

A Longitudinal Analysis of US Adults' Pornography Exposure

Sexual Socialization, Selective Exposure, and the Moderating Role of Unhappiness

Paul J. Wright

Department of Telecommunications, Indiana University, Bloomington, IN, USA

Abstract. Several studies have explored whether pornography exposure is associated with a casual approach to sex. Much of this research, however, has been cross-sectional, has assessed only straightforward exposure–casual sex associations, and has employed convenience samples of adolescents. This study employed nationally representative longitudinal data from the General Social Survey to explore whether casual sex behavior predicted over time change in US adults' pornography exposure and whether pornography exposure predicted over time change in US adults' casual sex behavior. Casual sex behavior did not predict over time change in pornography exposure, but pornography exposure did predict over time change in casual sex behavior. To test the prediction of Wright's acquisition, activation, application model of sexual socialization (3AM) that negative affective states make the application of risky sexual scripts provided by sexual media more likely (Wright, 2011a) the moderating role of unhappiness was explored. In support of the model, pornography exposure was associated with nearly a sevenfold over time increase in the odds of having engaged in casual sex for unhappy individuals, but was unrelated to the casual sex behavior of very happy individuals.

Keywords: pornography, casual sex, unhappiness, selective exposure, sexual socialization

Introduction

The pornography¹ industry in the United States grossed upwards of US \$7 billion in 2006 (Edelman, 2009). Although offline pornography continues to attract many consumers, economic indicators show that online pornography is the wave of the future (Edelman, 2009). The anonymity, accessibility, and affordability of online pornography (Cooper, Delmonico, & Burg, 2000) may encourage many who would not have gone to an adult book store or rented an adult film from their local video proprietor to explore pornography online (Carnes, Delmonico, & Griffin, 2001; Schneider & Weiss, 2001). The tremendous communication potential of the Internet, coupled with the allure of sexual media, has led to a renewed interest in the social effects of pornography (Brown & L'Engle, 2009; Peter & Valkenburg, 2006).

One social effect of pornography may be an increased propensity for permissive sexual behavior. Pornography exhibits an extremely casual view of sex (Monk-Turner & Purcell, 1999; Weaver, 1991). In the words of Peter and Valkenburg (2006), pornography “presents sex as a merely physical, self-indulgent activity between casual, uncommitted partners” (p. 640). Several studies have already explored

whether pornography exposure is associated with endorsement of casual attitudes toward sex or actual casual sex behavior. There are several limitations to this emerging literature, however.

First, much of the existing literature has been cross-sectional (Lo & Wei, 2005; Omori, Zhang, Allen, Ota, & Imamura, 2011). Longitudinal research is needed to examine the temporal sequencing of the association. Does pornography exposure precede a more casual approach to sex? Does a more casual approach to sex precede pornography exposure? Or perhaps the flow of the association “works both ways” (Bleakley, Hennessy, Fishbein, & Jordan, 2008). This study addresses these questions by testing whether pornography exposure is associated with over time change in casual sex behavior and by testing whether casual sex behavior is associated with over time change in pornography exposure.

Second, much of the existing literature has assessed only straightforward exposure–casual sex associations (Morgan, 2011; Wingood et al., 2001). Malamuth has argued that individual differences can increase (or decrease) the likelihood that pornography exposure will be associated with a change in sexually aggressive behavior (Kingston, Malamuth, Fedoroff, & Marshall, 2009; Malamuth & Huppert, 2005). Research is needed that assesses individual differences in

¹ The word *pornography* is often seen as pejorative. This study associates no derogatory connotation with the term, using it only as shorthand for mediated content depicting nudity and explicit sexual acts (Wright et al., 2012).

the effects of pornography on casual sex behavior. Wright (2011a) has recently articulated an acquisition, activation, application model of media sexual socialization ($_3$ AM) that may be informative. Specifically, the model predicts that negative affective states make the application of risky sexual scripts acquired or activated by sexual media more likely. To test this prediction, this study explores whether the prospective association between pornography exposure and subsequent casual sex behavior varies for individuals who express different degrees of unhappiness.

Third, much of the existing literature has focused on adolescents (Braun-Courville & Rojas, 2009; Brown & L'Engle, 2009; Haggstrom-Nordin, Hanson, & Tyden, 2005; Lo & Wei, 2005; Peter & Valkenburg, 2006, 2010; Wingood et al., 2001). Research on adults is needed for two reasons. First, adults are the intended audience for pornography, as evidenced by the age-based restrictions both private proprietors and governments place on access to pornography (Wright, 2011b). Second, the existing literature reflects the assumption that only impressionable youth can be influenced by pornography's casual approach to sex. Peter and Valkenburg (2011) synopsise this assumption as follows: "Adolescents are seen as uncritical and incompetent receivers of sexual media content. Adults, in turn, are implicitly associated with critical thinking skills and the competencies necessary to resist the influence of sexual media content" (p. 752). The assumption that adults are unaffected by pornography's portrayal of sex as a casual pursuit needs to be tested. This study addresses this need by studying adults whose average age at first data collection was 45.

Fourth, much of the existing literature has utilized convenience samples (see Peter & Valkenburg, 2011, for an exception). Studies utilizing large-scale, randomly selected samples are needed to increase the generalizability of results. This study addresses this need by utilizing a randomly selected, nationally representative sample of US adults provided by the General Social Survey (GSS; Davis & Smith, 2010).

Literature Review

Pornography and Casual Sex

Paul and colleagues (Paul, McManus, & Hayes, 2000) noted that "casual sex often has not been explicitly defined in research literature" and has been "operationalized in a variety of ways" (Paul et al., 2000, p. 76). For example, researchers have operationalized casual sex as anonymous sex, one-time sex, sex with a stranger, sex with an acquaintance, and sex with a friend (Grello, Welsh, & Harper, 2006; Paul et al., 2000). An underlying theme unites all of these operationalizations, however: lack of commitment. According to Paul and colleagues (2000), "the common denominator in most studies of casual sex attitudes and behaviors is sexual intercourse in an uncommitted partnership" (p. 77).

A number of researchers have commented on the casual nature of sex in pornography. Kline (2001) remarked that

"the chief proclamation of pornography is great sexual joy without any attachment, commitment, or responsibility" (para. 83). Weaver (1991) noted that pornography "ignores the basic social and relational aspects of sexual activity," subscribing to the mentality that sex is solely for "fun" (pp. 333–334). Zillmann and Bryant (1988) observed that "pornographic scripts dwell on sexual engagements of parties who have just met, who are in no way attached or committed to one another, and who will part shortly, never to meet again" (p. 521).

Formal content analyses support these observations. Brosius, Weaver, and Staab's (1993) study of video pornography found that 95% of scenes were between uncommitted partners. Monk-Turner and Purcell's (1999) study of X-rated and XXX-rated videos found that 92% of scenes involved uncommitted partners. Dietz and Sears (1987) reported that every book, magazine, and video in their sample depicted sex as a purely casual pursuit. In sum, pornography presents a highly casual view of sex.

Pornography and Selective Exposure

Opinions about the merits and consequences of casual sex vary and are often dogmatically held (Linz & Malamuth, 1993). Some people view casual sex as socially harmless and potentially liberating, others view casual sex as socially harmful and ultimately self-constricting (Levant & Brooks, 1997). According to uses and gratifications theory (Rubin, 2002), individuals actively select media content to meet their psychological needs. Social psychological consistency theories maintain that a primary psychological need is cognitive balance (see Gass & Seiter, 2003, for a review). Cognitive balance occurs when one's beliefs and attitudes are in alignment and unchecked by competing sources of information. Accordingly, media theorists have hypothesized that "people deliberately select material congruent with their attitudes" and "turn away from material that disagrees with their preexisting attitudes" (D'Alessio & Allen, 2007, p. 104). This media interaction pattern is generally referred to as "selective exposure" (D'Alessio & Allen, 2007). Thus, individuals may actively seek out sexual media that confirms their approach to sex and actively avoid sexual media that challenges their approach to sex.

A number of cross-sectional surveys exploring pornography exposure and casual sex attitudes and behavior suggest the possibility of selective exposure. A study of adolescents in New York found that youth who had more sexual partners and who agreed more with statements such as "the best sex is with no strings attached" and "I don't need to be committed to a person to have sex with them" were more likely to visit sexually explicit websites (Braun-Courville & Rojas, 2009). Lo and Wei (2005) found positive associations between Taiwanese adolescents' approval of statements such as "it is allowable for married men to have extramarital sex" and exposure to pornography. Dutch adolescents who agree more with statements such as "sex is primarily physical" and "it is ok to have sexual relationships with more than one partner" report higher levels of pornography exposure (Peter & Valkenburg, 2006). Swedish adolescents

who engage in casual sex are also more likely to consume pornography (Haggstrom-Nordin, Hanson, & Tyden, 2005).

In sum, a number of cross-sectional surveys suggest the possibility that individuals who have a casual approach to sex gravitate toward pornography whereas individuals who do not have a casual approach to sex avoid pornography. These studies are suggestive only, however: Their cross-sectional design precludes the disentanglement of directionality that longitudinal research makes possible. Interestingly, the only longitudinal study that has specifically addressed selective exposure and casual sex found no association between Dutch adolescents' casual sex attitudes and exposure to pornography a year later (Peter & Valkenburg, 2010). Nevertheless, because of the longstanding stature of the selective exposure hypothesis in communication theory (Severin & Tankard, 2001) and results that support the hypothesis in nonsexual contexts (D'Alessio & Allen, 2007), this study puts forth the following hypothesis:

Hypothesis 1: Engaging in casual sex at T1 (2006) will predict increases in pornography exposure at T2 (2008).

Pornography and Behavioral Modeling

Bleakley et al. (2008) concur with the selective exposure hypothesis that "sexual activity . . . shapes media use" (p. 446). However, Bleakley et al. (2008) also suggest that "media exposure to sexual content shapes beliefs about sex that ultimately lead to . . . sexual activity" (p. 446). This position is in alignment with social learning theories of sexual behavior (Hogben & Byrne, 1998), which predict that the observation of others receiving positive consequences for particular sexual behaviors leads to an increased probability that observers will emulate those behaviors (Cope-Farrar & Kunkel, 2002; Donnerstein & Smith, 2001). Reworded to the context of the present study, social learning theories would predict that the "great sexual joy" that pornography associates with casual sex (Kline, 2001, para. 83) should encourage consumers to pursue casual sex themselves.

Several longitudinal studies have found over time changes in adolescents' sexual behavior based on exposure to sexual content in the mainstream media (Brown et al., 2006; Collins et al., 2004). Likewise, one study has found that exposure to pornography predicts over time increases in adolescents' sexual behavior (Brown & L'Engle, 2009). None of these studies, however, assessed casual sex specifically. Peter and Valkenburg (2010), on the other hand, measured casual sex attitudes and did find that exposure to pornography increased Dutch adolescents' favorability toward casual sex a year later. Thus, this study puts forth the following hypothesis:

Hypothesis 2: Exposure to pornography at T1 (2006) will predict increases in casual sex behavior at T2 (2008).

Unhappiness as a Potential Moderator

Casual sex may indeed be a thrilling and physically rewarding experience. But sex with a casual partner is also more risky than sex with a committed partner. For example, casual sex is associated with an increased probability of negative consequences such as physical and sexual aggression, sexually transmitted infections (STIs), and unwanted pregnancy (Bennett & Bauman, 2000; Buss & Schmitt, 1993; Paul et al., 2000; Shelton et al., 2004).

Wright's (2011a) Δ AM model of sexual socialization predicts that negative affective states make the application of risky sexual scripts acquired or activated by sexual media more likely. People who are unhappy with their lives may be apathetic to the potentially negative consequences of their casual sex behavior, unmotivated to engage in the forethought required to fully understand the potential long-term consequences of their behavior, or too emotionally depleted to exercise sexual self-restraint (Bennett & Bauman, 2000; Ewart, 1991; Wright, 2011a; Wright et al., 2012). Additionally, more so than people who are happy with their life, unhappy people might engage in casual sex "for diversion, to relieve tension, and as a salve of affection seeking – a sort of self medication with sex" (Bennett & Bauman, 2000, p. 251).

In alignment with these assertions, a nationally representative study of adolescents in the United States found that those who were more depressed at first data collection were more likely to have engaged in casual sex a year later (Grello, Welsh, Harper, & Dickson, 2003). Correspondingly, a longitudinal study of US college students found that students who were more depressed at the beginning of the semester were more likely to have engaged in casual sex by the end of the semester (Fielder & Carey, 2010). Similar associations between depression and casual sex have emerged in cross-sectional studies of adults (Hutton et al., 2004; Parsons & Halkitis, 2002). The following hypothesis is thus proposed:

Hypothesis 3: The association between exposure to pornography at T1 (2006) and casual sex behavior at T2 (2008) will be moderated by unhappiness. Specifically, the association between T1 exposure to pornography and T2 casual sex behavior will be strongest when people are the most unhappy and weakest when they are the most happy.

Method

Data Source

The data for this study were provided by the GSS (Davis & Smith, 2010). Funded by the National Science Foundation, the GSS is the only ongoing, national, full-probability survey examining social beliefs and behaviors currently being carried out in the United States (The National Data Program, 2011). The first GSS was carried out in 1972. The GSS

surveys residence-inhabiting adults age 18 or older. All residences in the United States have an equal chance of being selected. Adults within each residence have an equal probability of being interviewed (GSS, 2011). Both English and Spanish speakers have been included from 2006 onward. Comparisons of the makeup of GSS participants with US Census data indicate that the GSS has high external validity (GSS, 2011). The GSS began using computer-assisted personal interviewing procedures in 2002. To maximize measurement validity, sexual behavior-related data are reported confidentially by participants using computer-assisted self-interviewing procedures (J. Kim, personal communication, January 9, 2012).

The GSS has traditionally sampled from a novel group of participants each year. In 2006, the GSS introduced a panel component. Of the 4,510 participants surveyed in 2006 (T1), 1,536 were randomly selected and surveyed again in 2008 (T2).

Participants

To allow for the inclusion of more variables, the GSS does not ask all participants the same questions. At T1, data were obtained regarding 1,021 participants' pornography consumption. At T2, data were obtained regarding 1,022 participants' pornography consumption. (data were matched in 1,020 cases). The descriptive statistics reported in the remainder of the Methods section reflect the characteristics of participants from whom pornography exposure data were obtained at T1 and T2. Females comprised 57.6% of the sample at T1, 57.5% of the sample at T2. Participants ranged in age from 18 to at least 89 at T1 ($M = 45.01$; $SD = 16.82$) and from 19 to at least 89 at T2 ($M = 47.19$; $SD = 16.81$). Religiosity was operationalized as frequency of attendance at religious services (Wright, 2011c). Response options ranged from 0 = *never attend* to 8 = *attend more than once per week* (T1: $M = 3.65$; $SD = 2.80$; T2: $M = 3.76$, $SD = 2.81$). Education was operationalized in terms of the number of years of school participants had completed (Wright, 2011c). Participants' average educational attainment was 2 years of postsecondary education at both T1 ($M = 13.53$; $SD = 3.19$) and at T2 ($M = 13.66$; $SD = 3.18$).

Measures

Unhappiness

Participants' level of unhappiness with their present circumstances was assessed at T1. Specifically, participants were asked, "Taken all together, how would you say things are these days – would you say that you are very happy, pretty

happy, or not too happy?" Responses were coded 1 = *very happy* (32.7%), 2 = *pretty happy* (53.6%), 3 = *not too happy* (13.7%) ($M = 1.81$; $SD = 0.65$).

Pornography Exposure

Pornography exposure was assessed by asking participants, "Have you seen an X-rated movie in the last year?" (0 = *no*; 1 = *yes*). At T1, 22.6% of participants said they had viewed a pornographic movie in the prior year. At T2, 23.5% of participants said they had viewed a pornographic movie in the prior year.

Casual Sex

The GSS asks sexually active participants (operationalized as participants who have had at least one sexual partner in the past year) about the nature of these sexual relationships. Specifically, sexually active participants are asked if their partner or partners were a spouse or regular partner, and/or a casual sex partner such as an acquaintance, a casual date, friend, coworker, prostitute, or neighbor. Participants who indicated that they had not engaged in casual sex (i.e., had only had sex with a regular partner or spouse) were coded 0. Participants who indicated that they had engaged in casual sex (i.e., had engaged in sex with an acquaintance, casual date, prostitute, etc. as either their only sexual encounter or in addition to sex with their regular partner or spouse) were coded 1. At T1, 18.4% ($n = 118$) of sexually active participants reported engaging in casual sex in the prior year, and 81.6% ($n = 525$) reported engaging in only committed sex. At T2, 14.1% ($n = 103$) of sexually active participants reported engaging in casual sex in the prior year, 85.9% ($n = 628$), reported engaging in only committed sex.

Data Analysis

Three hierarchical logistic regression analyses were carried out to test the study's hypotheses. Age, gender² (male coded 0; female coded 1), ethnicity (White, coded 0; Non-white, coded 1), education (years of school completed), and religiosity (attendance at religious services) were entered as controls in the initial step in all analyses (Braun-Courville & Rojas, 2009; Wright, 2011c). The T1 measure of the T2 outcome variable under exploration was also entered in the initial step, to ensure that predictors and interactions assessed change in the outcome variable over time (Little, Card, Preacher, & McConnell, 2009; Wright, 2010). Predictor variables were entered second. Interactions, when tested, were entered last. All interval variables were mean-centered. Ninety-five percent confidence

² Gender (as biological differentiation, not social or personal identity) was also considered as a potential moderator of the association between T1 pornography exposure and T2 casual sex behavior. The association was uniform for males and females. Thus, while the effects of mediated sexual violence may have different effects on males and females (Malamuth & Check, 1981), the effects of positive depictions of casual sex may not differ by gender.

Table 1. Logistic regression analysis predicting T2 casual sex behavior

Predictors	B (SE)	Wald	Odds ratio	95% CI Odds ratio
T1 casual sex*	2.72 (0.34)	63.06	15.24	7.78–29.86
Age	−0.02 (0.01)	1.44	0.99	0.96–1.01
Nonwhite	0.27 (0.38)	0.53	1.32	0.63–2.78
Religiosity*	−0.17 (0.07)	6.09	0.84	0.73–0.97
Education	0.01 (0.07)	0.02	1.01	0.89–1.15
Male	−0.45 (0.33)	1.88	0.64	0.33–1.21
Pornography	0.49 (0.34)	2.07	1.64	0.84–3.20
Unhappiness	−0.33 (0.35)	0.88	0.72	0.37–1.42
Pornography × unhappiness*	1.19 (0.52)	5.24	3.27	1.18–9.03

Notes. Above statistics represent the final step of a hierarchical logistic regression analysis.

*Asterisked variables significantly contributed to the model at the $p < .05$ level. Model Nagelkerke $R^2 = .45$. $N = 525$.

intervals (95% CIs) for odds ratios were used to assess the contribution of predictor variables (Mertler & Vannatta, 2002). Change in chi-squared was used to assess the contribution of interaction terms (Rose, Chassin, Presson, & Sherman, 2000). Changes in Nagelkerke R^2 are also reported, but should be viewed with caution given the nonlinear relationship between the predictors and the criterion in logistic regression (Aldrich & Nelson, 1984; Rose et al., 2000). Results are presented in the order the hypotheses were posed in the literature review.

Results

Hypothesis 1: Selective Exposure

Hypothesis 1 predicted that casual sex behavior would predict over time increases in pornography exposure. Hypothesis 1 was not supported. After controlling for T1 pornography exposure and the demographic controls, T1 casual sex behavior was not associated with T2 exposure to pornography in a logistic regression analysis (95% CI [0.51, 1.62]; Δ Nagelkerke $R^2 = .00$, $N = 617$).

Hypothesis 2: Social Learning

Hypothesis 2 predicted that pornography exposure would predict over time increases in casual sex behavior. Hypothesis 2 was supported. After controlling for T1 casual sex behavior and the demographic controls, exposure to pornography at T1 was associated with a 1.92 (95% CI [1.01, 3.62]) increase in the odds of having engaged in casual sex at T2 in a logistic regression analysis (Δ Nagelkerke $R^2 = .01$, $N = 525$).

Hypothesis 3: Moderating Role of Unhappiness

Hypothesis 3 predicted that the prospective association between pornography exposure and casual sex behavior would be moderated by unhappiness, such that increases

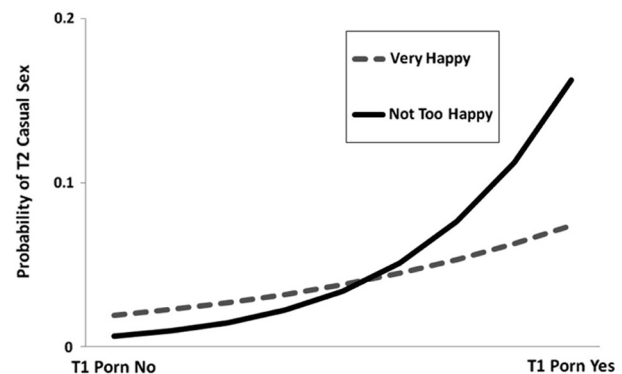


Figure 1. Interaction of T1 (2006) pornography exposure and T1 unhappiness on T2 (2008) casual sex, as indicated by logistic regression analysis.

in casual sex behavior as predicted from pornography exposure would be more likely for unhappy than happy individuals. Hypothesis 3 was supported. After controlling for T1 casual sex behavior and the demographic controls and adding T1 pornography exposure and T1 unhappiness to the logistic regression model, the interaction of T1 pornography exposure and T1 unhappiness was significant ($\Delta\chi^2 = 5.48$, $p < .05$; Δ Nagelkerke $R^2 = .01$, $N = 525$). Table 1 presents the statistics for the final step of this analysis. Figure 1 presents the results visually. Subsequent simple effects tests indicated that exposure to pornography at T1 was associated with a 6.71 (95% CI [1.87, 24.02]) increase in the odds of having engaged in casual sex at T2 for individuals who were “not too happy” and a 2.05 (95% CI [1.05, 3.98]) increase for individuals who were “pretty happy.” Conversely, exposure to pornography at T1 was unrelated to casual sex at T2 for those who were “very happy”, 95% CI [0.20, 1.97].

Discussion

Pornography presents an extremely casual view of sex. Correspondingly, several studies have explored whether individuals who consume more pornography have a more casual approach to sex than individuals who consume less

pornography. This research has been characterized by a degree of uniformity, however. First, much of this research has been cross-sectional. Second, much of this research has assessed only straightforward pornography exposure–casual sex correlations. Third, much of this research has utilized convenience samples of adolescents. Longitudinal research is needed to examine the temporal sequencing of the association. Research into individual differences is needed to ascertain whether the association is more powerful for certain individuals. Research is needed in adults, as they are the intended audience for pornography and yet are often assumed to be unaffected by pornography’s casual approach to sex. Studies utilizing large-scale, randomly selected samples are needed to increase the generalizability of results.

This study began the process of addressing these needs. Specifically, nationally representative longitudinal data gathered in 2006 (T1) and 2008 (T2) by the GSS were employed to explore whether casual sex behavior predicted over time change in US adults’ pornography exposure and whether pornography exposure predicted over time change in US adults’ casual sex behavior. To test the prediction of Wright’s (2011a) Δ AM model of sexual socialization that negative affective states make the application of risky sexual scripts provided by sexual media more likely, the moderating role of unhappiness was also explored. The following sections review the study’s findings, discuss the practical and theoretical implications of these findings, and outline limitations of the present study and directions for future research.

Review of Findings

Drawing on uses and gratifications theory and selective exposure theory, it was predicted that casual sex behavior at T1 would predict over time increases in pornography exposure at T2. Contrary to predictions, no such association was found.

Drawing on social learning theories of behavior, it was predicted that pornography exposure at T1 would predict over time increases in casual sex behavior at T2. This prediction was supported, as pornography exposure at T1 was associated with nearly a twofold increase in the odds of casual sex behavior at T2. Importantly, this association was found even after controlling for T1 casual sex behavior, age, ethnicity, religiosity, education, and gender.

Drawing on Wright’s (2011a) Δ AM model of sexual socialization, it was predicted that the association between exposure to pornography at T1 and casual sex behavior at T2 would be moderated by individuals’ level of unhappiness with their present life situation. Specifically, it was predicted that the association between T1 exposure to pornography and T2 casual sex behavior would be strongest when people were the most unhappy, and weakest when they were the most happy. This prediction was supported. Pornography exposure at T1 was associated with a nearly sevenfold increase in the odds of casual sex behavior at T2 for participants who were “not too happy” with their life at T1. Pornography exposure at T1 was associated with a twofold increase in the odds of casual sex behavior at T2 for

participants who were “pretty happy” with their life at T1. Pornography exposure at T1 was not related to casual sex behavior at T2 for participants who were “very happy” with their life at T1.

Practical Implications

The findings of this study have practical ramifications, given that casual sex poses an increased risk of negative outcomes such as physical and sexual aggression, STI contraction and transmission, and involvement in unwanted pregnancy (Bennett & Bauman, 2000; Buss & Schmitt, 1993; Paul et al., 2000; Shelton et al., 2004). First, the findings suggest that pornography exposure is a sexual risk factor for the average US adult because the average adult is only “pretty happy” and pornography consumption prospectively predicted a twofold increase in the odds of casual sex behavior for “pretty happy” adults. Second, the findings suggest that pornography exposure is an especially powerful risk factor for unhappy people, a group already at heightened risk (Fielder & Carey, 2010; Grello et al., 2003; Hutton et al., 2004; Parsons & Halkitis, 2002). Again, pornography exposure was prospectively associated with a nearly sevenfold increase in the odds of casual sex behavior for adults who were “not too happy.”

In sum, like several other studies before it, the results of this study suggest that exposure to entertainment media that glamorize casual sex and trivialize the risks and responsibilities associated with sex increases consumers’ risk of outcomes identified as untoward by the public health community (American Academy of Pediatrics, 2010; Peter & Valkenburg, 2011; Ward, 2003; Wingood et al., 2001; Wright, 2011a, 2011c; Wright et al., 2012). And, in alignment with the views of other sexual health scholars, this study recommends that sexual risk preventions include media education and literacy training as part of their curricula (Allen, D’Alessio, Emmers, & Gebhardt, 1996; Isaacs & Fisher, 2008; Pinkleton, Austin, Cohen, Chen, & Fitzgerald, 2008).

Theoretical Implications

The results of this study have several theoretical implications. First, the majority of the research on pornography exposure and casual sex attitudes and behaviors has been carried out using cross-sectional surveys. The results of those studies may be interpreted as supporting theories of selective exposure (D’Alessio & Allen, 2007), social learning (Hogben & Byrne, 1998), or both selective exposure and social learning (Slater, 2007). The results of this study support only social learning theory. Likewise, Peter and Valkenburg’s (2010) study of pornography exposure and casual sex attitudes also found more support for a social learning effect than a selective exposure effect. Of course, more research is needed before any firm statements can be made regarding the absence of selective exposure processes in the association between pornography consumption and casual sex. But parallel findings across two large-scale

longitudinal studies warrant some explanation. Two possibilities are put forth here.

To begin, it is possible that attitudinal confirmation is simply not a motive for pornography consumption. Indeed, studies that specifically assess pornography users' motivations never mention attitudinal confirmation as a motive for consumption. Instead, these studies focus on motives such as boredom relief (Chaney & Chang, 2005), stress reduction (Cooper, Morahan-Martin, Mathy, & Maheu, 2002; Paul & Shim, 2008), sexual arousal (Goodson, McCormick, & Evans, 2001; Paul & Shim, 2008), masturbatory stimulation (Boies, 2002; Paul & Shim, 2008), sexual pedagogy (Boies, 2002; Paul & Shim, 2008), exploration of sexual fantasies (Cooper et al., 2002; Paul & Shim, 2008), escape from loneliness (Chaney & Chang, 2005; Yoder, Virden, & Amin, 2005), and curiosity (Goodson et al., 2001).

Conversely, it is possible that attitudinal threat is a factor in pornography avoidance, but that other motives (e.g., escape from loneliness, masturbatory stimulation) often trump this consideration. As one example, a recent study of college males found that 20% consumed pornography but did not believe this was an acceptable behavior (Carroll et al., 2008). As another example, religiosity is often cited as a chief deterrent of pornography consumption (Linz & Malamuth, 1993), but a 4-decade study of adult US males found that religiosity explained only 3% of the variability in exposure to pornography (Wright, 2011c). Indeed, religious individuals of both sexes acknowledge that they are attracted to pornography and often fail in their attempts to avoid consuming it (Arterburn & Stoeker, 2009; Ferree, 2001). Entire books have been written about people who have negative attitudes toward pornography but yet continue to view it (Carnes et al., 2001; Schneider & Weiss, 2001).

Finally, Peter and Valkenburg (2010) put forth the possibility that "personality-oriented variables" – not attitudes – are the primary determinants of pornography exposure (p. 391). Possible personality-oriented variables that may drive pornography consumption are sensation seeking (Paul, 2009), erotophilia (Paul & Shim, 2008), sexual compulsivity (Wright, 2010), and psychopathy (Paul, 2009).

In sum, the first theoretical implication of this study is its suggestion that social learning may explain the correlation between pornography consumption and a more casual approach to sex more so than selective exposure. Additional research is needed, however, before selective exposure can be dismissed as applicable in this particular communicative context.

The second theoretical implication of this study is its suggestion that the "susceptible teens – unsusceptible adults" assumption that has guided much of the research on pornography and sexual socialization may need to be reconsidered (Peter & Valkenburg, 2011, p. 751). The results of this study suggest that adults are affected by the glamorized, risk- and responsibility-free portrayal of casual sex in pornography. Other recent studies support this possibility (Wright, in press; Wright, 2011c). Adults (like adolescents) may be dependent on mediated sources for information about sexual norms and values (Wright et al., 2012). Additionally, adults (like adolescents) may have difficulty

deciphering sexual fact from fiction in pornography (Malamuth & Impett, 2001; Peter & Valkenburg, 2010). Future research is needed to assess whether the same factors operable in media sex effects on adolescents (Ward, 2003) are operable on adults (Peter & Valkenburg, 2011).

Last, the results of this study support the assertion of Wright's (2011a) γ AM model of sexual socialization that negative affective states increase the probability that risky sexual scripts acquired or activated by media exposure will be applied at the level of behavior. This is an important finding for three reasons. First, it suggests that individual differences moderate the effect of pornography exposure on casual sex behavior as well as aggressive behavior (Malamuth & Huppert, 2005). Second, it identifies a specific moderator variable heretofore unstudied in mass media sexual socialization research. Third, it suggests that theories that already consider negative affect as a contributor to risky sexual behavior (e.g., social action theory, Ewart, 1991) should also consider the importance of pornography exposure.

Limitations and Future Directions

Future researchers using primary data can improve upon the limitations of this study in several ways. First, although a variety of potential confounds were considered, a lingering possibility in all nonexperimental research is that a "third variable" explains the associations uncovered (Little et al., 2009). In other words, it is possible that some unmeasured third variable caused both T1 pornography exposure and T2 casual sex behavior. Given the sociological nature of the GSS, the controls included in this study were primarily demographic. Future studies should include assessments of psychological characteristics such as sexual compulsivity, hypersexuality, and erotophilia, since these are traits that are directly related to sexual behavior. It should be noted, however, that controlling for T1 casual sex behavior makes the possibility of a third-variable confound implausible (Little et al., 2009). This is because the third variable would have to explain T1 pornography exposure and then at some point between data collections begin to explain T2 casual sex behavior above and beyond its contribution to T1 casual sex behavior, a curious causal pathway to be sure. For this reason, prior media sex studies employing similar longitudinal designs have interpreted their findings as causal (Bleakley et al., 2008; Peter & Valkenburg, 2010).

Second, future studies should employ more nuanced measures of pornography exposure, for three reasons. First, because the longitudinal GSS only assesses exposure to pornographic movies, it is possible that the percentage of US adults who consume pornography is higher than indicated by GSS data. This is a minor limitation for the present study, as (a) its goals were theoretical as opposed to descriptive, and (b) it generated results consistent with existing media effects theory, sexual media effects research, and sexual health research. But descriptive data are important, and it would be valuable to have an in-depth understanding of the prevalence of pornography consumption among adults in the United States. Second, the size of the association between T1 pornography exposure and T2 casual sex

behavior was hardly trivial, especially given that T1 casual sex behavior was included in the analysis (recall that across all participants, T1 pornography exposure was associated with a nearly twofold increase in the odds of T2 casual sex behavior and a nearly sevenfold increase in the odds of T2 casual sex behavior for unhappy participants). Still, theory predicts (Wright, 2011a) and research finds (Zillmann & Bryant, 1982) that more powerful effects occur as the amount of exposure to pornography increases. Thus, future studies should assess varying degrees of exposure to pornography.

Finally, future studies should include more nuanced measures of pornography exposure to assess whether different genres of pornography lead to different effects. For example, Paul (2009) has identified 15 different genres of pornography, including pornography featuring group sex, interracial participants, barely legal participants, women with large breasts, women with small breasts, ejaculation, urination, and hardcore sex. There is little evidence that any of the 15 genres Paul identifies adopt an approach to sex that is not quite casual. However, some genres may portray sex as more casual than others, which could translate to more powerful effects from exposure to these genres.

Likewise, Wright's (2011a) γ AM model predicts that correspondence between mediated sexual scenarios and actual sexual situations should enhance the likelihood of behavioral modeling. Consequently, future studies should examine whether exposure to pornography with particular themes (e.g., extramarital sex, prostitution) is especially likely to lead to corresponding sexual behavior (i.e., having an affair, soliciting a prostitute). Other moderators suggested by the γ AM and other media effects theories that should be explored are consumers' motivations for viewing pornography (e.g., for information versus entertainment), level of psychological involvement with the content, degree of identification with the characters, perceptions of pornography's realism, and level of dependency on pornography for sexual learning.

Conclusion

This study employed nationally representative longitudinal data from the General Social Survey to explore whether casual sex behavior predicted over time change in US adults' pornography exposure and whether pornography exposure predicted over time change in US adults' casual sex behavior. Casual sex behavior did not predict over time change in pornography exposure, but pornography exposure did predict over time change in casual sex behavior. In alignment with Wright's (2011a) γ AM model of media sexual socialization, the association between pornography exposure and change in casual sex behavior was stronger for more unhappy individuals.

Casual sex increases the risk of undesirable outcomes such as physical and sexual aggression, STIs, and unwanted pregnancy (Bennett & Bauman, 2000; Buss & Schmitt, 1993; Paul et al., 2000; Shelton et al., 2004). Consequently, these findings suggest that pornography consumption is a

sexual risk factor for US adults generally, and unhappy US adults in particular. These results also have theoretical implications. First, they suggest that associations between pornography consumption and casual sex have more to do with social learning than selective exposure. Second, they suggest that adults' sexual behavior can be affected by pornography consumption. Third, they suggest that negative affective states make the application of risky sexual scripts provided by sexual media more likely.

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Paul J. Wright is an assistant professor in the Department of Telecommunications at Indiana University in the United States (PhD in communication/family studies and human development, University of Arizona). His disciplinary interests are health and mass communication; his specialty interests within these domains are sexual socialization and sexual health.

Paul J. Wright
Department of Telecommunications
Indiana University
1229 East 7th Street
Bloomington, IN 47405
USA
Tel. +1 812 855-3254
Fax +1 812 855-7955
E-mail paulwright@indiana.edu