

# **A LOVE THAT DOESN'T LAST: PORNOGRAPHY CONSUMPTION AND WEAKENED COMMITMENT TO ONE'S ROMANTIC PARTNER**

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We examined whether the consumption of pornography affects romantic relationships, with the expectation that higher levels of pornography consumption would correspond to weakened commitment in young adult romantic relationships. Study 1 ( $n = 367$ ) found that higher pornography consumption was related to lower commitment, and Study 2 ( $n = 34$ ) replicated this finding using observational data. Study 3 ( $n = 20$ ) participants were randomly assigned to either refrain from viewing pornography or to a self-control task. Those who continued using pornography reported lower levels of commitment than control participants. In Study 4 ( $n = 67$ ), participants consuming higher levels of pornography flirted more with an extradyadic partner during an online chat. Study 5 ( $n = 240$ ) found that pornography consumption was positively related to infidelity and this association was mediated by commitment. Overall, a consistent pattern of results was found using a variety of approaches including cross-sectional (Study 1), observational (Study 2), experimental (Study 3), and behavioral (Studies 4 and 5) data.

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The growing use of pornography both nationally and internationally has sparked interest as to what effects, if any, pornography has on committed romantic relationships. In 2006 alone, pornography revenues in the U.S. exceeded 13 billion dollars (Ropelato, 2007), with world revenues exceeding 93 billion dollars. However, only 20% of consumers pay to view Internet pornography (Doran, 2009), indicating that people are consuming extremely high amounts of pornography. The same study reported that an estimated 28,000 individuals per second seek pornography on the Internet and that in excess of 244 million pornography pages are operated within the United States. The number of individuals with Internet access increased 134 percent between 2000 and 2009 (Internet World Statistics, 2009). This increase in Internet access, in combination with the growing consumption of pornography, illustrates the large extent to which advanced technology is proliferating the Triple-A Engine (accessibility, anonymity, and affordability) of pornography (Cooper, 1998).

Researchers have pointed out that there is a lack of data on the effects of the exponentially growing pornography industry (e.g., Carroll et al., 2008; Manning, 2006) and even less data measuring the effect of pornography use on dyadic relationships. The current investigation sought to gauge the effects of pornography consumption on romantic relationships and, in particular, on commitment in dyadic relationships.

Some initial research is supportive of the view that pornography consumption impairs relationship commitment. Findings indicate that the majority of females whose partners regularly consumed pornography characterized their partners negatively (Bergner & Bridges, 2002) and perceived their partners' use of pornography as a threat to the stability of their relationship (Bridges, Bergner, & Hesson-McInnis, 2003). Schneider (2000) found that cybersex addiction (which included viewing pornography) increased the likelihood that couples would separate or divorce. Bergner and Bridges (2002) conducted a qualitative study using personal letters from a sample of 100 female participants whose exclusive partners consumed pornography and found that many commonly linked their partner's pornography consumption to their experience of decreased sexual intimacy. In an earlier experimental study by Zillman and Bryant (1988) male and female students were exposed to pornography once a week for six weeks. Those who viewed pornography reported be-

ing less satisfied with their partner's appearance and sexual behavior. They also found that men who consumed pornography were more dominating and less attentive toward their partners. Hence, there is some reason to anticipate that pornography consumption impairs relationship commitment.

Other research suggests that pornography may be beneficial to relationships in some ways, especially in sexual relations. Some evidence suggests that consuming pornography influences individuals' positive attitude toward sexuality (McKee, 2007; Rogala & Tyden, 2003) and serves as a safe platform through which to engage in sexual exploration (Goodson, McCormick, & Evans, 2001). For instance, Rogala and Tyden (2003) sampled 1,000 young adult women being treated at a family planning clinic to examine how pornography consumption influenced their sexual behavior. Findings from their descriptive study indicated that pornography consumption was attributed to women's positive experience of sexual behavior. Of the 35% who reported that pornography consumption influenced their sexual behavior, 65% reported having positive sexual reactions (e.g., it makes me feel sexy). McKee (2007) conducted a survey study using 1,023 participants who consumed pornography and had similar findings; an estimated 59% of participants reported that consuming pornography positively influenced their sexual attitudes. Finally, to examine individuals' self-perceptions of their own pornography consumption, 688 young adult male and female participants reported how pornography influenced various dimensions of their lives. Findings from their study indicated that pornography users reported beneficial effects of their pornography consumption on their sexual knowledge, attitudes towards their sex life, attitudes toward the opposite sex, and their general quality of life (Hald & Malamuth, 2008). These findings suggest the possibility that pornography consumption could improve relationship functioning and commitment. However, the majority of the findings from articles emphasizing the positive aspects of pornography were based on samples of pornography users who may have wanted to justify their consumption of pornography (e.g., Hald & Malamuth, 2008). Furthermore, these latter findings focused on how pornography enhanced sexual performance and attitudes rather than the well-being of their romantic relationships. We now turn to relevant theory to derive our hypothesis regarding the relationship between pornography and commitment.

## INVESTMENT MODEL

The Investment Model of commitment (Rusbult, 1983) suggests that there are three elements to commitment: satisfaction, quality of available alternatives, and level of investment in the relationship. We propose that consuming pornography will impede commitment by increasing attention to attractive alternatives. Some prior research suggests that individuals who consume pornography attend more to relationship alternatives. For example, using a self report questionnaire from a large sample of undergraduate male and female young adults, Carroll and colleagues (2008) found that individuals who used pornography had a higher number of lifetime sexual partners and greater acceptance of extradyadic sex. In a similar vein, pornography consumers are at increased risk for relationship infidelity (e.g., Schnieder, 2000; Stack, Wasserman, & Kern, 2004; Zillman, 2000; Zillman & Bryant, 1988).

These findings make intuitive sense given that consumers of pornography do not typically look at one person, but a wide variety of attractive individuals. Thus, pornography consumption likely leads to an increased desire for sexual variety and to heightened attention to relationship alternatives; thereby weakening commitment to the primary romantic partner consistent with Rusbult's (1983) Investment Model. Thus, we hypothesize that lowered commitment will be manifest through behavior reflective of increased attention to alternatives—infidelity. We will test our hypothesis that, higher pornography consumption will result in lower commitment using cross-sectional (Study 1), observational (Study 2), and experimental (Study 3) methods, and that this effect occurs through heightened behavioral attentiveness to alternatives (Study 4), and extradyadic sex (Study 5).

## ACCOUNTING FOR GENDER

Prior research has demonstrated that men typically view pornography more frequently than women (Buzzell, 2005; Carroll et al., 2008; Goodson et al., 2001; Mosher & MacIan, 1994) and that when women view pornography, it is typically introduced by a male romantic partner (Lawrence & Herold, 1988). Conversely, prior research suggests that women report higher levels of commitment (e.g., Stanley, Whitton, & Markman, 2004). Furthermore, men are more likely to

hold more permissive attitudes regarding premarital, casual, and extradyadic sex (Oliver & Hyde, 1993). Women are also less likely to: engage in intercourse; have multiple sexual partners (Oliver & Hyde, 1993); and hook up as compared to men (e.g., Lambert, Kahn, & Apple, 2003; Paul, McManus, & Hayes, 2000). Given the potential for gender differences, we examined for interactions by gender and controlled for gender in all analyses.

## OVERVIEW OF STUDIES

There is no universally accepted definition of pornography; however, for the purpose of the current studies, we define it as the display of sexually-explicit material via the Internet, films, etc., that are used to stimulate sexual arousal and activity. We propose that pornography consumption will diminish commitment toward a relationship partner and that this weakened commitment will have high-risk behavioral consequences—extradyadic encounters and intercourse. We tested this hypothesis in a set of five studies—the first three examined the effect of pornography on commitment using a variety of methods including cross-sectional (Study 1), observational (Study 2), and experimental (Study 3) methods. Study 4 tested whether pornography use was related to heightened attention to alternatives and in Study 5 we tested whether weakened commitment mediated the relationship between pornography consumption and an extreme form of attentiveness to relationship alternatives—infidelity.

More specifically, Study 1 tested our hypothesis that higher pornography consumption was related to lower self-reported commitment. Study 2 examined the relationship between pornography consumption and committed behavior using observer ratings of commitment. In Study 3, participants were randomly assigned to abstain from their favorite food or to abstain from pornography consumption for three weeks. We hypothesized that participants assigned to continue pornography consumption would report lower relationship commitment than participants who abstained from pornography. Study 3 is the first study, of which we are aware, to experimentally manipulate pornography consumption over a period of time.

Study 4 participants engaged in a 10-minute online chat with an individual of the opposite sex. The texts of these chats were coded for how flirtatious participants were with the online target. We hy-

pothesized that higher pornography consumption would predict higher levels of flirtation. In Study 5 we tested the practical implications of lower commitment. We hypothesized that pornography consumption would be negatively related to both commitment and infidelity and that commitment would mediate the relationship between pornography use and infidelity. We report descriptive information for all studies in Table 1.

## STUDY 1

The objective of Study 1 was simply to determine whether there was a relationship between pornography consumption and commitment. We hypothesized that higher frequency of pornography consumption would be associated with lower commitment scores.

## METHOD

*Participants.* Participants were 367 undergraduates (300 female) from a Southeastern university who participated in the study for partial course credit in a family development course. Participants ranged in age from 17 to 26 with a median age of 19 and reported being in a heterosexual, romantic relationship. The relationship length of these individuals was: 3+ years (16.7%), 2 years (11.3%), 1–2 years (25.3%), 7–12 months (19.0%), 5–6 months (7.6%), 3–4 months (8.7%), and less than 2 months (11.7%). Regarding ethnicity, most (73.0%) participants reported as White, followed by African American (12.0%), Latino (10.0%), and Asian (1.0%), with 4% not responding to this item.

## MEASURES

*Pornography Consumption.* We asked the question “Approximately how many times in the past 30 days have you viewed a pornographic website?” Choices were (1) Never, (2) Once, (3) About weekly, (4) A few times a week, (5) Daily, (6) A few times a day, and (7) Several times a day. Given the nonnormal distribution of data, we performed log transformations on the pornography consumption variable, reducing the skewness of the data.

TABLE 1. Summary of Descriptive Statistics for Key Studies 1–5 Variables by Gender

Variable by Gender	Range	Men		Women	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<b>Study 1 (<i>n</i> = 367, 67 men, 300 women)</b>					
Pornography Consumption	1-7	3.16*	1.65	1.42	.88
Commitment	1-5	3.69	.80	3.76	.81
<b>Study 2 (<i>n</i> = 34, 14 men, 20 women)</b>					
Time 1 Pornography	1-7	2.20	1.32	1.55	.95
Time 1 Commitment	1-7	5.19	.58	5.32	.42
Time 2 Commitment	1-7	5.10	.77	4.83	.88
<b>Study 3 (<i>n</i> = 20, 10 men, 10 women)</b>					
Time 1 Pornography	1-7	4.10	1.29	3.70	2.00
Time 2 Pornography	1-7	3.00	1.25	2.30	1.25
Time 1 Commitment	0-100	42.58	35.35	62.48	39.56
Time 2 Commitment	0-100	35.60	38.22	57.80	41.63
<b>Study 4 (<i>n</i> = 67, 29 men, 38 women)</b>					
Pornography	1-7	2.17*	1.17	1.18	.51
Flirtatiousness	1-5	1.58*	.81	1.16	.37
<b>Study 5 (<i>n</i> = 240, 39 men, 191 women)</b>					
Pornography	1-7	2.78*	1.42	1.26	.76
Commitment	1-5	4.10	.70	4.15	.75
Number of hookups in past year	0-10	.75	1.40	.55	.95
Infidelity	1-8	3.67	.75	3.70	.69

Note. \*Significantly higher score than the other gender;  $p < .01$ .

*Commitment.* Commitment was assessed using a short form of the dedication subscale of Stanley and Markman's (1992) commitment measure. It comprised 4 items ranging from (1) strongly disagree to (5) strongly agree (e.g., My relationship with my partner is more important to me than almost anything else in my life, I want this relationship to stay strong no matter what rough times we may encounter). In the current sample this scale showed acceptable internal consistency,  $\alpha = .79$ .

## RESULTS AND DISCUSSION

Due to potential differences in pornography consumption by sex, we tested for an interaction between gender and pornography on

commitment and found no such effect,  $F < 1$ ,  $p > .05$ . We hypothesized that pornography consumption would be significantly negatively correlated with commitment toward one's romantic partner. The results confirmed that higher pornography consumption scores were related to lower commitment scores  $\beta = -.20$ ,  $t(366) = -3.90$ ,  $p < .001$ , and this association held when controlling for sex  $\beta = -.26$ ,  $t(365) = -4.22$ ,  $p < .001$ .

Given the gender imbalance in our study, we also examined whether the results would remain when examining men and women separately. Pornography consumption continued to predict lower commitment among men  $\beta = -.52$ ,  $t(66) = -4.98$ ,  $p < .001$  and among women  $\beta = -.13$ ,  $t(298) = -2.22$ ,  $p = .03$ . No interaction was found between gender and pornography consumption on commitment. Although the effect was stronger for men, the effect was nonetheless also significant for women.

## STUDY 2

Study 2 examined the relationship between pornography consumption and committed behavior using an observational study. We hypothesized that greater frequency of pornography consumption would be associated with lower commitment to a degree that would be apparent to independent observers.

## METHOD

*Participants.* Thirty-four undergraduates (20 female) from a Southeastern university participated in the study for partial credit in a family development course. Participants ranged in age from 18 to 25 with a median age of 20. Participants reported on their heterosexual relationship with a romantic partner. The relationship length of these individuals was: 3+ years (31.4%), 2 years (8.6%), 1–2 years (2.9%), 7–12 months (25.7%), 5–6 months (20.0%), 3–4 months (8.6%), and less than 2 months (2.9%). In sum, most (71.0%) participants reported as White, followed by African American (19.0%), and Latino (10.0%).

## MEASURES AND PROCEDURE

Participants answered the question "Approximately how many times in the past 30 days have you viewed pornographic material (e.g., video, magazine, Internet)?" to measure the frequency of pornography consumption. Given the nonnormal distribution of data, we performed a log transformation on the pornography consumption variable, reducing the skewness of the data. Participants were then told that they would be videotaped as they completed a joint task with their romantic partner. One person in each pair volunteered to be blindfolded and was asked to make an artistic drawing. The nonblindfolded partner provided instructions to his or her blindfolded partner. Participants were given 3–4 minutes to complete the task. A debriefing followed.

## RESULTS AND DISCUSSION

Five female coders were trained on completing video ratings for a period of ten weeks. These coders watched each video and then answered the question "How committed did this person act toward his/her partner?" (1 = not at all to 7 = extremely; Intraclass correlation = .52). The coders rated their impression based on this short video; however, literature on brief impressions called thin slicing has been shown to be predictive of many outcomes (for a review see Ambady, & Rosenthal, 1992). For example, across three samples, coders who viewed a short couple interaction video and asked "how likely was this participant to cheat on their partner" were able to reliably identify those who had committed infidelity (based on self-report) at a rate much greater than chance (Gwinn, Lambert, & Fincham, 2011). As expected, pornography consumption was marginally negatively related to commitment behavior towards a partner  $\beta = -.33$ ,  $t(31) = -1.95$ ,  $p = .06$ , and was significantly related to commitment behavior when controlling for sex  $\beta = -.49$ ,  $t(30) = -2.62$ ,  $p = .01$ . We also tested for an interaction between gender and pornography on commitment and did not find one,  $F < 1$ ,  $p > .05$ .

The results of this study indicate that pornography has an effect on behavioral indicators of commitment, as rated by objective and independent viewers. Observational data allow for the examination

of actual committed behavior, which is less subject to demand characteristics or socially desirable responding. However, the concurrent relationships found make it difficult to infer direction of effects and cannot be used to support causal inferences. For example, could it be that less-committed individuals are more inclined to consume pornography? To answer this question we sought to replicate these findings in another sample using experimental data.

### STUDY 3

The objective of Study 3 was to test whether pornography consumption influenced commitment in an experiment. Rather than randomly assigning individuals who did not consume pornography to begin consuming it, we randomly assigned individuals currently viewing pornography to refrain from doing so or to a control condition that was not designed to influence their consumption of pornography. Participants in the control condition were given an activity that required them to exert self-control, but did not impede their regular consumption of pornography. This design allowed us to circumvent the ethical concerns associated with asking participants to behave in a manner that they might deem unacceptable and that we expected might reduce the stability of their relationship. Thus, half of the participants were instructed to abstain from pornography and half of the participants were instructed to abstain from their favorite food for three weeks, which we did not expect to interfere with their regular consumption of pornography. We hypothesized that participants who continued to consume pornography for three weeks would report lower commitment than those who abstained from pornography during that time period.

### METHOD

*Participants.* A total of 87 participants initially completed a measure of pornography consumption. Of these, 20 (10 men and 10 women) from a Southeastern university enrolled in a family development course reported that they viewed pornography "more than once per month," and reported being in a heterosexual, romantic relationship. The relationship length of these individuals was: 3+ years (50.0%), 2 years (10.0%), 1–2 years (5.0%), 7–12 months (15.0%), 5–6 months (5.0%), 3–4 months (5.0%), and less than 2 months (10.0%).

These individuals were invited to participate in the current study in exchange for extra credit. Participants ranged in age from 18 to 24 with a median age of 19. Of the participants, most (70.0%) reported as White, followed by African American (25.0%), and Latino (5.0%).

*Procedure.* All study participants completed baseline measures after which they were randomly assigned to either abstain from viewing pornography or to abstain from eating their favorite food over the course of three weeks. All participants were instructed that this study was about self-control and that they were randomly chosen to abstain from their assigned activity. Participants were unaware that they were chosen for the study based on their self-reported pornography consumption.

*Pornography Abstinence Condition.* The participants randomly assigned to this condition were given the following instructions:

You have been assigned to abstain from viewing porn, including all websites, magazines, videos, etc., that show nudity or sexually-explicit materials of any kind for the next three weeks. We hope that you will be diligent at refraining from pornography for this short period of time, but also, please be honest and let us know if you did view pornography as such honesty will not count against your receiving extra credit.

Participants marked a daily calendar for each day they abstained from pornography. In addition, at the beginning of each week they were required to write a paragraph about their success (or lack thereof) in abstaining from consuming pornography. They also wrote about their plan to handle the desire to consume pornography (e.g., to distract themselves).

*Continued Pornography Consumption Condition.* The objective of this control condition was twofold: (a) to not disrupt the participants' regular consumption of pornography and (b) to ensure that any effect on commitment among participants in the pornography-abstinence condition was not due to simply exercising self-control. Participants randomly assigned to this condition were given the following instructions:

You have been assigned to abstain from eating your favorite food or treat for the next three weeks. We hope that you will be diligent at refraining from your favorite food or treat for this short period of time, but also, please be honest and let us know if you did eat your favor-

ite food as such honesty will not count against your receiving extra credit.

Participants in this condition also marked a daily calendar for each day they abstained from their favorite food. In addition, at the beginning of each week they were required to write a paragraph about their success (or lack thereof) in abstaining from their favorite food. They also wrote about their plan to handle the desire to eat their favorite food (e.g., to distract themselves).

## MEASURES

*Commitment.* Participants were asked to provide the percentage chance (out of 100) they would be with their romantic partner in 1 year, 5 years, 10 years, and 15 years. The responses to these four time frames were averaged together. Cronbach's alpha for this measure was .96 for Time 1 and Time 2. We assessed pornography consumption using the same item as in previous studies, "Approximately how many times in the past 30 days have you viewed pornographic material (e.g., video, magazine, Internet)."

## RESULTS

*Manipulation Check.* Participants in the two conditions did not differ on initial pornography consumption as participants in the pornography abstinence condition reported a similar initial level of pornography consumption ( $M = 3.73$ ,  $SD = 1.06$ ) as participants in the continued pornography consumption condition ( $M = 4.07$ ,  $SD = 1.28$ ),  $F(1, 17) = .37$ ,  $p = .55$ ,  $\eta^2_p = .02$ , controlling for gender. To ensure that participants in the abstain from pornography condition actually abstained and that the participants in the pornography consumption condition continued to consume pornography, we again asked participants how many times in the past month they had viewed pornography. Participants in the pornography abstinence condition viewed pornography with significantly less frequency ( $M = 1.42$ ,  $SD = .67$ ) than those in the continued pornography consumption condition ( $M = 3.88$ ,  $SD = 1.37$ ),  $F(1, 17) = 23.38$ ,  $p < .001$ ,  $\eta^2_p = .58$ , controlling for gender. Means were adjusted for the covariate. Thus, the manipulation effectively reduced consumption in the abstain from pornography condition, yet, did not alter the frequency of viewing

pornography among pornography consumption participants. Also, no gender differences were found in pornography consumption at Time 1 or at Time 2 ( $F_s < 1$ ).

Unfortunately we did not assess the mean of initial favorite food consumption, however, participants in this condition similarly reported low levels of eating their favorite food at follow-up ( $M = 1.33$ ,  $SD = .50$ ) on a scale of (1) Not at all to (6) More than once a day. This was similar to the abstinence rate of those in the abstain from pornography condition.

*Effect of Pornography on Commitment.* Men and women were distributed almost equally between conditions (which occurred by chance). We found no interaction between gender and condition,  $F < 1$ ,  $p > .05$ . We then tested to ensure that there were no unexpected differences between the groups in initial level of commitment; participants in the abstain from pornography condition did not report a higher percentage chance of being with their partner in the future ( $M = 72.12\%$ ,  $SD = 33.54\%$ ) than those in the pornography consumption condition ( $M = 61.50\%$ ,  $SD = 36.38\%$ ),  $F(1, 18) = .48$ ,  $p = .50$ ,  $\eta^2_p = .03$ .

Finally, we tested our hypothesis that abstaining from pornography for three weeks would affect participants' commitment toward their partners even when controlling for baseline scores of commitment. As expected, participants in the pornography consumption condition reported a lower percentage chance of being with their partners in the future ( $M = 30.40\%$ ,  $SD = 36.65\%$ ) than those in the abstain from pornography condition ( $M = 63.01\%$ ,  $SD = 35.84\%$ ),  $F(1, 17) = 5.05$ ,  $p < .05$ ,  $\eta^2_p = .23$ . These results held when controlling for gender,  $F(1, 16) = 4.37$ ,  $p = .05$ ,  $\eta^2_p = .22$ ,

## DISCUSSION

The intervention proved effective at reducing or eliminating pornography consumption for the duration of the three-week study, yet did not deter control participants from continuing their consumption. Our hypothesis was supported as participants in the pornography consumption condition reported a substantial reduction in commitment compared to participants in the abstain from pornography condition. Also, the effect of continued pornography consumption on commitment cannot be explained by a difference in the depletion of self-regulatory resources from exercising greater

self-control, as participants in both conditions abstained from something pleasurable (i.e., pornography or a favorite food).

Next we addressed the question of whether weakened commitment, associated with pornography use, has implications for extra-dyadic behavior. This was the objective of Studies 4 and 5.

## STUDY 4

The objective of Study 4 was to determine whether pornography consumption was related to heightened attention to behavioral attentiveness. We proposed that such attentiveness to alternatives is a key aspect of commitment that is aggravated by pornography consumption and hypothesized that higher levels of pornography consumption would predict higher levels of flirtation with an online target.

## METHOD

*Participants.* Sixty seven undergraduates (38 female) from a South-eastern university participated in the study for partial course credit in a family development course. Participants ranged in age from 17 to 25 with a median age of 19 and reported being in an exclusive, heterosexual, romantic relationship. The relationship length of these individuals was: 3+ years (26.9%), 2 years (4.5%), 1–2 years (14.9%), 7–12 months (26.9%), 5–6 months (10.4%), 6.0% 3–4 months (6.0%), and less than 2 months (10.4%). Most (79.0%) participants reported as White, followed by Latino (16.0%), and African American (5.0%).

*Measures and Procedure.* Participants came to the lab and answered the following question, “Approximately how many times in the past 30 days have you viewed pornographic material (website, magazine, video)?” Given the nonnormal distribution of data, we performed a log transformation on the pornography consumption variable, to reduce the skewness of the data. Three weeks later participants returned to the lab and were told that they were going to be testing a new social networking service designed for students at the university, a procedure created and used by Ciarocco, Echevarria, & Lewandowski (in press). Participants were told that they

would be given 10 minutes to chat with another student. A confederate research assistant in another room (not visible or know to the participant) initiated the chat and participants chatted with the research assistant confederates about several topics (e.g., major, hobbies, living arrangements).

The research assistant confederates, blind to any information about the participants, were trained on what questions to ask and what answers to provide in response to questions based on a uniform profile and set script (see Appendix A). For example, all male participants chatted with a math major named Christina Funichello from San Diego. All female participants chatted with a math major named Chris Funichello from San Diego. All the hobbies, likes, and dislikes discussed were the same for all participants. In addition, we held attractiveness constant by providing the same opposite gender profile picture to all participants. Research assistants were instructed to be flirtatious and engaging during the chat.

## RESULTS AND DISCUSSION

Four trained coders read the entire text of the chat and rated “How flirtatious was the participant?” (1 = not at all to 5 = extremely; Intraclass correlation = .82). Four participants were removed due to their suspicion that they were chatting with a confederate of the study. Consistent with our hypotheses, pornography consumption was positively related to heightened attention toward relationship alternatives or flirting behavior towards the online target  $\beta = .38$ ,  $t(65) = 3.27$ ,  $p < .01$  and this association held controlling for gender  $\beta = .28$ ,  $t(64) = 2.09$ ,  $p < .05$ . The results of this study indicate that pornography consumption predicts heightened attentiveness to alternatives in the form of flirting with an online target.

This study provides initial evidence that pornography is related to intensified interest in relationship alternatives; however, flirting with someone online is hardly a major offense and may not have major implications for the long-term well-being of a relationship. The objective of our final study was to test whether pornography consumption would also predict heightened interest in relationship alternatives culminating in a major relationship offense with health implications—infidelity.

## STUDY 5

Studies 1–3 demonstrate that pornography consumption is related to weakened commitment to a romantic partner and Study 4 implicates attention to relationship alternatives as being one particular aspect of commitment that pornography predicts. Although commitment is an important outcome in and of itself and flirting outside a relationship can cause damage to a relationship, in Study 5 we sought to further test the practical implications of our findings by examining a high-risk, behavioral manifestation of attentiveness to alternatives—infidelity. We examined two types of infidelity, one more broadly defined and the other more isolated—Hooking up—both of which are common on college campuses.

Infidelity, more generally, is defined as “a secret sexual, romantic, or emotional involvement that violates the commitment to an exclusive relationship” (Glass, 2002, p. 489), occurs in about 65% to 75% of college student relationships (Shackelford, LeBlanc, & Drass, 2000; Wiederman & Hurd, 1999) and is associated with adverse mental and physical health (Hall & Fincham, 2009).

*Hooking up* is a casual sexual encounter without any expectation of future contact that is common practice among young adults in society today. An estimated 79% to 85% of college students report having engaged in at least one hookup encounter (Paul & Hayes, 2002; Paul et al., 2000). More conservative estimates suggest that 60% to 70% of college students engage in hookups (Littleton, Tabernik, Canales, & Backstrom, 2009; Owen & Fincham, 2011). Hooking up entails, but is not limited to, kissing, caressing, oral sex, and/or coitus between individuals with no established romantic commitment (e.g., Fielder & Carey, 2010; Flack et al., 2007; Manning, Giordano, & Longmore, 2006). We hypothesized that pornography consumption would predict infidelity and that this relationship would be mediated by commitment.

## METHOD

*Participants.* Participants were 240 undergraduates (191 female) from a Southeastern university who participated in the study for partial course credit in a family development course. They ranged in age from 18 to 28 with a median age of 19 and reported being in an exclusive, heterosexual, romantic relationship for at least one year.

The relationship length of these individuals was: 3+ years (28.3%), 2–3 years (29.2%), and 1–2 year (43.3%). Most (67.0%) participants reported as White, followed by African American (13.0%), Latino (12.0%), and Asian (3.0%), with 5.0% not responding to this item. Participants were recruited from a life course development class.

## MEASURES

*Pornography Consumption.* We again asked the question “Approximately how many times in the past 30 days have you viewed pornographic material (e.g., video, magazine, Internet)?” Choices ranged from 1= Never to 7 = Several times a day. We again performed log transformations to reduce the skewness of the data.

*Commitment.* Commitment was again assessed using a short form of the dedication subscale of Stanley and Markman’s (1992) commitment measure from Study 1. In the current sample it showed acceptable internal consistency,  $\alpha = .77$ .

*Infidelity.* We assessed infidelity through two different means. The first was focused on hooking up behavior. Participants were provided the following definition of hooking up: “Some people say that a hook up is when two people get together for a physical encounter and don’t necessarily expect anything further (e.g., no plan or intention to do it again).” They were then asked, “Based on this definition, how many different people did you hook up with in the past 12 months?” We classified this act as infidelity because all participants also reported being in their romantic relationship for more than one year. Thus, the hookup occurred after they had already begun a relationship with their current partner.

We also assessed infidelity more broadly and directly by asking participants two questions, “Thinking of your current romantic relationship, during the past 2 months: Have you done anything that you consider to be physically unfaithful?” and “Have you done anything that your partner would consider to be physically unfaithful?” These two items were highly correlated,  $r(239) = .89, p < .001$ .

## RESULTS

*Main Effect of Pornography on Commitment, Hooking Up, and Infidelity.* First, we tested whether higher pornography consumption

scores were related to lower commitment. We tested for an interaction between gender and pornography on infidelity and found no such effect,  $F < 1$ ,  $p > .05$ . The results indicated that higher pornography use was related to lower commitment  $\beta = -.14$ ,  $t(239) = -2.12$ ,  $p < .05$ , and this association held when controlling for gender  $\beta = -.19$ ,  $t(239) = -2.36$ ,  $p < .05$ . There was also a main effect of pornography consumption on hooking up and infidelity such that higher pornography use predicted more hook up partners  $\beta = .22$ ,  $t(239) = 3.55$ ,  $p < .001$ , and the association held when controlling for gender  $\beta = .25$ ,  $t(238) = 3.28$ ,  $p < .01$ . Finally, we examined the relationship between pornography and being physically unfaithful to one's partner and found an effect in the predicted direction  $\beta = .19$ ,  $t(239) = 2.93$ ,  $p < .001$ , which remained significant when controlling for gender  $\beta = .27$ ,  $t(238) = 3.43$ ,  $p < .05$ .

*Commitment as a Mediator of Pornography Use and Hooking Up.* To test whether commitment functioned as a mediator between pornography consumption and hooking up, we used the method developed by Preacher and Hayes (2008). Mediation is typically tested using the Sobel (1982) method, which assumes that the product of coefficients constituting the indirect effect is normally distributed. However, this distribution tends to be skewed and leptokurtic (Preacher & Hayes, 2008). As a result, resampling or bootstrapping methods are replacing the Sobel method for testing mediation (Shrout & Bolger, 2002). A confidence interval for the size of the indirect path is generated and if the values between the upper and lower confidence limit do not include zero this indicates a statistically significant mediation effect. The indirect path through commitment was statistically significant, as indicated by finding that the 95% Confidence Interval (bias corrected) for the indirect path, through this mediator, did not include zero (.03 to .67), indicating that commitment significantly mediated the relationship between pornography consumption and hooking up.

*Commitment as a Mediator of Pornography Use and Infidelity.* We also tested whether commitment mediated the relationship between pornography consumption and infidelity. The indirect path through commitment was statistically significant, as indicated by finding that the 95% Confidence Interval (bias corrected) for the indirect path, through this mediator, did not include zero (-.30 to -.01). These results indicate that commitment significantly mediated the proposed relationship.

*Examining Alternative Mediation Models.* Although our primary hypothesis was that commitment would serve as a mediator between pornography and both hooking up and infidelity, we also thought it would be likely that hooking up and infidelity could mediate the relationship between pornography consumption and commitment. We found evidence for both alternative models such that both hooking up (-.42 to -.07) and infidelity (-.09 to -.01) were significant mediators of the relationship between pornography and commitment. This finding likely indicates a bidirectional relationship between hooking up/infidelity and commitment.

## DISCUSSION

Our hypothesis was supported as pornography consumption predicted greater infidelity, as assessed by hooking up and as assessed in a more general manner. Furthermore, commitment mediated the relationship between pornography consumption and both hooking up and infidelity and the relationship between pornography consumption and commitment was mediated by hooking up and infidelity. Thus, it appears that pornography consumption is not only related to weakened commitment in relationships, but that there are high-risk, behavioral consequences to the decreased commitment associated with pornography consumption.

## GENERAL DISCUSSION

Using a variety of methods, we demonstrated that pornography consumption is associated with weakened commitment to one's relationship partner. In Study 1 we found that pornography consumption was related to lower reported commitment, using a common measurement of relationship commitment. Study 2 demonstrated that the relationship between pornography consumption and commitment goes beyond self-reported measures, as pornography consumption predicted neutral observer's ratings of committed behavior. That is, participants who consumed pornography behaved in a manner that indicated a low degree of commitment to a partner, in a way that was readily apparent to independent observers.

Study 3 sought to establish causality. Results indicated that participants who refrained from pornography reported higher levels of commitment than participants who continued to use pornography, indicating that pornography consumption has a negative effect on commitment. To our knowledge, this is the first known pornography intervention that meets the standards of rigorous scientific investigation. The effect on commitment for just three weeks of continued pornography use is notable. Although some studies have documented effects of pornography on sexual aggression by experimentally displaying pornographic imagery/videos in the laboratory (for a meta-analysis see Allen, D'Alessio, & Emmers-Sommer, 2000), the design of the current study addresses the limitations of past experimental work in several ways. First, it allowed for the use of pornography in participants' natural setting, rather than in a necessarily artificial laboratory setting. Second, we did not dictate the type of pornographic material to be viewed, allowing participants in the control condition to view pornography as they normally would. Third, by documenting the effects of pornography cessation, our findings provide insight into what might occur should a person refrain from pornography.

Studies 4 and 5 assessed the behavioral implications of lowered relational commitment. In Study 4, we examined whether self-reported pornography use would predict attention to alternatives as measured by flirting with an online target. Participants came into the lab and chatted with an attractive online target. These interactions were rated by objective coders, and participants who reported higher rates of pornography consumption flirted more with the online target. Hence, pornography consumption was related to higher extradyadic behavior, albeit in a mild form.

Finally, in Study 5 we examined a more extreme implication of the weakened commitment—infidelity. We found that pornography consumption corresponded to decreased commitment, which, in turn related to higher levels of infidelity. Infidelity was measured both in terms of hooking up and through a formal infidelity questionnaire. The relationship between infidelity and commitment appears to be bidirectional. In each of these studies we were careful to consider participant gender given previous research on gender differences in pornography use, risky sexual behavior, and commitment. In each study, results remained significant when controlling

for gender or examining men and women separately, nor did gender moderate the effects in any of the studies.

#### BENEFITS OF COMMITMENT: IMPLICATIONS FOR THERAPISTS

For the past two decades, scholars have devoted a great deal of attention to the importance of commitment for couple relationships (Johnson, 1991, 1999; Johnson, Caughlin, & Huston, 1999; Rusbult, 1983), which have implications for therapists. For example, greater relationship commitment has been related to feeling unrestrained in a relationship, paying less attention to partner alternatives (Stanley, Markman, & Whitton, 2002), and experiencing greater relationship satisfaction (Hendrick, Hendrick, & Adler, 1988; Stanley et al., 2002). Individuals who report greater relationship commitment are also more likely to make sacrifices for partners (Van Lange, Agnew, Harinck, & Steemers, 1997), especially when the costs of doing so are high (Powell & Van Vugt, 2003). They are also less likely to perceive these sacrifices as being harmful (Whitton, Stanley, & Markman, 2007). Further, increased levels of relationship commitment have also been shown to decrease the negative impact that attachment insecurity can have on relationships (Tran & Simpson, 2009). Thus, research has clearly demonstrated the importance of relationship commitment to a variety of individual and relational outcomes. The current work documented the relationship of pornography to commitment, and, by extension, infidelity. However, it seems likely that there are many other implications for therapists given the relationship of pornography with decreased commitment—infidelity.

#### HEALTH IMPLICATIONS FOR HEIGHTENED INFIDELITY AND HOOKING UP BEHAVIOR

It appears that pornography consumption may increase health risks as young adults use condoms much less frequently during sexual hook up encounters (Inungu et al., 2009) or more generally while engaging in infidelity (Brady, Tschann, Ellen, & Flores, 2009; Choi, Catania, & Dolcini, 1994). A lack of protection during such sexual

encounters no doubt contributes to the 3.9 million individuals between ages 15-24 that were diagnosed with sexually transmitted infections (STIs) between 2005 and 2008 Centers for Disease Control (CDC, 2009). The rapid growth of STIs in the United States is a challenging public health concern, especially among young adults. Evidence also suggests individuals with STIs are at greater risk for infertility and some forms of cancer (e.g., cervical cancer). Additionally, all forms of STIs have also been linked to increased human immunodeficiency virus (HIV) transmission (CDC, 2009). In spite of the high prevalence of STIs and HIV, a large proportion of young adults continue to engage in unprotected hookups. For instance, Inungu, Mumford, Younis, and Langford (2009) administered a self-report questionnaire to a sizeable sample of male and female undergraduate students to examine their sexual behaviors and HIV knowledge and attitudes. Findings from their study revealed that 39.8% of college students engaged in coital hookups with multiple partners within a 12-month period, without the consistent use of condoms. In the same study the authors found that 86.8% of the students did not see themselves at risk for HIV and 29.4% had never been tested for HIV.

Unprotected hookups among individuals who are sexually unfaithful is also prevalent. Using a large sample of married individuals from 23 urban areas across the nation, Choi, Catania, and Dolcini, (1994) discovered that 60% of individuals who reported extradyadic sex did not use condoms with either their primary or secondary partner. In the same study, an estimated 20–25% reported intermittently using condoms with either partner. More recently, Brady, Tschann, Ellem, and Flores (2009) used a large clinical population of adolescents and young adults and found that individuals who were involved in extradyadic sex were less likely to take proper precaution by using contraception to protect their partner from contracting STIs.

Furthermore, hooking up has been linked to greater alcohol consumption and binge drinking, poor psychological well-being, unplanned pregnancy, sexually transmitted infections, and sexual violence (e.g., Downing-Matibag & Geisinger, 2009; Flack et al., 2007; Kiene, Barta, Tennen, & Armeli, 2009; Lambert et al., 2003; Owen, Rhoades, Stanley, & Fincham, 2010). Extensive research continues to identify hooking up as high-risk sexual behavior (e.g., Inungu, Mumford, Younis, & Langford, 2009; Kiene et al., 2009).

## LIMITATIONS AND FUTURE DIRECTIONS

One important limitation that is not addressed is the nature of the pornography participants viewed. One would presume that violent or humiliating pornography might have a greater negative effect on dyadic relationship functioning. Future research might consider distinguishing between the effects of various types of pornography on relationship commitment and other measures of relationship functioning. It is also important for future research to identify how pornography consumption and acceptance varies across life stages and relationship statuses. The current studies sampled young adult college students and perceptions of commitment may be very different in such samples as it would be in more mature married samples.

Another limitation is the frequent use of 1-item measures and predominance of females in the samples of most of the studies. Also, the interrater reliability of the coding for Study 2 was not high, potentially diminishing the reliability of Study 2 results. Furthermore, it is possible that low commitment, high pornography use, and infidelity could all be manifestations of high motivation for sexual encounters and variety and this should be addressed by future research.

Finally, it is possible that individuals who view pornography more frequently develop unrealistic sexual expectations for their relationship, and make sexual requests of their partners that go unrealized. Having such expectations unmet may make individuals feel sexually constrained in their relationship, which has been related to decreased sexual satisfaction with partners (Zillman & Bryant, 1988), and in turn may increase their alternative seeking behaviors, and ultimately weaken commitment to their relationship. This could be a fruitful avenue for future research.

## CONCLUSION

Consumer demand for pornography shows no sign of slowing down. Increased accessibility of pornography suggests that it will continue to proliferate and to influence human interaction. Our research suggests that there is a relationship cost associated with pornography consumption, specifically with regard to commitment in romantic relationships.

APPENDIX A. MATERIALS FOR ONLINE CHAT PROFILES  
BY GENDER

FEMALE BACKGROUND INFORMATION

**Name:** Christina Funichello  
**School Year:** Junior  
**Age:** 20  
**Major:** Math Major  
**Favorite Color:** Blue  
**Birthdate:** July 5<sup>th</sup>, 1988  
**Astrological Sign:** Cancer  
**Ethnicity:** Italian & Ecuadorian  
**Living Status:** Commuter  
**Hometown:** San Diego, CA  
**Car:** '06 Black Scion  
**Siblings:** One Sister—Anne—Age 17  
**Occupation:** Math Teacher

MALE BACKGROUND INFORMATION

**Name:** Christopher Funichello  
**School Year:** Junior  
**Age:** 20  
**Major:** Math Major  
**Favorite Color:** Blue  
**Birthdate:** July 5<sup>th</sup>, 1988  
**Astrological Sign:** Cancer  
**Ethnicity:** Italian & Ecuadorian  
**Living Status:** Commuter  
**Hometown:** San Diego, CA  
**Car:** '06 Black Scion  
**Siblings:** One Sister—Anne—Age 17  
**Occupation:** Math Teacher

Confederate Conversation Instructions

*Always start conversation off with this sentence:*

Um... so... I have to admit, this is a little strange. lol.

*Or if they say something like that first... then...*

I know!

My name is .....(INSERT HERE). It's nice to kinda/sorta meet you. =]

*For the next few minutes, have small talk (always try to stay consistent with what questions you ask first and in what order).*

O.K. so....

*Potential questions to ask and your appropriate answer:*

What's your major?

A: I'm actually a math major. I'm just taking a psych class as an elective and we have a 2-credit research requirement to fulfill.

->"Oh nice. Do you like being a \_\_\_\_\_ major? Is that was you always wanted to do?"

If they say that they hate math: "lol I get that a lot, most of the time people look at me like I'm strange. I don't know, I guess I just like that with numbers, you're always able to find one absolute concrete answer."

"So what made you decide to be a \_\_\_\_ major?"

Do you live on campus or commute?

If they commute: "Oh really? Me too. Where from? How long does it usually take?"

If they live on campus: "Oh really? Do you like living on campus?"

*Next ask ... What do you like to do for fun? And show interest in what they like to do for fun.*

NO MATTER WHAT AFTER 3-4 MINUTES....

"I can't believe we go to the same school, and have never met..."

*Wait for response*

"I was kinda nervous at first... I thought they were going to pair me up with someone really strange. lol."

*Wait for response*

"Do you have a number I could text you at? You seem like definitely the kind of person I would really like to get to know more. :)"

If they ask for your number say that it's xxx-xxx-xxxx but that you strongly prefer texts over phone calls.

*For the next few minutes you can ask a few more questions like: Where are you from? What they want to be when they grow up. (Use these questions since you have the answers to them in your profile if they are interested in your answer to these questions after they respond.)*

WHEN YOU GET CLOSE TO 5-6 MINUTES THEN FINALLY ASK THEM...

"I have to run to class ... do you think you would want to meet up for lunch sometime soon?"

*Wait for response*

(Either)

"Sounds good!" Can you text me tomorrow and we'll set up a time? =)"

Then say, "Oh by the way, I'm just curious, do you have a girlfriend/boyfriend? (depending on the person's gender)

If they say they do, you can just say something like, "OK, well that's fine by me" or something like that.

Or

"Oh, O.K. well it was really nice talking to you! =)"

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