1999, p. 82; see also Ferree, 2003) sexual activity, creates harsher judgments among men regarding their female partner's physical attractiveness (Zillmann & Bryant, 1988), thus exacerbating women's feelings of insecurity (Bergner & Bridges, 2002) and is associated with decreased sexual satisfaction in partnered men (Bridges & Morokoff, 2011; Stack, Wasserman, & Kern, 2004).

Additional research is considering the ways in which the increasing use of pornography translates into perceptions of reality regarding actual sexual encounters. Tsitsika et al. (2009) found that among Greek adolescents, exposure to “sexually explicit material” fosters “unrealistic attitudes about sex and misleading attitudes toward relationships” (p. 549). Peter and Valkenburg (2008a, b, 2010a, b) found that the more pornography adolescents watch, the more likely they are to believe the material reflects real-world sexual practices and the more instrumental (less relational) they are in their approach to sex. The authors hypothesized that the vast and contradictory information about sexuality portrayed in pornography creates dissonance and sexual uncertainty, particularly when it differs from information presented by families and schools. Frequently, the use of pornography leads to a greater preoccupation with sex and more frequent distractions by sexual thoughts. Peter and Valkenburg (2008a) concluded that “sexual arousal as a result of exposure to SEM [sexually explicit material] may cue sex-related cognitions

in memory... and may eventually lead to chronically accessible sex-related cognitions, that is, sexual preoccupation” (p. 227).

This focus on the cognitions of pornography is rooted in “cognitive scripts” theory, which argues that media provide a heuristic model outlining “what should or should not be happening, how people should or should not behave in response to what is or is not happening and what the outcomes of a particular course of action should be” (Wright, 2011, p. 348). Heuristic processing describes the way in which information is processed quickly and without much deliberation and can be contrasted with systemic processing, which is about deliberation, weighing of facts, and conscious analysis. Media, in other words, create an easily accessible memory structure for real-world decision-making that circumvents critical analysis.

Pornography then, as a core component of sexual socialization, provides a (gendered) heuristic “sexual script” which “tells us how to behave sexually” (Gecas & Libby, 1976, p. 37; see also Gagnon & Simon, 1973; Simon & Gagnon 1986). Once acquired and activated (Wright, 2011), consumers use pornographic sexual scripts to navigate real-world sexual experiences and guide sexual expectations. The cognitive processing of these sexual scripts takes place without forethought, done primarily through habit. For example, pornography use by men is in part motivated by the exclusive focus on sexual rewards (i.e., pleasure) without any of the costs (i.e., commitment or disease) (Cline, 2001; Wingood et al., 2001), consequently diminishing the level of forethought used while viewing (Wright & Randall, 2012). Thus the more pornography is viewed, the more preference for and reliance on the pornographic sexual script users will exhibit during dyadic sexual encounters because it will be the easiest to cognitively activate and behaviorally enact. In other words, pornography is not simple fantasy; it is an easily accessible template for actual sexual behavior.

Purpose and Hypotheses

Our study explores the question of how pornography relates to the sexual experiences of heterosexual college men. While previous research has investigated the associations between pornography and individual behaviors, attitudes, and feelings related to sex and sexuality, our study looks at the role pornography plays during dyadic sexual encounters and its associations with men’s intimacy and sexual concerns. Consistent with sexual script theory, we expect the sexual scripts embedded in pornography to serve as a heuristic model for understanding and making decisions during intimate sexual behavior. Consequently, we expect that the more men watch pornography, the more they will report a preference for and reliance on pornography to obtain and/or maintain sexual excitement, and the more they will report incorporating pornography into dyadic sexual encounters. Furthermore, in line with previous research on individual attitudes, we expect that pornographic sexual scripts will be negatively

associated with sexual intimacy and positively associated with sexual insecurities. Our specific hypotheses are as follows:

H1 Higher use of pornography will be positively associated with sexual insecurities.

H2 Higher use of pornography will be positively associated with increased reliance on pornography to obtain/maintain sexual excitement.

H3 Higher use of pornography will be positively associated with integrating pornography with sex.

H4 Higher use of pornography will be negatively associated with enjoyment of intimate behaviors during sex with a partner.

Method

Participants

As part of a larger, multinational study, 1,880 heterosexual men and women residing in the United States consented to participate in our survey. Most ($N = 1,562$) indicated they were college students; non-students were excluded. Because we were interested in typical college-aged participants, and over 85 % of full-time college students are between the ages of 18 and 29 years (U.S. Department of Education, 2012), we thus excluded an additional 66 participants who were younger than 18 years or older than 29 years. Of the remaining 1,496 participants, 32.6 % were men ($N = 488$, including a man who responded randomly and who was later excluded), and the rest were women. Research has consistently found that men’s and women’s pornography consumption patterns are quite different (Hald, 2006) and possibly produce different effects. Thus, we focus on male college students in the current study and will analyze their female counterparts in a later paper.

Participants for the current study therefore were 487 heterosexual U.S. male college students (ages 18–29 years) residing in the United States (Table 1). Most (88.7 %) respondents indicated they attended a public college or university. Most (91.4 %) respondents were White and 86.0 % lived in the South. Average age was 19.98 years ($SD = 1.88$). The majority (over 70 %) of male and female guardians of these participants had completed a college degree. Participants were primarily Protestant/Christian (34.7 %) and Catholic (33.7 %); 16.4 % of participants were not religious. Participants reported an average level of importance of their religious faith ($M = 3.46$, $SD = 1.76$, scale from 1 *not at all important* to 6 *very important*). Only 34.0 % reported agreeing or strongly agreeing that religious faith was important to them.

Regarding relationship status, most participants (59.8 %) were not in a relationship. We recorded relationship status so that all participants who reported not being in a relationship or in a

Table 1 Demographic information for the full sample

	<i>N</i> (%)	<i>M</i> (SD)
Age (years)	–	19.98 (1.88)
Ethnicity		
White	445 (91.4 %)	–
Black/African American	18 (3.7 %)	–
Asian	17 (3.5 %)	–
Hispanic/Latino	10 (2.1 %)	–
Native American	12 (2.5 %)	–
Pacific Islander	1 (.2 %)	–
White (non-biracial)	426 (87.5 %)	–
Geographic region		
Midwest	3 (.6 %)	–
Northeast	39 (8.0 %)	–
South	419 (86.0 %)	–
West	0 (.0 %)	–
Religion		
Protestant	169 (34.7 %)	–
Catholic	164 (33.7 %)	–
Jewish	19 (3.9 %)	–
Other	11 (2.3 %)	–
No religion	80 (16.4 %)	–
Religiosity ^a	–	3.46 (1.76)
Relationship status		
Not in a relationship	291 (59.8 %)	–
In a relationship but not monogamous	31 (6.4 %)	–
Committed relationship but not cohabiting	139 (28.5 %)	–
Cohabiting	12 (2.5 %)	–
Married	10 (2.1 %)	–
Prior sexual experience	429 (88.1 %)	–
Age at first sexual intercourse		
Never had intercourse	61 (12.5 %)	–
Younger than 12 years	3 (.6 %)	–
13–15 years	43 (8.8 %)	–
16–18 years	250 (51.3 %)	–
19–21 years	63 (12.9 %)	–
22 years and older	8 (1.6 %)	–
Number of sexual partners in the past year		
None	92 (18.9 %)	–
1–3	273 (56.1 %)	–
4–6	40 (8.2 %)	–
7–9	15 (3.1 %)	–
10 or more	5 (1.0 %)	–
Parental educational attainment: male guardian		
Less than high school degree	9 (1.8 %)	–
High school degree or equivalent	53 (10.9 %)	–
Some college, no degree	50 (10.3 %)	–
College degree	169 (34.7 %)	–
Graduate or advanced degree	190 (39.0 %)	–
Parental educational attainment: female guardian		

Table 1 continued

	<i>N</i> (%)	<i>M</i> (SD)
Less than high school degree	4 (.8 %)	–
High school degree or equivalent	50 (10.3 %)	–
Some college, no degree	65 (13.3 %)	–
College degree	217 (44.6 %)	–
Graduate or advanced degree	140 (28.7 %)	–

^a Responses coded on a scale from 1 (*not at all important*) to 6 (*very important*)

non-monogamous relationship were not considered to be in committed relationships, whereas participants who reported being in a committed relationship, married, or cohabiting with a partner were coded as being in committed relationships. One-third (33.1 %) of participants were in committed relationships and 66.1 % were not.

Most participants (88.1 %) reported having had prior dyadic sexual experiences, including being naked, touching genitals, engaging in oral sex, or having sexual intercourse (vaginal or anal). More specifically, 75.4 % of participants reported having engaged in sexual intercourse. Of the 367 respondents who reported having engaged in sexual intercourse, 12.5 % had done so prior to the age of 16, 68.1 % first had intercourse between 16 and 18 years of age, and the remaining 19.4 % first had intercourse at 19 years of age or later. Most (82.0 %) sexually experienced respondents reported 3 or fewer prior sexual partners.

Measures

Frequency of Pornography Use

Two questions assessed the frequency of current pornography use: (a) On average, how often do you use pornography for masturbation? and (b) How often do you view pornography but not for masturbation? Each item was answered on an 8-point Likert scale (1 = *never*, 2 = *less than once a year*, 3 = *a few times a year*, 4 = *once a month*, 5 = *a few times a month*, 6 = *1–2 days a week*, 7 = *3–5 days a week*, 8 = *daily or almost daily*). The two items were significantly correlated, $r = .28$, $p < .001$. Both items loaded significantly onto a single factor (standardized loadings were .54 and .38, respectively).

Other Aspects of Pornography Use

In addition to assessing frequency of use, for descriptive purposes we asked participants to indicate what kind of pornography they consumed most often (magazines or books, video on demand or pay per view, cable television channels such as *Playboy*, pornographic digital video disks, and the internet) and to estimate, in dollars, how much money they spent on pornography per month. We also asked the respondents their age at

first exposure to pornography and the age at which they first used pornography for masturbation. These last two items were significantly correlated, $r = .56, p < .001$.

Sexual Insecurities

Three questions assessed sexual insecurities: (a) I am concerned about how good I am at sex; (b) I am concerned that my penis is not big enough; and (c) I am concerned that I cannot sustain my erection long enough (including concerns about loss of erection or premature ejaculation). Each item was answered on a 6-point Likert scale, from 1 (*strongly disagree*) to 6 (*strongly agree*). Cronbach alpha for the three-item scale was .78. All items loaded significantly onto a single factor (standardized loadings were .69, .69, and .57, respectively).

Reliance on Pornography to Obtain/Maintain Sexual Excitement

Three questions assessed participants' preference for and reliance on pornography to obtain and/or maintain sexual excitement: (a) It is easier for me to reach orgasm by watching pornography and masturbating than by having sex with a partner; (b) When I am having sex with a partner, I intentionally think about images from pornography to maintain my excitement; and (c) Using pornography to masturbate is more exciting than having sex with a partner. Each item was answered on a 5-point Likert scale, from 1 (*never*) to 5 (*always*). Cronbach alpha for the three-item scale was .57; however, examination of alpha-if-item-deleted statistics and item-total correlations (ranging from .37 to .44) indicated all three items contributed to the scale's reliability (de Vaus, 2002). All items loaded significantly onto a single factor (standardized loadings were .53, .71, and .50, respectively).

Integrating Pornography with Sex

Three questions assessed participants' integration of pornography with sexual interactions with a partner: (a) On average, how often do you view pornography when you are having sex with a partner? (b) Have you ever asked a sex partner to try something that you saw in pornography, such as a new sexual activity or position? and (c) I role-played with a sexual partner a scene that I saw in pornography. The first item was answered on an 8-point Likert scale (1 = *never*, 2 = *less than once a year*, 3 = *a few times a year*, 4 = *once a month*, 5 = *a few times a month*, 6 = *1–2 days a week*, 7 = *3–5 days a week*, 8 = *daily or almost daily*). The second item was answered on a dichotomous scale (1 = *yes*, 0 = *no*). The third item was answered on a 5-point Likert scale, from 1 (*never*) to 5 (*always*). Cronbach alpha for the three-item scale was .41; however, examination of alpha-if-deleted statistics and item-total correlations (ranging from .23 to .33) indicated all items contributed to the scale's reliability (de Vaus, 2002) and all

items loaded significantly onto a single factor (standardized loadings were .42, .38, and .70, respectively).

Enjoyment of Sexual Intimacy

Three questions assessed enjoyment of sexual intimacy: (a) I enjoy cuddling with my sexual partner; (b) I like kissing during sex; and (c) I like to take time caressing my sexual partner's body. Each item was answered on a 6-point Likert scale, from 1 (*strongly disagree*) to 6 (*strongly agree*). Cronbach alpha for the three-item scale was .87. All items loaded significantly onto a single factor (standardized loadings were .76, .87, and .86, respectively).

Procedure

This project was part of a collaborative, multi-site study of culture and sexual behavior conducted by a consortium of international, cross-disciplinary scholars from the fields of communication, psychology, and sociology. All participating university Institutional Review Boards approved the project. Participants were recruited from Spring 2011 to Spring 2012 through departmental and college-wide email announcements, posted campus flyers, or Introductory Psychology courses. Interested participants were directed to an online survey posted on SurveyMonkey, a web-based survey service; each recruitment site had a unique link. Participants first provided consent, then confirmed their eligibility prior to completing the survey. Participation took approximately 30 min. Following survey completion, participants received a full debriefing and were given an opportunity to enter into a raffle to win one of three cash prizes (one \$100 and two \$60 prizes were awarded via random selection of all interested participants).

Analytic Approach

Descriptive statistics were utilized to provide base rate data on frequency of pornography use. Means and SDs for all dependent variables were computed (Table 2). Bivariate correlations were examined to assess demographic variables for inclusion in analyses as covariates. Skewness and kurtosis statistics and histograms were examined for assumptions of normality. Bivariate scatter plots were used to examine assumptions of linearity. Hypotheses were tested with a structural equation model using maximum likelihood estimation that employed one exogenous factor (pornography use, indicated by frequency of use for masturbation and frequency of use, but not for masturbation), six exogenous covariates (age, age at first pornography exposure, White ethnicity, religiosity, committed relationship status, and parental educational attainment), and four endogenous factors (pornography use during sex, preference for and reliance on pornography, enjoyment of sexual intimacy, and sexual insecurities). Parental education was a latent factor comprised of

Table 2 Descriptive statistics for study variables

	<i>M</i> (SD) or <i>N</i> (%)
Pornography use ^a	
Frequency of pornography use with masturbation	5.24 (2.08)
Frequency of pornography use without masturbation	2.28 (1.77)
Sexual insecurities ^b	
Concerned about how good I am at sex	3.89 (1.55)
Concerned penis is not big enough	2.97 (1.52)
Concerned I cannot sustain my erection long enough	2.96 (1.64)
Pornography reliance ^c	
Easier to orgasm to pornography than by having sex	2.19 (1.20)
Purposely imagine pornographic scenes when having sex	1.48 (.80)
Masturbating to pornography is more exciting than sex	1.31 (.70)
Integration of pornography and sex	
Frequency of viewing pornography with a partner during sex ^a	1.60 (1.35)
Asked a partner to try something from pornography ^d	<i>N</i> = 177 (36.3 %)
Role-played a pornographic scene with a sexual partner ^c	1.40 (.76)
Enjoyment of sexual intimacy ^b	
Enjoy cuddling with sexual partner	5.07 (1.05)
Like kissing during sex	5.14 (.98)
Like caressing sexual partner	5.09 (.95)

^a Responses coded 1 (*never*) to 8 (*daily or almost daily*). ^b Responses coded 1 (*strongly disagree*) to 6 (*strongly agree*). ^c Responses coded 1 (*never*) to 5 (*always*). ^d Responses coded 0 (*no*) or 1 (*yes*)

female guardian and male guardian educational attainment ordinal variables. All exogenous variables were allowed to covary. Model fit was assessed with examination of the χ^2 statistic, the ratio of χ^2 to degrees of freedom, fit indices, and residuals. Because χ^2 is often significant with large sample sizes and complex models (Ullman, 2001), good model fit was determined to be present if the χ^2 to degrees of freedom ratio was <2 , the comparative fit index (CFI) was $>.90$, and the root mean square error of approximation (RMSEA) was $<.05$ (Browne & Cudeck, 1993). Analyses were completed with SPSS version 17 and AMOS version 18.

Results

Current Pornography Use

Nearly all participants had had some previous exposure to pornography; 48.7 % of the men had exposure prior to the age of 13. Only 1.3 % reported having never encountered pornography before. Participants were asked about their current use of pornography. Of the 468 who responded to the question (data were missing for 19 participants or 3.9 % of the sample), 10.9 %

reported they did not currently use pornography. By far the most common method participants used to access pornographic materials was the internet (97.4 % of pornography users), and the majority (99.5 %) accessed pornography for free.

Of the 413 participants who reported current pornography use, 99.5 % used it at least occasionally for masturbation. The modal frequency of pornography use for masturbation was 1–2 days per week (31.2 % of pornography users), followed by 3–5 days per week (20.0 %), and a few times per month (19.1 %). Daily pornography use for masturbation was reported by 13.5 % of pornography users. Of the 413 participants who endorsed current pornography use, 11.9 % never masturbated without pornography. In total, 70.7 % of these participants reported masturbation without pornography as occurring a few times per month or less often. Among pornography users, frequency of masturbation with pornography was not significantly associated with frequency of masturbation without pornography, $r = .012$, $p = .802$, $N = 413$.

We explored how demographic variables related to frequency of pornography use both with and without masturbation. Age was not associated with frequency of pornography use for masturbation, $r = .085$, $p = .067$, $N = 465$, nor was it associated with frequency of pornography use without masturbation, $r = .026$, $p = .584$, $N = 463$. Religiosity was not significantly associated with pornography use without masturbation, $r = -.072$, $p = .125$, $N = 461$. However, it was significantly negatively associated with frequency of pornography use for masturbation, $r = -.247$, $p < .001$, $N = 463$. There was also a significant difference in frequency of pornography use for masturbation by committed relationship status, $t(461) = 1.99$, $p = .047$. Specifically, men who reported being in a committed relationship ($M = 5.03$, $SD = 2.22$, $N = 154$) reported significantly less frequent use of pornography than men not in committed relationships ($M = 5.43$, $SD = 1.99$, $N = 309$). However, the same was not true for pornography use without masturbation ($M_{\text{committed}} = 2.18$, $SD = 1.66$, $N = 154$; $M_{\text{non-committed}} = 2.34$, $SD = 1.82$, $N = 307$), $t(459) = .86$, $p = .389$.

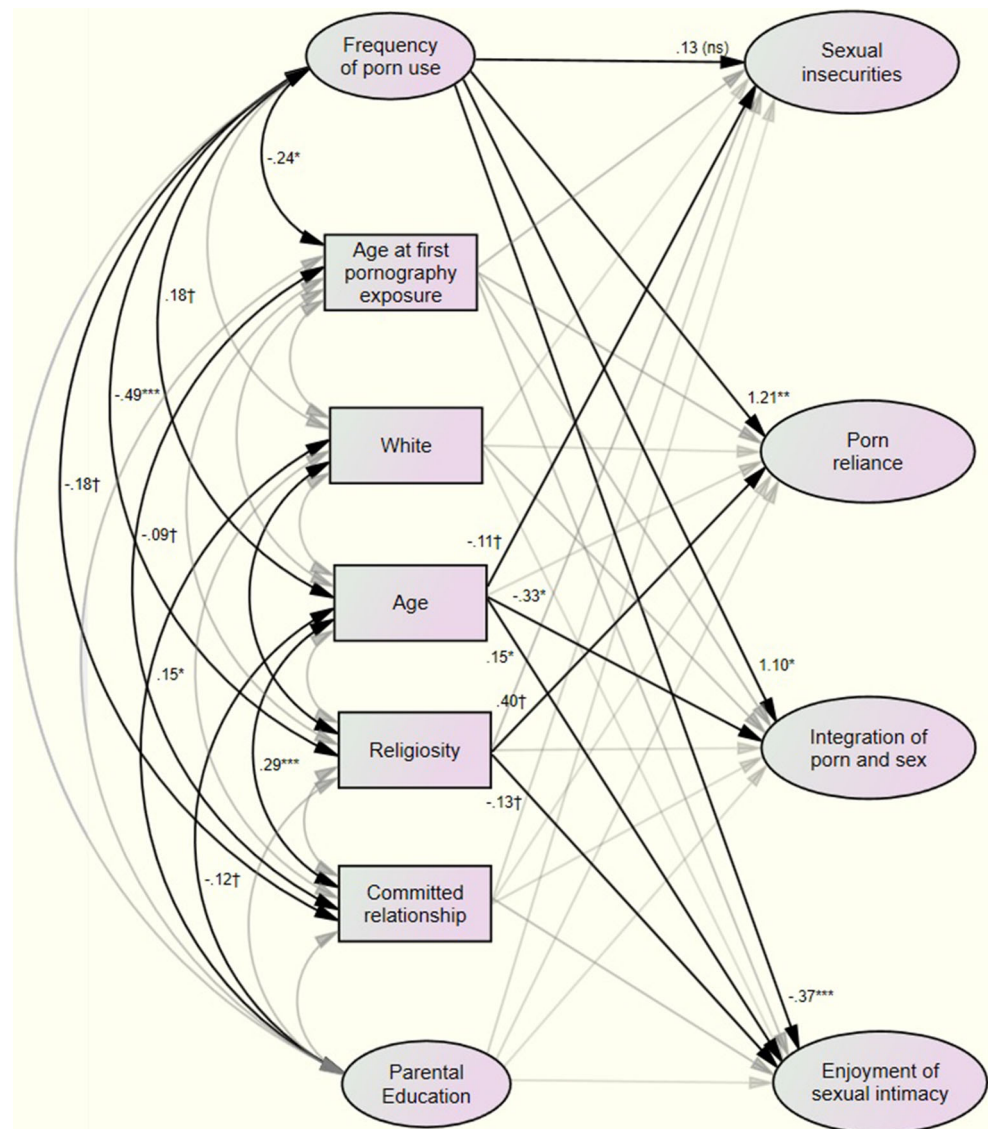
Overall Model Fit

Prior to assessing individual hypotheses, we assessed the fit of the overall model (Fig. 1). Although the χ^2 value was significant [$\chi^2(144) = 281.73$, $p < .001$], other fit indices suggested the model provided an adequate fit to the data [χ^2/df ratio = 1.96, CFI = .91, RMSEA = .04, 90 % CI for RMSEA = .04–.05].

H1: Pornography Use and Sexual Insecurities

Our first hypothesis asked if there was an association between pornography use and concerns about one's sexual performance, including worry about penis size, being good at sex, and sustaining an adequate erection. Means and SDs for the three sexual insecurity questions are presented in Table 2. Contrary to our

Fig. 1 Structural model relating pornography use and demographic variables to relational variables



first hypothesis, there was not a significant association between pornography use and sexual insecurities in our structural model (standardized path coefficient = .13, $p = .16$). None of the covariates were significantly associated with sexual insecurities. A non-significant trend emerged, such that older participants tended to report lower sexual insecurities than younger participants (standardized path coefficient = .11, $p = .07$).

H2: Pornography Use and Reliance on Pornography to Obtain/Maintain Sexual Excitement

We were interested in seeing whether pornography use was associated with a preference for and a reliance on pornography to obtain and/or maintain sexual excitement during sex with a partner. Means and SDs for the three pornography reliance questions are presented in Table 2. Consistent with our second hypothesis, there was a significant positive association between

the two variables in our structural model (standardized path coefficient = 1.21, $p = .01$). None of the covariates were significantly associated with pornography reliance; however, higher religiosity was non-significantly associated with higher reliance on pornography during sexual activity (standardized path coefficient = .40, $p = .09$).

H3: Pornography Use and Integrating Pornography with Sex

Among participants with a current sexual partner ($N = 297$), most (78.1 %) did not view pornography during sexual activity (Table 2). We hypothesized higher use of pornography would be associated with greater likelihood of having viewed pornography during sexual activity with a partner, requesting from the partner a sexual activity the participant saw in pornography, and role-playing a pornography scene with a partner. Consistent with our third hypothesis, we saw a significant positive association

between pornography use and the pornography use during sex factor (standardized path coefficient = 1.10, $p = .02$). Of the covariates, younger age was associated with greater integration of pornography into sexual activity (standardized path coefficient = $-.33$, $p = .04$).

H4: Pornography Use and Enjoyment of Sexually Intimate Behavior

Participants answered questions assessing the degree to which they enjoyed intimate behaviors with their sexual partners, such as cuddling, kissing, and caressing. Overall, the respondents highly enjoyed those intimate behaviors; means and SDs for these three questions are presented in Table 2. Consistent with our fourth hypothesis, there was a significant negative association between these two latent variables in our structural model (standardized path coefficient = $-.37$, $p < .001$). We also found older age (standardized path coefficient = $.15$, $p = .03$) to be associated with increased self-reported enjoyment of sexually intimate behaviors. A non-significant trend emerged for religiosity, such that more religious participants tended to have lower self-reported enjoyment of sexually intimate behaviors than less religious participants (standardized path coefficient = $-.13$, $p = .09$).

Associations Between Pornography Use and Covariates

While we initially explored bivariate associations between pornography use and demographic variables, as described above, we further investigated how demographic variables used as covariates in the structural model related to the pornography use latent variable. Current pornography use was significantly associated with age at first exposure to pornography. In particular, the younger the age at which men were first exposed to pornography, the higher their current use of pornography (standardized covariance = $-.24$, $p = .02$). Religiosity was also significantly negatively associated with current pornography use (standardized covariance = $-.49$, $p < .001$). Non-significant trends emerged for two additional covariates: participant age and being in a committed relationship. Older participants (standardized covariance = $.18$, $p = .06$) and those not in a current committed romantic relationship (standardized covariance = $-.18$, $p = .06$) tended to report higher frequency of pornography use than younger and non-committed participants.

Finally, we conducted a series of analyses that explored whether any of the demographic covariates moderated the relations between pornography use and the endogenous variables. The items comprising each factor were averaged for a total score, and these served as the criterion variables in a series of multiple regressions with pornography use, the demographic covariate, and their interaction as the predictors. None of the demographic covariates were significant moderators with the exception of one: men lower in religiosity that used higher amounts of pornography

were significantly more likely to prefer pornography over sex with a real life partner than men higher in religiosity.

Discussion

This study joins previous research documenting the ubiquity of viewing pornography among heterosexual male college students (Boies, 2002; Carrol et al., 2008). Our research indicates that a majority of men (58.7%) use pornography weekly, mostly via the internet.

Furthermore, although Carrol et al. (2008) found daily viewing of pornography to be very rare (5.2%), we found that 13.2% of respondents viewed pornography daily or almost daily. We also found an earlier onset of first exposure to pornography compared to prior studies. Previous research (Sabina et al., 2008) found that 14.4% of boys had exposure prior to the age of 13; we found that 48.7% of men in our sample had similar early exposure. Such an increase in both the rate of consumption and early exposure may be due to the idiosyncrasies of the participants, but it may also be the result of increasingly easy access to ubiquitous Internet pornography (Johnson, 2010) and the social acceptance of a “pornified” culture (Paul, 2005).

The growing presence of pornography in men’s sexual socialization raises questions about the potential impact of pornography on dyadic sexual encounters; how might pornography use shape heterosexual men’s sexual behaviors, attitudes, and expectations during sexual encounters with women? Our research indicates that men who view high rates of pornography are more likely to rely on pornography to become and remain sexually excited and, when engaged in dyadic sexual behaviors, are more likely to integrate pornography in sexual activities. In addition, men with high rates of pornography use expressed diminished enjoyment in the enactment of sexually intimate behaviors compared to men with lower rates of pornography use. On the other hand, pornography use was not significantly associated with sexual insecurities.

These findings build on the work of Tsitsika et al. (2009) and Peter and Valkenburg (2008a, b, 2010a, b) illustrating the relationships between pornography use and male consumers’ attitudes and beliefs about real-world sexual relationships. We, too, find that pornography is not mere fantasy or an individualized experience for men. Instead, our findings are consistent with a theory suggesting that pornography can become a preferred sexual script for men, thus influencing their real-world expectations. Like others (Maltz & Maltz, 2010; Paul, 2005), our research indicates that such pornographic preferences are not benign for either the male consumer or his sexual partner(s). Instead, the consumption of pornography is associated with decreased self-reported enjoyment of sexually intimate behaviors with a real life partner. This association is concerning but not particularly surprising, given the phallocentric fixation, male-dominated content, and infrequent expressions

of intimacy (Bridges et al., 2010; Dines, 2010; Sun, Wosnitzer, Bridges, Scharrer, & Liberman, 2010) that typify mainstream pornography.

With regard to demographics, our research indicated that sexual behaviors and attitudes are influenced by age. The older men in our study (those closer to 29 years of age) viewed pornography more often but were less likely to watch pornography with a partner and engage in pornographic sex acts with a partner than younger participants (men closer to 18 years of age). Furthermore, they reported higher enjoyment of sexually intimate behaviors such as kissing and caressing, and trended toward having lower sexual insecurities, when compared to younger male participants. Kimmel (2008) found that younger men tend to use pornography for sexual learning and socialization while older men use it for more sexually instrumental purposes. The explosion of online pornography took place within the last decade, after many of the older men in our study developed their early sexual identities (i.e., when they were already 18 or 19 years old). It could be that men who developed their sexual arousal patterns outside the modern mainstream pornographic script possess a more diverse and/or experience-based heuristic model of sexual behavior, while the younger men in our study relied more on readily-available internet pornography to form their sexual scripts. If this is the case, perhaps when the homogeneous nature of online pornography—focused primarily on one form of sexual behavior that is aggressive and phallocentric—is countered by more experience inside real life sexual interactions, the pornographic script holds less power. However, it is important to note that even controlling for age, men who consume pornography more frequently are more likely to report sexual concerns and increasingly rely on the pornographic script for pleasure. This suggests that the pornographic script remains a force in men's heuristic processing, no matter their age or experience.

We also found that being in a committed relationship did not mitigate a man's reliance on the pornographic script for obtaining/maintaining sexual excitement, the likelihood of his engagement of the script with a partner, his experience of sexual insecurity, or his enjoyment of sexually intimate behaviors. Seemingly, the presence of a partner with whom the viewer has an emotional attachment may moderate some aspects of the pornographic script. As with age, this implies that pornography's associations with sexual behaviors and preferences may be mitigated by real-world sexual experiences. On the other hand, more committed men in our study demonstrated a non-significant trend toward lower use of pornography in general, and this lower use may be what accounts for the lack of associations. More research is needed on the ways in which pornography functions inside committed dyadic relationships.

Our research suggests that the larger context of the user's life may be important in understanding the ways in which pornography can be incorporated into a man's heuristic model of sexuality. One interesting and contradictory finding we obtained

was that of the non-significant but trending associations between religiosity and pornography. In bivariate correlations, we found men who reported higher religiosity were less likely to use pornography for masturbation (but not to use pornography without masturbation); however, our multivariate analyses indicate that men who expressed a stronger commitment to their religious faith showed an increased preference for pornography over real sex and an increased reliance on pornography to maintain sexual excitement. Taken together, these results suggest that higher religiosity is associated with lower use of pornography for masturbation, but pornography's associations with sexual behaviors are heightened in more religious young men. Other research suggests that religiosity among female adolescents is associated with a slight delay of sexual intercourse (Rostosky, Regnerus, & Comer Wright, 2003; Rostosky, Wilcox, Comer Wright, & Randall, 2004). It is conceivable that pornography functions as a mechanism of delay for religious teen boys (choosing pornography as a way of delaying sexual intercourse). However, other researchers suggest that "when one has indulged in morally questionable activities, one should naturally be motivated to engage in activities that will restore moral integrity" (Zhong & Liljenquist, 2006, p. 1452), such that boys may turn to religion to alleviate the shame and guilt associated with watching pornography. Clearly, more research is needed to better understand the associations between pornography and religiosity.

Research has found federally mandated abstinence-only sexual education programs to be ineffective in helping adolescents make informed and healthy sexual choices (Kohler et al., 2008). Furthermore, Epstein and Ward (2008) found that boys receive less sexual education than girls, leaving them to rely more heavily on peers and the media for information. Our study indicates that for men, particularly men who come of age with online pornography at their fingertips, pornography may serve as a powerful source of information about sex and sexuality. Through high rates of exposure, the pornographic script may inform college men's expectations about their own sexual performance as well as what they want and expect from a sexual partner. It is associated with increased sexual concerns, particularly among the youngest men in our study, and they come to rely on it and prefer it to intimate sexual relations with a partner. Current sex education models—in the schools and in the home—do not seem well-equipped to assist boys in navigating or critically engaging the messages of pornography.

Limitations and Future Directions

While our study joins others in an innovative look at the cognitive processing of pornography among men, it does have limitations. First, we only measured the viewing "frequency" of pornography, not the "quantity." That is, although we know how many times a week a person viewed pornography, we do not know the duration of the viewing. For example, does a person

who only views pornography on Saturday but for 5 h straight, differ from a person watching 5 days a week for an hour at each viewing? More precise measurement of involvement in pornography may be helpful in future studies.

A second related limitation is the lack of information about the content of the pornography our participants used. Some researchers have theorized that there are important differences between mainstream pornography, which often includes impersonal sex and themes of degradation and aggression, and pornography marketed to couples, which includes higher degrees of sexual intimacy (e.g., Beggan & Allison, 2003). It is very possible these different types of pornographic materials convey different sexual scripts and therefore relate differently to real-world behaviors in their consumers.

Third, the population in our study was not very diverse with respect to ethnicity, race, geographic location, or education. All subjects included in this study were male college students, the majority were non-Hispanic White, and most resided in the southern region of the United States. Furthermore, most came from families where caregivers were well-educated. Replicating and extending these findings to more diverse samples of men, and to women, would be important.

Fourth, because our study was cross-sectional in nature, attempts to link pornography use and sexual attitudes and behaviors in a causal way is unwarranted. Furthermore, our questions asked about average pornography use and typical sexual attitudes and behaviors, but did not specify a time frame for either. Therefore, we are unable to temporally order pornography consumption and sexual script-related variables. It may be that people who hold certain pre-existing sexual scripts seek out pornographic media that conform to and reinforce those scripts. Work such as that by Wright (2012), using longitudinal data, suggests pornography use often precedes sexual attitudes and behaviors such as engagement in casual sex (sex with non-committed partners) but that the converse was not true; nevertheless, future studies may want to assess people longitudinally and include time specifiers in questionnaires.

Lastly, our work does not speak to the direction of the relationship between pornography and male sexual attitudes, behaviors, and choices. Does pornography reflect sexual behavior preferences, shape these preferences, or both? Do the men in our study engage in pornographic sex acts in their relationships with a partner because they have been conditioned to desire them through their patterns of media consumption, or do they seek out pornographic media that are consistent with the sex acts that they prefer? Thus, the relationship between media scripts and sexual preferences may be recursive rather than linear. A longitudinal study following young men's sexual development would help answer these questions.

In conclusion, regardless of the intent of producers or consumers of pornography, our data point to clear connections between pornography consumption, sexual scripts, and real-world sexual experiences. Pornography is sometimes dismissed, celebrated, or

problematized as fantasy (e.g., Kipnis, 1996; Lehman, 2006; Williams, 2004), and many consumers may access pornography explicitly as a form of entertainment (McKee, 2012), but pornography is also much more. What happens on the screen may implicate life off of it.

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