

United States Women and Pornography Through Four Decades: Exposure, Attitudes, Behaviors, Individual Differences

Paul J. Wright · Soyoung Bae · Michelle Funk

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Abstract Responding to a call for research on pornography and women’s sexuality made by Weinberg, Williams, Kleiner, and Irizarry (2010), this study assessed pornography consumption, predictors, and correlates using nationally representative data gathered from U.S. women between 1973 and 2010 ($N = 18,225$). Women who were younger, less religious, and non-White were more likely to consume pornography. Women who consumed pornography had more positive attitudes toward extramarital sex, adult premarital sex, and teenage sex. Women who consumed pornography also had more sexual partners in the prior year, prior 5 years, and were more likely to have engaged in extramarital sex and paid sex. Consistent with Wright’s (2011a) acquisition, activation, application model of mass media sexual socialization and the theorizing of Linz and Malamuth (1993), liberal–conservative ideology moderated the association between pornography exposure and sexual behavior. Specifically, the positive association between pornography exposure and women’s recent sexual behavior was strongest for the most liberal women and weakest for the most conservative women. Cultural commentators and some academics argue that technological advances have resulted in a steady increase in the percentage of individuals who consume pornography. Little support was found for this assertion among U.S. women.

Keywords Pornography · Sexually explicit media · Women · Sexual socialization · Permissive sex

Introduction

Weinberg, Williams, Kleiner, and Irizarry (2010) observed that “the relationship between pornography and women’s sexuality” has been “largely ignored in prior empirical research” (p. 1392). Weinberg et al. called this lack of research a “great concern” (p. 1392). Research is needed on the prevalence of pornography¹ consumption among women, individual differences in consumption, and attitudinal and behavioral correlates of consumption.

This study utilized nationally representative General Social Survey (GSS) data gathered between 1973 and 2010 from women in the United States to explore these questions. Pornography researchers have repeatedly cautioned that results from a particular culture may not generalize to other cultures (Gunter, 2002; Lam & Chan, 2007; Lo & Wei, 2005; Malamuth & Huppert, 2005; Malamuth & Impett, 2001; Omori et al., 2011; Peter & Valkenburg, 2009; Stulhofer et al., 2010). Consequently, the following literature review focuses on research conducted in the United States.

Pornography: Consumption

Cultural commentators assert that pornography consumption in the United States has steadily increased over the years (Maltz & Maltz, 2008; Paul, 2005; Sarracino & Scott, 2008). Some academics concur with these assessments. For example, Carroll et al. (2008) argued that technological advances have resulted in more and more individuals consuming pornography.

P. J. Wright (✉) · S. Bae · M. Funk
Department of Telecommunications, Indiana University, 1229
East 7th St., Bloomington, IN 47405, USA
e-mail: paulwrig@indiana.edu

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, Malamuth, & Donnerstein, 2012).

For several reasons, existing social scientific studies of pornography exposure are unable to either confirm or disconfirm such statements for U.S. women. First, prior research has focused primarily on males' pornography consumption. Second, most studies have utilized non-generalizable convenience samples (Goodson et al., 2001; Wingood et al., 2001). Third, most studies have focused on adolescents and college students (Braun-Courville & Rojas, 2009; Velezmoro et al., 2011; Weinberg et al., 2010). Fourth, studies have often focused on different mediums of delivery (movies, Padgett et al., 1989; websites, Braun-Courville & Rojas, 2009; written or audio material, Morgan, 2011). Fifth, studies have often asked about differing consumption time-spans (e.g., consumption in an average week, Paul, 2009; consumption in the last three months, Wingood et al., 2001; consumption in the last year, Weinberg et al., 2010; lifetime consumption, Ybarra et al., 2011). Sixth, studies have often assessed level of consumption using different scales (e.g., hours of exposure per month, Padgett et al., 1989; never—frequently, Goodson et al., 2001; not at all—more than ten times, Paul, 2009).

Although it has its own limitations (i.e., lack of breadth and nuance), the measure of pornography exposure employed by the GSS (exposure or no exposure to pornographic movies in the prior year) does allow for a direct assessment of whether more U.S. women are consuming pornography over time. The GSS is national in scope, samples female adults of all ages, employs random sampling, and at each data collection focuses on the same medium, asks about the same time-span of exposure, and employs the same dichotomous index of exposure.

Drawing on the uses and gratifications tradition in communication theory, Paul (2009) argued that pornography consumption is more likely for particular individuals. Braun-Courville and Rojas (2009) suggested that age, ethnicity, and level of educational attainment may be important predictors of pornography consumption. Younger women may be more likely to consume pornography due to factors such as heightened sexual curiosity and testosterone levels (Baumeister, 2000; Gallenberg, 2010). Sub-cultural differences, such as increased tolerance for sexual expression, may lead non-Whites to consume more pornography than Whites (Hennessy, Bleakley, Fishbein, & Jordan, 2009). Education may lead to pornography consumption via sexual open-mindedness. Conversely, educated individuals may be reluctant to consume pornography if they perceive it as a form of social deviance (Stack, Wasserman, & Kern, 2004). Religiosity is another factor that may affect pornography consumption, as traditional religious perspectives frown on portrayals of explicit sex (Lin & Malamuth, 1993).

Pornography: Content

The sexual social influence of pornography (if any) depends on the scripts for sexual behavior pornography presents. Sexual scripts provide individuals with rules for determining which

sexual behaviors and partners are desirable or undesirable and/or appropriate or inappropriate (Laws & Schwartz, 1977). According to Weaver (1991), pornography “ignores the basic social and relational aspects of sexual activity,” adhering instead to the view that sex is for “fun” alone (pp. 333–334). Zillmann and Bryant (1988) stated similarly 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). Malamuth and Impett (2001) agreed, writing that “most of the focus is on physical attributes and activities (rather than emotional or relational elements)” (p. 273). The female role is especially clear: “Most commonly, the portrayals are of female nudity and of men having casual sex with numerous, easily accessible young women” (Malamuth & Impett, 2001, p. 273).

Pornography: Potential Effects

The Cultivation of Permissive Sexual Attitudes

From a cultivation theory perspective (Gerbner et al., 1994), pornography's recreational portrayal of sex should lead its consumers to adopt more permissive sexual attitudes themselves (Gunter, 2002). The essence of cultivation theory is that immersion in the social worldview of a particular mediated message system cultivates a likeminded outlook in consumers.

Several cross-sectional surveys have found that young women in the United States who consume more pornography also have more permissive sexual attitudes. Carroll et al. (2008) found that undergraduate and graduate women who consumed more pornography had more positive attitudes toward sex outside of committed relationships. Weinberg et al. (2010) found that collegiate females who consumed more pornography had more positive attitudes toward group sex. More important, however, are longitudinal surveys, as they address the question of time-order. Brown and L'Engle (2009) found that pornography exposure predicted over time interindividual change in teenage girls' positive attitudes toward premarital sex. Controlling for gender, Wright (2013) found that pornography exposure predicted over time interindividual change in adults' (average age 45) sexually permissive attitudes.

Experiments address both time-order and the issue of third-variable confounds. Zillmann and Bryant (1988) conducted an experiment involving exposure to pornographic movies. Pornography exposure led collegiate females to have more favorable attitudes toward premarital, extrarelational, and extramarital sex, more tolerance for affairs, and more acceptance of individuals having multiple sexual partners even if they were in a relationship. The GSS contains three variables germane to the question of attitudinal sexual permissiveness: attitudes towards extramarital sex, adult premarital sex, and teenage sex.

The Modeling of Permissive Sexual Behaviors

Cultivation theory's assertions about media effects end at the cognitive level. According to Bleakley et al. (2008), however, the change in beliefs brought about by exposure to positive portrayals of recreational sex in the media should also encourage change in consumers' actual behavior. This assertion is congruent with social learning theories of sexual behavior (Hogben & Byrne, 1998).

Several cross-sectional surveys of young women in the United States have found positive associations between pornography consumption and patterns of behavior that are indicative of sexual permissiveness. First, several studies have found that young women who consumed more pornography have had more recent or lifetime sexual partners (Carroll et al., 2008; Weinberg et al., 2010; Wingood et al., 2001). Second, Morgan (2011) asked collegiate females about the specific nature of their sexual relationships and found that women who had consumed more pornography had also had more casual sex partners. Third, Maddox et al. (2011) found that women in committed relationships who consumed more pornography were also more likely to have engaged in extrarelational sex.

Longitudinally, Brown and L'Engle (2009) found that pornography exposure predicted over time interindividual change in teenage girls' oral sex and coital behavior. Similarly, Wright (2012) found that pornography exposure predicted over time interindividual change in adults' (average age 45) casual sex behavior. This association was not moderated by gender. Experimentally, Zillmann and Bryant (1988) found that pornography exposure led collegiate females to have increased intentions of engaging in extrarelational sex. The GSS contains four variables germane to the question of behavioral sexual permissiveness: number of sex partners in the last year, number of sex partners in the last 5 years, ever having engaged in extramarital sex, and ever having engaged in paid sex.

Liberal–Conservative Ideology as a Potential Behavioral Moderator

Research is needed that assesses individual differences in the effects of pornography (Malamuth & Huppel, 2005). Wright (2011a) proposed a three-stage sexual script acquisition, activation, application ($_3AM$) model of sexual socialization that may be informative. According to the model, sexual media can provide consumers with sexual scripts they were unaware of (acquisition), prime sexual scripts they were already aware of (activation), and encourage the utilization of sexual scripts (application) by portraying them as normative, acceptable, and rewarding.

According to the $_3AM$, one audience characteristic that should discourage the application of activated sexual scripts is moral views. Specifically, the model asserts that consumers will be less likely to act on sexual scripts that are inconsistent with

their existing sexual moral views. The GSS measures an individual difference variable that is generally reflective of sexual moral views: liberal–conservative ideology. According to Linz and Malamuth (1993), conservatives and liberals have different views on sexual morality and should, therefore, respond to pornography quite differently. For conservatives, traditional sexual values prohibiting sex outside of marriage are unconditional and unchanging. Liberals, in contrast, believe in sexual open-mindedness and the relativity of sexual values. As a result, liberals should be more open than conservatives to pornography's stance that sexually permissive behavior is satisfying and harmless. To put it another way, exposure to pornography should activate permissive sexual scripts in the minds of both liberal and conservative consumers. At the point of application, however, liberals and conservatives should differ. Conservatives' absolutist views on sexual morality should discourage them from acting on the activated script. On the other hand, liberals' sexual relativity should increase the likelihood of behavioral application of the activated script. In sum, behavioral change in the direction of more sexual permissiveness from exposure to pornography should be more likely to occur for liberals than conservatives.²

As the GSS asks about pornography consumption in the prior year, the behavioral variable assessed by the GSS that is most amenable to testing this assertion is number of sexual partners in the prior year. The other behavioral variables (number of partners in the past 5 years, ever having engaged in extramarital or paid sex) are or could be too distally related to women's current liberal–conservative ideology and pornography exposure to provide a meaningful test.

Research Questions and Hypotheses

The previous sections reviewed research and theory related to the prevalence of pornography consumption among U.S. women, predictors of consumption, and attitudinal and behavioral correlates of consumption. The following research questions and hypotheses are proposed in correspondence with this review:

RQ1 Has there been a linear over time increase in the percentage of U.S. women who consume pornography?

RQ2 Do age, ethnicity, education, and religiosity predict U.S. women's consumption of pornography?

² Conservatives admit that they are attracted to and at times indulge in pornography (Arterburn & Stoeker, 2009; Ferree, 2001). An answer to the question of why conservatives view pornography when doing so defies their moral values is beyond the scope of this study. It is likely, however, that (1) conservatives access pornography for the same reasons as non-conservatives: sexual arousal, masturbation, curiosity, stress relief, etc. (Paul & Shim, 2008) and (2) rationalizing behavior dissonant with conservative moral values is easier for "unreal" pornography consumption than "real" sexual behavior with another person.

H1 Pornography consumption will be positively associated with approval of extramarital sex among U.S. women

H2 Pornography consumption will be positively associated with approval of adult premarital sex among U.S. women

H3 Pornography consumption will be positively associated with approval of teenage sex among U.S. women

H4 Pornography consumption will be positively associated with the number of sexual partners reported by U.S. women for the prior year

H5 Pornography consumption will be positively associated with the number of sexual partners reported by U.S. women for the prior 5 years

H6 Pornography consumption will be positively associated with ever having engaged in extramarital sex

H7 Pornography consumption will be positively associated with ever having engaged in paid sex

H8 Liberal–conservative ideology will moderate the positive association between pornography exposure and the number of sexual partners reported by U.S. women for the prior year, such that the association will be stronger for liberals than conservatives

Method

Participants

The data for the present study were provided by the GSS (Davis & Smith, 2010). The GSS is the only ongoing, national, full-probability, personal-interview survey examining social beliefs and behaviors currently carried out in the United States (The National Data Program for the Social Sciences, 2011). Funded by the National Science Foundation, GSSs have been conducted between 1972 and 2010. The GSS surveys residence-inhabiting adults age 18 years or older. All residences in the United States have had an equal chance of being selected from 1975 onward. Adults within each residence have an equal probability of being interviewed (GSS Codebook, 2011). Between 74 and 77 % of those contacted participated in 1970s GSSs, 72–80 % in 1980s GSSs, 74–82 % in 1990s GSSs, and 70–71 % in 2000 GSSs (GSS Codebook, 2011). Non-response has had little effect on the external validity of the GSS, as GSS samples mirror distributions reported in the U.S. Census and other dependable sources (GSS Codebook, 2011). For example, in 2010 the census found that approximately 75 % of the U.S. was White (Humes, Jones, & Ramirez, 2011). Likewise, White women comprised 75.5 % of respondents in the 2010 GSS.

Participants were 18,225 U.S. women who responded to questions about their pornography consumption in 23 GSSs between 1973 and 2010 (sample size range across surveys, 493–1,131). Participants' demographic characteristics are described subsequently.

Measures

To allow for the inclusion of more questions and to avoid participant fatigue, not all GSS questions are asked in each year the survey is conducted. Similarly, the GSS has core questions that are asked each survey, but also has questions that are asked in only some surveys.

Pornography Consumption

Pornography consumption was assessed with the following question: Have you seen an X-rated movie in the last year? (0 = no; 1 = yes). This variable was measured in 23 GSSs. Across all years, 16.7 % of participants answered affirmatively to this question.

Is it valid to assess pornographic movie viewing in the internet era? Several sources suggest that it is. First, pornographic movies can be streamed online from a variety of websites (e.g., adultrental.com, adultvideonetwork.com, moviemonster.com). Second, economic data indicate that pornographic “video sales and rentals are [still] the preferred method of consumption in the United States” (Bridges et al., 2010, p. 1082). Third, in 2000, 2002, and 2004, in addition to asking about pornographic movie viewing, the GSS asked participants whether they viewed internet pornography. Across these years, 16 % of women indicated they had viewed a pornographic movie, while 4 % indicated they had viewed internet pornography. Likewise, a 2006 study of undergraduate women found that 28.7 % said they had visited sexually explicit websites with video content either ever or once or twice a year (Fox, 2006). Of women aged 18–30 in the present study, 34 % said they viewed a pornographic movie in the prior year in the 2000s. Fourth, recent studies utilizing multi-item assessments find that items assessing pornographic movie consumption form internally consistent scales with assessments of consumption of other pornographic media, including internet pornography (Lo & Wei, 2005; Omori et al., 2011; Peter & Valkenburg, 2010; Wright, 2011b).

Demographic Predictors

Four demographic predictors of pornography consumption were explored: age, ethnicity, education, and religiosity. These variables were measured in all years participants' pornography consumption was measured. Participants ranged in age from 18 to 89 ($M = 46.08$; $SD = 17.93$). Ethnicity was operationalized as White (coded as 0) or non-White (coded as 1). Whites com-

prised 81.0 % of participants. Education was operationalized in terms of the number of years of school participants had completed ($M = 12.57$; $SD = 3.00$). Religiosity was operationalized as frequency of attendance at religious services and measured on a 0 (never attend) to 8 (attend more than once a week) scale ($M = 4.16$; $SD = 2.70$).

Liberal–Conservative Ideology

Liberal–conservative ideology was assessed by asking participants whether they identified their political views as liberal or conservative. This variable was measured in all years participants' pornography consumption was measured, save for 1973. Response options ranged from 1 = extremely liberal to 7 = extremely conservative ($M = 4.07$; $SD = 1.34$).

Outcome Variables

Seven outcome variables were tested: attitude towards extramarital sex, attitude towards adult premarital sex, attitude towards teen sex, number of sex partners in the last year, number of sex partners in the last 5 years, ever having engaged in extramarital sex, and ever having engaged in paid sex.

Attitude towards extramarital sex was assessed with the following question: What is your opinion about a married person having sexual relations with someone other than the marriage partner? Response options ranged from 1 = always wrong to 4 = not wrong at all ($M = 1.35$; $SD = 0.71$). This variable was measured in 19 GSSs.

Attitude towards adult premarital sex was assessed with the following question: If a man and woman have sex relations before marriage, do you think it is always wrong, almost always wrong, wrong only sometimes, or not wrong at all? Response options ranged from 1 = always wrong to 4 = not wrong at all ($M = 2.66$; $SD = 1.25$). This variable was measured in 18 GSSs.

Attitude towards teen sex followed the question about adult premarital sex, and was assessed with the following question: What if they are in their early teens, say 14–16 years old? In that case, do you think sex relations before marriage are always wrong, almost always wrong, wrong only sometimes, or not wrong at all? Response options ranged from 1 = always wrong to 4 = not wrong at all ($M = 1.43$; $SD = 0.77$). This variable was measured in 15 GSSs.

Number of sex partners in the last year was assessed with the following question: How many sex partners have you had in the last 12 months? Response options were 0 = no partners, 1 = 1 partner, 2 = 2 partners, 3 = 3 partners, 4 = 4 partners, 5 = 5–10 partners, 6 = 11–20 partners, 7 = 21–100 partners, 8 = more than 100 partners ($M = 0.89$; $SD = 0.79$). This variable was measured in 14 GSSs.

Number of sex partners in the last 5 years was assessed subsequently, with the following question: Now think about the past 5 years, and including the past 12 months, how many

sex partners have you had in that 5 year period? Response options were 0 = no partners, 1 = 1 partner, 2 = 2 partners, 3 = 3 partners, 4 = 4 partners, 5 = 5–10 partners, 6 = 11–20 partners, 7 = 21–100 partners, 8 = more than 100 partners ($M = 1.40$; $SD = 1.32$). This variable was measured in 11 GSSs.

Ever having engaged in extramarital sex was assessed with the following question: Have you ever had sex with someone other than your husband or wife while you were married? Response options for ever married participants were 0 = no and 1 = yes (13.8 % of participants had engaged in extramarital sex—participants who had not ever been married were excluded from analysis). This variable was measured in 11 GSSs.

Paid sex was assessed with the following question: Thinking about the time since your 18th birthday, have you ever had sex with a person you paid or who paid you for sex? Response options were 0 = no and 1 = yes (2.1 % of participants had engaged in paid sex). This variable was measured in 11 GSSs.

Results

RQ1: Linear Increase in Pornography Consumption Over Time?

Research question one asked if there has been a linear increase over time in the percentage of U.S. women who consume pornography. This question was addressed for the entire sample and for women aged 18–30, as it has been suggested that pornography consumption may be most likely among young adults (Carroll et al., 2008; Morgan, 2011; Weinberg et al., 2010). Four tactics were utilized to address the issue of linear change over time. First, Pearson's r statistics were calculated. Second, slope statistics were computed using linear regression. Third, percentages of women who consumed pornography in each decade were compared. Fourth, the year-by-year percentages were plotted and visually analyzed (see Fig. 1).

Among all women, year and the percentage of women who consumed pornography in each year were correlated at $r(21) = .06$. A 1-year advancement resulted in a 0.02 % increase in the percentage of women who consumed pornography. In the 1970s, 14 % of women consumed pornography, in the 1980s 18 %, the 1990s 17 %, and the 2000s 16 %.

Visual analysis indicated that the percentage of women who consumed pornography fluctuated somewhat between 1973 and 1990 (high of 20 %, low of 11 %), but stabilized between 15 and 17 % from 1991 on (with the exception of 20 % in 1996). In sum, GSS data generally did not suggest that there has been a linear increase in the percentage of U.S. women who consume pornography, at least when adult women of all ages are considered.

But what about women aged 18–30? Year and the percentage of women aged 18–30 who consumed pornography in each year

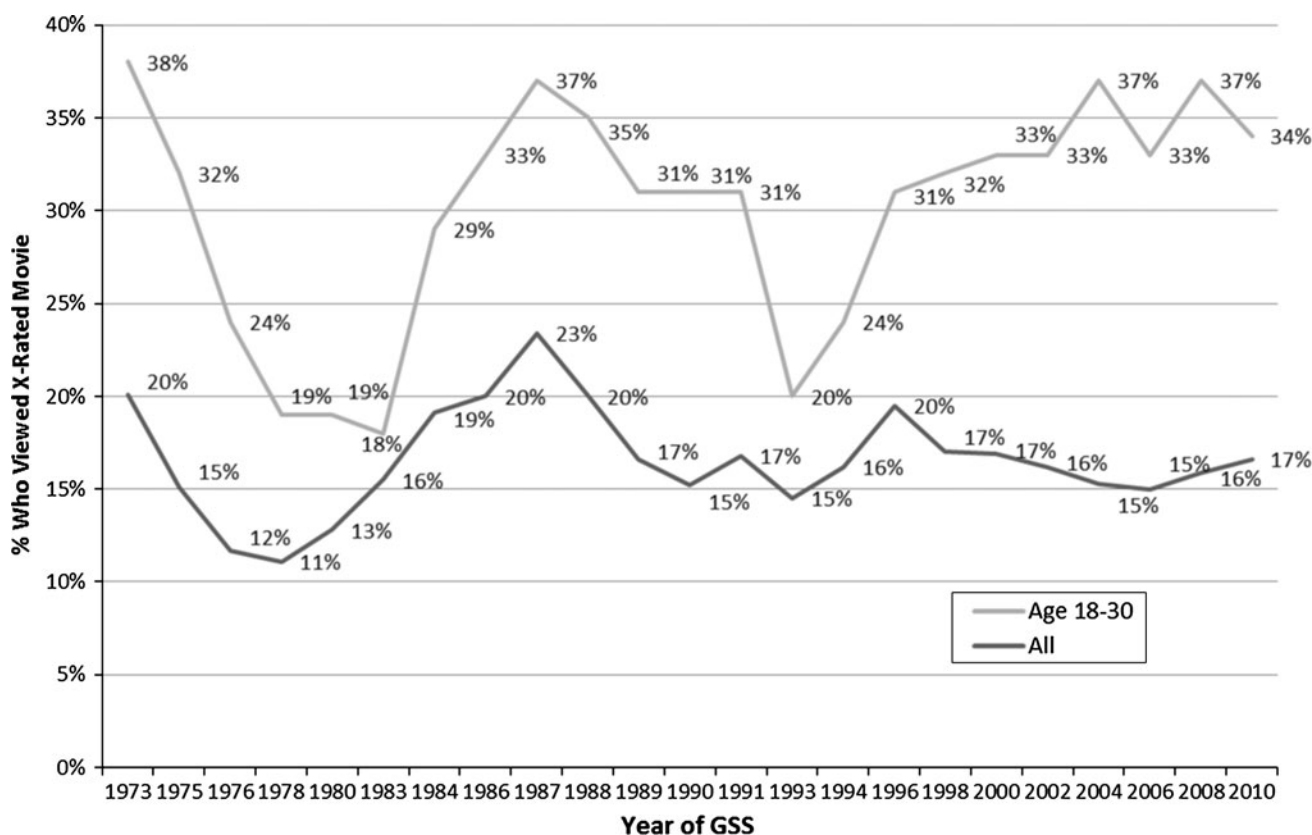


Fig. 1 Percentage of U.S. women who said they watched at least one pornographic movie in each year the GSS queried participants about their pornography consumption

were correlated at $r(21) = .40, p = .06$. A 1-year advancement resulted in a 0.23 % increase in the percentage of 18–30 year old women who consumed pornography. In the 1970s, 28 % of women consumed pornography, in the 1980s 28 %, the 1990s 29 %, and the 2000s 34 %. Visual analysis indicated that the percentage of women aged 18–30 who consumed pornography fluctuated a fair amount prior to the mid-1990s. For example, in 1973 38 % consumed pornography, in 1983 18 %. By 1987, the number was back up to 37 %, but fell to 20 % in 1993. From 1996 to 2010, on the other hand, approximately 33 % of women consumed pornography. In sum, while not suggesting a steady linear over time increase in the percentage of women aged 18–30 who consumed pornography, GSS data do suggest (1) a slight overall increase over time and (2) that increased access to the internet via the world wide web in the mid 1990s (Dominick, Messere, & Sherman, 2008) resulted in a more stable percentage of 18–30 year old female pornography consumers.

RQ2: Do Demographics Predict Pornography Consumption?

Research question two asked if age, ethnicity, education, and religiosity predicted U.S. women's pornography consumption. Table 1 shows correlations between these demographic

predictors and pornography consumption by year and for the entire sample.

Age and pornography consumption were negatively correlated in each year. The correlation for the entire sample was $r(18,144) = -.25, p < .01$. The correlation between age and pornography consumption was fairly stable over time (r by GSS decade: 1970s = $-.26$; 1980s = $-.25$; 1990s = $-.24$; 2000s = $-.27$).

The overall correlation between ethnicity and pornography consumption was small, but positive and significant, $r(18,223) = .07, p < .01$, indicating that non-Whites were more likely to consume pornography than Whites. White/non-White differences in pornography consumption have become more consistent over time. Of the 14 correlations available to test between 1973 and 1993, only two (14 %) were significant. Of the nine correlations available to test between 1994 and 2010, eight (89 %) were significant. It is unlikely that changes in statistical power explain this trend, as six of the eight 1994 or later significant correlations had smaller sample sizes than at least six of the pre 1994 non-significant correlations.

The overall correlation between education and pornography consumption was small, but positive and significant, $r(18,175) = .05, p < .01$. However, it appears that differences

Table 1 Associations between demographic characteristics of U.S. women and pornography consumption, by year

Year	Demographic variable							
	Age		Ethnicity		Education		Religiosity	
	<i>r</i>	<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>	<i>n</i>
1973	-.32**	796	.00	800	.17**	797	-.15**	795
1975	-.28**	810	.06	815	.13**	813	-.13**	813
1976	-.25**	823	.00	827	.10**	822	-.19**	824
1978	-.21**	878	.06	884	.12**	880	-.11**	883
1980	-.18**	814	.03	823	.11**	820	-.11**	817
1983	-.17**	901	.07*	905	.03	905	-.12**	903
1984	-.22**	863	.08*	868	.08*	867	-.19**	864
1986	-.32**	838	.00	843	.05	843	-.23**	840
1987	-.28**	1,028	.05	1,034	.11**	1,030	-.19**	1,028
1988	-.29**	552	.08	556	.04	554	-.23**	555
1989	-.27**	582	.04	583	.04	581	-.12**	582
1990	-.25**	493	.00	493	-.01	493	-.15**	484
1991	-.26**	594	.07	595	.01	593	-.20	585
1993	-.20**	619	.00	621	.09*	620	-.13**	603
1994	-.24**	815	.13**	817	.02	817	-.12**	807
1996	-.22**	1,053	.08**	1,056	.00	1,052	-.22**	1,021
1998	-.25**	1,039	.08**	1,039	.02	1,037	-.13**	1,027
2000	-.27**	1,047	.05	1,051	.00	1,045	-.18**	1,011
2002	-.27**	503	.13**	506	-.07	504	-.17**	506
2004	-.29**	458	.10*	459	.04	459	-.13**	458
2006	-.24**	1,127	.09**	1,131	.02	1,130	-.14**	1,128
2008	-.31**	736	.09*	741	.02	739	-.12**	738
2010	-.30**	777	.11**	778	-.02	776	-.11**	774
Overall	-.25**	18,146	.07**	18,225	.05**	18,177	-.15**	18,046

All coefficients are Pearson's *r*

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

between more and less educated women's pornography consumption have diminished over time. In the 1970s, 100 % of the correlations were significant, in the 1980s 43 % were significant, in the 1990s 17 % were significant, and in the 2000s 0 % were significant (sample sizes in each decade were comparable).

Religiosity and pornography consumption were negatively correlated in each year, and all of these correlations were significant save for 1991. The correlation for the entire sample was $r(18,044) = -.15$, $p < .01$. The correlation between religiosity and pornography consumption was fairly stable over time (r by GSS decade: 1970s = $-.14$; 1980s = $-.17$; 1990s = $-.16$; 2000s = $-.14$).

Last, a simultaneous-entry logistic regression analysis with pornography consumption as the dependent variable and the demographics as the predictors was carried out for the entire sample (Model $\chi^2 = 1,614.03$, $p < .01$). Consistent with the individual predictor analyses, age (OR = 0.96, 95 %

CI 0.95–0.96) and religiosity (OR = 0.87, 95 % CI 0.86–0.89) were negatively associated with pornography consumption, ethnicity was positively associated with pornography consumption (OR = 1.47, 95 % CI 1.33–1.62), and the association between education and pornography consumption was unreliable (OR = 1.01, 95 % CI 0.99–1.02).

H1: Pornography Consumption and Attitude Towards Extramarital Sex

Hypothesis 1 predicted that pornography consumers would have more positive attitudes toward extramarital sex. This hypothesis was generally supported. As Table 2 shows, pornography consumption was significantly associated with more positive attitudes toward extramarital sex in 14 out of 19 GSS years, overall $r(9,308) = .13$, $p < .01$. The correlation between pornography consumption and attitude towards extramarital sex was fairly similar in magnitude over time

Table 2 Associations between U.S. women's pornography consumption and sexual attitudes and behaviors, by year

Year	Attitudes toward extramarital sex		Attitudes toward adult premarital sex		Attitudes toward teen sex		Number of sex partners (prior year)		Number of sex partners (prior 5 years)		Extramarital sex behavior		Paid sex behavior	
	<i>r</i>	<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>	<i>n</i>
1973	.19**	798												
1975			.21**	783										
1976	.20**	811												
1978			.22**	864										
1980	.14**	807												
1983			.20**	887										
1984	.12**	858												
1986			.26**	812	.23**	832								
1987	.18**	1,019												
1988	.14*	286	.22**	258	.24**	262	.20**	519						
1989	.07	293	.31**	278	.22**	285	.21**	527						
1990	-.02	243	.15*	237	.14*	241	.17**	422						
1991	.19**	263	.09	313	.12*	308	.34**	253	.43**	247	.20**	415	.06**	494
1993	.13*	311	.19**	297	.14*	303	.16**	569	.15**	563	.10*	482	-.02	565
1994	.16**	383	.11*	419	.08	427	.29**	742	.27**	723	.16**	602	.12**	726
1996	.09*	501	.24**	528	.12**	535	.26**	950	.28**	928	.22**	748	.12**	937
1998	.05	524	.15**	492	.02	501	.17**	893	.21**	865	.07	697	.06	874
2000	.15**	494	.20**	514	.26**	538	.22**	869	.26**	842	.09*	697	.02	863
2002	.03	212	.11	286	.13*	289	.20**	410	.28**	404	.02	312	-.02	410
2004	.14*	229	.13	222	.20*	225	.28**	350	.37**	348	.19**	276	.02	351
2006	.13*	567	.14**	541	.18**	549	.29**	893	.30**	866	.10*	662	.06	892
2008	.06	387	.12*	342	.09	347	.31**	653	.37**	636	.13**	496	.05	657
2010	.12*	324	.13**	442	.12*	447	.28**	687	.36**	674	.16**	496	.14**	683
Overall	.13**	9,310	.19**	8,515	.16**	6,089	.24**	8,737	.28**	7,096	.13**	5,883	.06**	7,452

Table reflects results from GSS that queried participants about both their pornography consumption and the particular sexual attitude or behavior in question. All coefficients are Pearson's *r*

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

(*r* by GSS decade: 1970s = .18; 1980s = .14; 1990s = .10; 2000s = .11). The overall association held after controlling for age, ethnicity, education, and religiosity (see Table 3).

H2: Pornography Consumption and Attitude Towards Adult Premarital Sex

Hypothesis 2 predicted that pornography consumers would have more positive attitudes toward adult premarital sex. This hypothesis was generally supported. As Table 2 indicates, pornography consumption was positively and significantly associated with more positive attitudes toward adult premarital sex in 15 out of 18 GSS years, overall $r(8,513) = .19, p < .01$. The correlation between pornography consumption and attitude towards adult premarital sex was relatively similar in magnitude over time (*r* by GSS decade: 1970s = .21; 1980s = .24; 1990s = .16; 2000s = .14). The sample association held

after controlling for age, ethnicity, education, and religiosity (see Table 3).

H3: Pornography Consumption and Attitude Towards Teenage Sex

Hypothesis 3 predicted that pornography consumers would have more positive attitudes toward teenage sex. This hypothesis was generally supported. As Table 2 shows, pornography consumption was significantly associated with more positive attitudes toward teenage sex in 12 out of 15 GSS years, overall $r(6,087) = .16, p < .01$. The correlation between pornography consumption and attitude towards teenage sex was more similar than dissimilar over time (*r* by GSS decade: 1980s = .22; 1990s = .10, 2000s = .17). The overall association held after controlling for age, ethnicity, education, and religiosity (see Table 3).

Table 3 Hierarchical multiple regression analyses predicting U.S. women's sexual attitudes from pornography consumption

Predictor	Attitude towards extramarital sex		Attitude towards adult premarital sex		Attitude towards teen sex	
	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	.26**		.24**		.10**	
Age		−0.04**		−0.20**		−0.12**
Ethnicity		0.06**		0.02		0.03*
Education		0.11**		0.13**		0.08**
Religiosity		−0.20**		−0.37**		−0.23**
Step 2	.01**		.01**		.01**	
Porn		0.08**		0.08**		0.08**

* $p < .05$; ** $p < .01$ **Table 4** Hierarchical multiple regression analyses predicting U.S. women's sexual partnerships from pornography consumption

Predictor	Number of sex partners (prior year)		Number of sex partners (prior 5 years)	
	ΔR^2	β	ΔR^2	β
Step 1	.22**		.25**	
Age		−0.41**		−0.42**
Ethnicity		0.03**		0.02
Education		0.01		0.00
Religiosity		−0.06**		−0.12**
Step 2	.01**		.02**	
Porn		0.12**		0.16**

Since number of sex partners in the prior year and 5 years were not strict interval variables, multinomial logistic regression analyses were also carried out (partner categories: no partners, 1–4 partners, 5 or more partners). Results indicated positive linear associations. For number of partners in the prior year, women with 1–4 partners were more likely to consume pornography than women with no partners (OR = 2.61, 95 % CI 2.10–3.24), and women with 5 or more partners were more likely to consume pornography than women with 1–4 partners (OR = 3.36, 95 % CI 2.02–5.58). For number of partners in the prior 5 years, women with 1–4 partners were more likely to consume pornography than women with no partners (OR = 2.96, 95 % CI 2.12–4.13), and women with 5 or more partners were more likely to consume pornography than women with 1–4 partners (OR = 2.08, 95 % CI 1.65–2.61)

** $p < .01$

H4: Pornography Consumption and Number of Sexual Partners in Prior Year

Hypothesis 4 predicted that pornography consumers would have more sexual partners in the prior year. This hypothesis was supported. As Table 2 shows, pornography consumption was positively and significantly associated with number of sexual partners in the prior year in all GSS years, overall $r(8,735) = .24$, $p < .01$. The correlation between pornography consumption and number of sexual partners in the prior year was stable over time (r by GSS decade: 1980s = .21; 1990s = .22; 2000s = .26). The sample association held after controlling for age, ethnicity, education, and religiosity (see Table 4).

H5: Pornography Consumption and Number of Sexual Partners in Prior 5 years

Hypothesis 5 predicted that pornography consumers would have more sexual partners in the prior 5 years. This hypothesis

was supported. As Table 2 shows, pornography consumption was positively and significantly associated with number of sexual partners in the prior 5 years in all GSS years, overall $r(7,094) = .28$, $p < .01$. The correlation between pornography consumption and number of sexual partners in the prior 5 year was relatively stable over time (r by GSS decade: 1990s = .24; 2000s = .32). The overall association held after controlling for age, ethnicity, education, and religiosity (see Table 4).

H6: Pornography Consumption and Extramarital Sex Behavior

Hypothesis 6 predicted that pornography consumers would be more likely to engage in extramarital sex. This hypothesis was generally supported. As Table 2 shows, pornography consumption was positively and significantly associated with extramarital sex behavior in 9 out of 11 GSS years, overall $r(5,881) = .13$, $p < .01$. The correlation between pornography consumption and extramarital sex behavior was stable

Table 5 Hierarchical logistic regression analyses predicting sex with someone other than the spouse and paid sex from pornography consumption

Predictor	Extramarital sex behavior		Paid sex behavior	
	$\Delta\chi^2$	95 % CI exp(B)	$\Delta\chi^2$	95 % CI exp(B)
Step 1	98.40**		44.86**	
Age		1.00 (0.99–1.00)		1.00 (0.99–1.01)
Ethnicity		1.33 (1.09–1.62)		2.69 (1.90–3.81)
Education		1.02 (0.99–1.05)		.97 (0.91–1.03)
Religiosity		.90 (0.87–0.92)		.94 (0.88–1.00)
Step 2	48.39**		17.32**	
Porn		1.99 (1.65–2.40)		2.23 (1.55–3.22)

** $p < .01$

over time (r by GSS decade: 1990s = .14; 2000s = .11). The overall association held after controlling for age, ethnicity, education, and religiosity (see Table 5).

H7: Pornography Consumption and Paid Sex Behavior

Hypothesis 7 predicted that pornography consumers would be more likely to engage in paid sex behavior. This hypothesis received modest support. As Table 2 shows, pornography consumption was positively associated with paid sex behavior in the overall sample, $r(7,450) = .06$, $p < .01$, and this association held after controlling for age, ethnicity, education, and religiosity (see Table 5). However, the association was positively significant in only 4 out of 11 GSS years. The magnitude of the association was stable over time (r by GSS decade: 1990s = .07; 2000s = .05).

H8: Moderating Role of Liberal–Conservative Ideology

Hypothesis 8 predicted that liberal–conservative ideology would moderate the positive association between pornography exposure and the number of sexual partners of U.S. women in the prior year, such that the association would be stronger for liberals than conservatives. Hypothesis 8 was supported. An overall sample multiple regression analysis including the demographic predictors, pornography consumption, liberal–conservative ideology, and the interaction of pornography consumption and liberal–conservative ideology revealed a significant pornography consumption \times liberal–conservative ideology interaction ($\beta = -0.10$, $p < .01$). Figure 2 displays this interaction. Simple slope analyses showed that the association between pornography consumption and number of sexual partners in the prior year was strongest for extreme liberals ($\beta = 0.19$, $p < .01$) and became progressively less pronounced as women were less liberal (liberal: $\beta = 0.16$, $p < .01$; slightly liberal: $\beta = 0.14$, $p < .01$) and more conservative (slightly conservative: $\beta = 0.09$, $p < .01$; conservative: $\beta = 0.07$, $p < .01$), eventually rising above significance for extreme conservatives ($\beta = 0.05$, $p = .07$).

Discussion

Responding to Weinberg et al.'s (2010) call for research on pornography and women's sexuality, this study assessed pornography consumption, predictors, and correlates using nationally representative data gathered from U.S. women between 1973 and 2010. The following sections review the study's findings, discuss potential implications of the findings, and outline limitations of the study and directions for future research.

Review of Findings

Cultural commentators and some academics have argued that technological advances have resulted in a steady increase in the percentage of individuals who consume pornography (Carroll et al., 2008; Maltz & Maltz, 2008; Paul, 2005; Sarracino & Scott, 2008). Little support was found for this contention among the entire sample of women (age range 18–at least 89). In the 1970s, 14 % of women consumed pornography, in the 1980s 18 %, the 1990s 17 %, and the 2000s 16 %. On the other hand, results for 18–30 year old women indicated a slight increase over time (e.g., 28 % consumed pornography in the 1970s, 34 % in the 2000s). The technologies that appear to have had the most impact are the internet and world wide web. Rather than causing a dramatic spike in consumption, however, GSS data suggest that these technologies have simply stabilized 18–30 year old women's pornography consumption at about 1 in 3 women.³

Drawing on the uses and gratifications perspective on media use and the findings of prior research on pornography consumption and sexual behavior, age, religiosity, ethnicity, and education were tested as predictors of pornography consumption. Younger women were consistently more likely to consume pornography.

³ An alternative interpretation of these data is that the percentage of all women who consume pornography has stayed relatively constant while the percentage of young women who consume pornography has been subject to more dramatic oscillations.

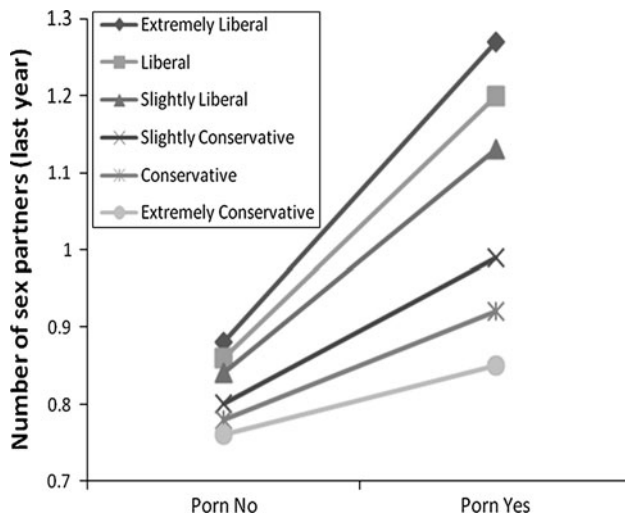


Fig. 2 Interaction of liberal-conservative ideology and pornography consumption on number of sex partners in the prior year

Less religious women were consistently more likely to consume pornography. The magnitude of these associations ranged from small to medium (Cohen, 1988). Non-Whites were slightly more likely to consume pornography than Whites, especially in recent years (interestingly, consistent White/non-White differences emerged after the release of the world wide web). On the other hand, the ability of educational attainment to predict women's pornography consumption has diminished over time (e.g., no association was found between education and pornography consumption in any 2000 GSS). In conclusion, certain demographic characteristics do predict women's pornography consumption, but leave questions unanswered as to why some women are more likely to consume pornography than others. Personality characteristics such as sensation seeking (Paul, 2009), psychopathy (Paul, 2009), and sexual compulsivity (Wright, 2010) may help to complete the picture.

Drawing on cultivation theory, social learning theory, and prior pornography research, it was expected that women who consumed pornography would have more permissive sexual attitudes and engage in more permissive sexual behaviors. In alignment with expectations, women who consumed pornography had more positive attitudes toward extramarital sex, adult premarital sex, teenage sex, had more sexual partners in the prior year and prior 5 years, and were more likely to have engaged in extramarital sex and paid sex. With the exception of paid sex, these associations were fairly consistent over time. The magnitude of these associations ranged from small to medium (Cohen, 1988).

Drawing on Wright's (2011a) $\text{}_3\text{AM}$ model of mass media sexual socialization and the theorizing of Linz and Malamuth (1993), it was expected that the positive association between pornography exposure and women's number of sexual partners in the prior year would be strongest for the most liberal women and weakest for the most conservative women. This hypothesis

was supported. The strength of the association became progressively less pronounced as women moved from extremely liberal to liberal to slightly liberal to slightly conservative to conservative, eventually becoming non-significant for extremely conservative women.

Implications

Although the correlational design of the GSS precludes causal conclusions, the results were at least not contradictory to (1) cultivation theory's assertion that immersion in the social worldview of a particular mediated message system cultivates a like-minded outlook in consumers (Gerbner et al., 1994) and (2) the social learning assertion that the observation of media models receiving positive consequences for particular behaviors leads to an increased probability that observers will emulate those behaviors (Bandura, 2001). Similarly, the results were consistent with the assertion of the $\text{}_3\text{AM}$ (Wright, 2011a) that sexual media consumers will be less likely to act on sexual scripts that are inconsistent with their sexual morals.

Second, when compared to studies of adolescents, the results suggested that the association between exposure to pornography and a more permissive approach to sex may be similar for adolescents and adults. In the literature on media sex socialization, "adolescents are seen as uncritical and incompetent receivers of sexual media content" while adults are assumed to have the "critical thinking skills and competencies necessary to resist the influence of sexual media content" (Peter & Valkenburg, 2011, p. 752). This study, of course, cannot assess the directionality of the associations that were found. But the fact that the associations were quite similar to those found in research on adolescents is suggestive (Brown & L'Engle, 2009; Lo & Wei, 2005; Peter & Valkenburg, 2006; Wingood et al., 2001).

Third, when compared to studies of males, the results suggested that the association between exposure to pornography and a more permissive approach to sex may be similar for males and females. Prior research on males' exposure to pornography and permissive sexual attitudes and behaviors parallels the findings of this study (Braun-Courville & Rojas, 2009; Brown & L'Engle, 2009; Morgan, 2011; Zillmann & Bryant, 1988). Thus, the results of this study insinuate that sexual permissiveness in pornography may have similar effects on females and males.

Fourth, the results suggested that the association between exposure to pornography and a more permissive approach to sex may not be as culturally bound as some have hypothesized. For instance, pornography consumption has been correlated with a more permissive approach to sex in Canada (Shaughnessy et al., 2011), China (Lam & Chan, 2007), Croatia (Stulhofer et al., 2010), Japan (Omori et al., 2011), The Netherlands (Peter & Valkenburg, 2006), Sweden (Haggstrom-Nordin et al., 2005), and Taiwan (Lo & Wei, 2005).

Limitations and Future Directions

Future studies can improve or expand upon the present study in several ways. First, as has been mentioned, the data presented were generated by cross-sectional surveys. Consequently, it is impossible to deduce the directionality of the associations between pornography exposure and permissive sexual attitudes and behaviors. Does pornography consumption lead to the sexual behaviors and attitudes that were studied? Do women who already hold these attitudes and engage in these behaviors gravitate to pornography? The present report cannot answer these questions. It is important to note, however, that two recent national longitudinal studies of adults aged 45 on average found that, controlling for gender, prior pornography consumption predicted subsequent permissive sexual attitudes (Wright, 2013) and casual sex behavior (Wright, 2012).

Second, a lingering possibility in all non-experimental research is that a “third variable” explains the associations uncovered (Little et al., 2009). Given the sociological nature of the GSS, the controls included in this study were primarily demographic. Future studies should include potential personality confounds such as sexual compulsivity, hypersexuality, or erotophilia, since these are traits that are more proximally related to sexual behavior. It is important to note, however, that while prior pornography consumption predicts adults’ subsequent casual sex behavior, prior casual sex behavior does not predict adults’ subsequent pornography consumption (Wright, 2012). If a third-variable confound explains the association between pornography consumption and casual sex, it seems longitudinal data should reveal the same association between these variables when they are interchanged as predictor and outcome.

Third, future studies should employ more nuanced measures of pornography exposure for several reasons. To begin, because the GSS assessed exposure to pornographic movies, it is possible that the percentage of U.S. women who consume pornography is higher than indicated by GSS data. As indicated in the [Method](#) section, many signs suggest that pornographic movie consumption is a valid indicator of women’s pornography use. Nevertheless, given the diversity of delivery platforms available today, more encompassing assessments are preferable. Lo and Wei (2005) provide an excellent multimedia assessment of offline pornography consumption, Peter and Valkenburg (2006) provide an excellent multimedia assessment of online pornography consumption.

Additionally, the associations between pornography exposure and sexually permissive attitudes and behaviors were modest in strength. Theory predicts (Wright, 2011a) and research finds (Zillmann & Bryant, 1982) that more powerful associations occur as the amount of exposure to pornography increases. Thus, future studies should assess varying degrees of exposure to pornography. Also, future studies should include more nuanced measures of pornography exposure to assess

whether different genres of pornography lead to different effects. 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 identified adopt an approach to sex that isn’t 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.

Fourth, future studies should employ more nuanced demographic assessments. For instance, the ethnicity variable (abbreviated as “race” in the GSS dataset) classifies participants as “White,” “Black,” or “Other.” Given the lack of specificity for the “Other” category, the present study collapsed “Black” and “Other” into one category: “non-White”. While this classification was predictive, it is likely that various minority groups differ in their pornography consumption (Hennessy et al., 2009). Similarly, while predictive, the religiosity variable (abbreviated as “attend” in the GSS dataset) was limited in that it asked about attendance at “religious” services generally. Future studies should compare pornography consumption prevalence by specific faiths, denominations, and religious motivations (Cochran & Beeghley, 1991; Ellison, 2011).

Finally, the modest associations uncovered plus the finding that liberal–conservative ideology serves as a moderator suggest that other factors may moderate associations between exposure to pornography and sexually permissive attitudes and behaviors. For example, the $\text{}_3\text{AM}$ 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 $\text{}_3\text{AM}$ and other media effects theories that should be explored are consumers’ motivations for viewing pornography (e.g., for information vs. 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.⁴

⁴ Another possible future research direction is “aggregate analysis” (Kingston & Malamuth, 2011). In an aggregate analysis, researchers examine (1) “the availability of pornography in a given society” and (2) “fluctuations” in a given behavior thought to be related to pornography consumption (Kingston & Malamuth, 2011, p. 1045). Pornography researchers are divided as to the merit of aggregate studies. We side with Kingston and Malamuth and others (e.g., Gunter, 2002), who argue that the limitations of aggregate studies outweigh their benefits. One serious limitation is that such studies measure availability of pornography, as opposed to actual exposure to pornography. Another serious limitation is that behaviors are multiply determined; pornography exposure could encourage recreational sex, but this effect could be masked by other

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Footnote 4 continued

inhibiting factors. Nevertheless, it is acknowledged that some pornography researchers believe in aggregate studies.

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