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**Does Viewing Pornography Reduce Marital Quality Over Time?
Evidence from Longitudinal Data**

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Abstract

Numerous studies have examined the connection between pornography viewing and marital quality, with findings most often revealing a negative association. Data limitations, however, have precluded establishing directionality with a representative sample. This study is the first to draw on nationally representative, longitudinal data (2006-2012 Portraits of American Life Study) to test whether more frequent pornography use influences marital quality later on and whether this effect is moderated by gender. In general, married persons who more frequently viewed pornography in 2006 report significantly lower levels of marital quality in 2012, net of controls for earlier marital quality and relevant correlates. Further, I show pornography's effect is not simply a proxy for dissatisfaction with sex-life or marital decision-making in 2006. In terms of substantive influence, frequency of pornography use in 2006 is the second strongest predictor of marital quality in 2012. Interaction effects reveal, however, that the negative effect of porn use on marital quality applies to husbands, but not wives. In fact, post-estimation predicted values indicate that wives who view pornography more frequently report higher marital quality than those who view it less frequently or not at all. I conclude by discussing the implications and limitations of this study and outlining directions for future research.

Key words: pornography, marriage, marital quality, relationship quality, gender, panel data, longitudinal, family

Introduction

As pornography¹ use has become more pervasive with each advance in media technology over the past few decades, researchers have sought to understand its potential consequences for adolescent psychological and sexual development as well as important social institutions like the family. Focusing on marriage specifically, numerous studies have examined the link between pornography use and marital quality, with findings most often revealing a negative association (Doran & Price, 2014; Doring, 2009; Manning, 2006; Perry, 2016a; Poulson, Busby, & Galovan, 2013; Yucel & Gassanov, 2009). While the dominant theoretical assumption, following scripting theory, has been that pornography viewing influences marital outcomes (at least more so than the reverse), two key limitations have prevented a direct test of this assumption. Most prominently, the vast majority of quantitative research is based on cross-sectional data, and thus, researchers have been unable to establish directionality to determine causal order. Additionally, qualitative or experimental studies are virtually always based on non-representative convenience samples as opposed to national probability samples, which has made generalizability an issue.

The current study represents the first attempt to employ data that are recent, nationally-representative, and longitudinal to assess whether viewing pornography may influence marital quality over time. I also examine how this effect might vary by gender and the extent to which frequent porn use itself may be a proxy for dissatisfaction with various relationship dynamics like sex or decision-making. To accomplish this, I draw on data from the Portraits of American Life Study, a nationally-representative panel study of American adults fielded in 2006 and 2012.

¹ The term “pornography” is both difficult to define and freighted with moral baggage (Lindgren, 1993; Manning, 2006; Short et al., 2012). Researchers occasionally elect to use more neutral and descriptive terms like “sexually explicit media or materials,” “erotica,” or “online sexual activity” (Carroll et al., 2008). Yet many studies and national surveys (e.g., General Social Surveys, Portraits of American Life Study, National Study of Youth and Religion, and Baylor Religion Surveys) ask questions about “pornography” attitudes and consumption, and thus I use the term pornography or porn here. For this purposes of this study, pornography will be understood as visual material (magazines, movies, internet images) intended to sexually arouse the viewer.

Pornography Viewing, Gender, and Relationship Outcomes

A vast amount of research has been conducted on pornography use, its antecedents, and potential effects (see reviews in Attwood, 2011; Carroll et al., 2008; Doring, 2009; Paolucci, Genuis, & Violato, 2011; Short et al., 2012). Determining how many people use pornography and how often has always been a challenge, and has become even more difficult due to technological advances that ensure privacy and ease of access. Moreover, estimations of porn use are often inconsistent depending on sample characteristics and definitions of each study (Doring, 2009; Short et al., 2012).² Focusing on the social correlates of porn use among adults, research consistently finds that pornography is more often viewed by adults who are younger, male, unmarried, sexually active and permissive, higher education and income, with more computer access and competency, and who are less religious (both in terms of affiliation and practice) (Doring, 2009; Grubbs et al., 2015; Patterson & Price, 2012; Perry, 2016a; Poulsen et al., 2013; Stack et al., 2004; Willoughby et al., 2015; Wright 2013; Wright et al., 2013).

As pornography use has become more accessible and acceptable within contemporary American culture (Attwood, 2011; Carroll et al., 2008), scholars have sought to understand how pervasive pornography use might influence important social institutions like committed romantic relationships, marriage, and family. While some research identifies potential relational benefits associated with viewing porn under certain conditions, studies have most often found that pornography use, on the whole, is negatively associated with relationship quality and stability, both for those in dating or cohabitating relationships as well as married couples (for reviews, see

² Data from the 2014 General Social Survey, for example, suggests that over a third of American men and over 15 percent of women reported viewing an “X-rated movie” in the previous year. Other surveys like the 2006 Portraits of American Life Study indicate that over half of men and over a fifth of women report viewing “pornographic material” in the previous twelve months. Using methods that actually monitored internet users’ online behavior, Edelman (2009) indicates that somewhere over 35 percent of internet users visit an “adult” website at least once a month, and those who visit adult websites once a month average nearly 8 visits per month.

Doring, 2009; Manning, 2006; Paolucci et al., 2011; Short et al., 2012). In qualitative or experimental studies with undergraduates, for example, researchers have found that exposure to pornography is associated with lower levels of relationship commitment and satisfaction with characteristics of their romantic partner, including their affection, physical appearance, sexual curiosity, and sexual performance (Lambert et al., 2012; Zillmann & Bryant, 1988). Other studies of women in heterosexual relationships paint a picture of male partners' private pornography use decreasing the sexual desire of their partners as well as their own feelings of intimacy or sexual attraction to the partner, damaging their sense of self, and generally undermining relationship quality and stability (Bergner & Bridges, 2012; Daneback et al., 2009; Grov, et al., 2011; Schneider, 2000; Stewart & Szymanski, 2012). The dominant explanation accounting for these negative associations is scripting theory (Wright, 2013; Wright, et al. 2013; Zillmann & Bryant, 1988), which holds that more frequent pornography use, most typically among men, informs their conscious or unconscious expectations of body image, intimacy, and sexual relations in ways that negatively affect their actual sexual and romantic relationships.

It is important to point out, however, that most studies have considered porn viewing as something one partner is doing *alone*. Recent research suggests that it might be the *discrepancy* in porn-viewing within couples that negatively affects relational outcomes (Grov et al., 2011; Maddox et al., 2011; Olmstead et al., 2013; Willoughby et al., 2015). Some studies, in fact, suggest that watching sexually explicit materials *together*, for the purposes of fantasy stimulation and mutual sexual gratification, may be salutary for the relationship (Daneback et al., 2009; Grov et al., 2011; Manning, 2006). Other studies affirm that when wives watch pornography with their husbands, their sexual and even relationship satisfaction increased (Maddox, et al., 2011). This purpose for pornography, however, appears to be less often the case than one spouse—and most

often the male spouse—consuming pornography alone (see Doring, 2009; Maddox et al., 2011; Manning, 2006; Paul, 2005; Traeen, Nilsen, & Stigum, 2006). For example, in their study of porn use among romantic couples, Maddox et al (2011) found that men were almost 2.5 times as likely as women to report using pornography alone as opposed to viewing it together.

In a similar vein, relationship experiences and outcomes oftentimes differ by the gender of the porn user possibly owing to differential patterns of porn consumption among men and women in heterosexual relationships. Bridges and Morokoff (2011), for example, found that men's porn viewing was negatively correlated to their sexual satisfaction, while women's porn use was positively related to sexual satisfaction for their male partners. The authors link these outcomes to different use patterns, with men more often reporting that they used pornography primarily for masturbation, while women more often reported using pornography as a part of love-making. Similarly, Poulsen et al. (2013) find in their study of married or cohabitating couples that men's pornography use was negatively associated with both partners' sexual quality, while women's porn viewing was positively associated with their own sexual quality. The authors find that this positive effect for females was associated with their using pornography together as a couple rather than alone. Thus, complementing the scripting perspective, isolated pornography use may have a stronger, negative effect on men's sexual scripts, expectations, and evaluations of their own sex lives, whereas pornography consumption for women, particularly if it is more likely to be done with their partner (Bridges & Morokoff, 2011; Maddox et al., 2011), might help them better understand their own bodies and sexual tastes (Groß et al., 2011; Lofgren-Martenson & Mansson, 2010; Olmstead et al., 2013; Weinberg, et al., 2010).

Marriage relationships might be more strongly affected by porn use than monogamous dating relationships since there could be greater social and cultural pressure to take “fidelity” to a

greater extreme and avoid viewing sexually explicit media (Perry, 2016a; Olmstead et al., 2013). Affirming this idea, Bridges et al. (2003) found that married women felt significantly more distressed and threatened by their partner's online porn consumption than women in dating relationships. And Schneider (2000) found that the sexual interest of married persons was more strongly affected by their cybersex participation than those in dating relationships. Using aggregated GSS data and focusing solely on married persons, Doran and Price (2014) report that ever-married adults who viewed online porn in the last 30 days or an X-rated movie in the past year were more likely to be divorced and more likely to have an extramarital affair. And those who had viewed an X-rated movie were less happy with their marriage and less happy overall. Studies of porn use and marital quality also report gender differences. Doran and Price (2014), for example, find that porn consumption reduced the positive relationship between sex frequency and happiness for married men, but not for women. Similarly, Yucel and Gassanov's (2010) analysis of 433 married couples found that husbands' porn use (based on wives' reporting) was associated with lower sexual satisfaction, but this association was not found for wives.

Contribution and Hypotheses

While some research finds that various relational benefits could be associated with viewing pornography, studies have most often found a negative association between porn use and various measures of marital quality, and particularly for men. Within these studies, the tacit (or explicit) implication is that porn viewing is negatively influencing relationship quality, as opposed to relationship quality influencing porn use. An important limitation of these studies, however, is that the quantitative data are cross-sectional, and thus, establishing directionality

with confidence remains a persistent problem as authors often acknowledge.³ While the majority of correlational studies generally assume that pornography use is *causing* marital problems, it could be that marital dissatisfaction leads to the greater use of pornography (Doran & Price, 2014; Stack et al., 2004; Paul, 2005; Willoughby et al., 2015).⁴ Moreover, while some qualitative and experimental research suggest that pornography use tends to more often promote relationship problems rather than vice versa, these samples are almost always based on convenience samples of college students or young couples in dating relationships. In some cases, these couples or respondents were actually selected *because of* their relationship troubles owing to online sexual activity—i.e., sampling on the dependent variable (Bergner & Bridges, 2002; Bridges, Bergner, & Hesson-McInnis, 2003; Schneider, 2000; Zitzman & Butler, 2009). None of these studies are based on representative samples of married adults so as to generalize to other married Americans. The current study is the first to draw on nationally representative, longitudinal data to test whether porn use within marriage may lead to declines in marital quality over time.

Yet even if porn consumption negatively influences committed relationship outcomes over time, however, it is possible that frequent pornography viewing might still have been a result of relationship troubles. Qualitative research has suggested that pornography viewing can stem from sexual frustrations as well as a perceived lack of power in relationships (Olmstead et al., 2013; Paul, 2005). Thus, it is possible that pornography viewing might serve as a proxy for dissatisfaction with sexual or power aspects of one's marriage at one time, which could then be negatively influencing marital outcomes later on. Despite this possibility, I expect that earlier

³ See the limitations acknowledged in Doran & Price (2014, p. 496); Doring (2009, p. 1093); Lambert et al. (2012, p. 419); Maddox et al. (2011, p. 447); Perry (2015, 2016a); Poulsen et al. (2013, p. 81); Stack et al. (2004, p. 86); Stewart & Szymanski (2012, p. 267); Yucel & Gassamov (2010, p. 731, 736); and Willoughby et al. (2015:14).

⁴ Stack et al. (2004), for example, found that a leading predictor of internet porn consumption is an unhappy marriage. Paul (2005) recounts how men who frequently view pornography often attribute their use of it to their own sexual frustrations or other relationship problems (see also Olmstead et al., 2013). And Willoughby et al., (2015) recently found significant bi-directional effects between porn use and relationship quality.

pornography use will maintain an independent, negative effect on marital quality, net of other relationship dynamics involving sex or power. Thus, my first expectation is that:

Hypothesis 1: More frequent pornography use will be negatively associated with marital quality over time, net of other factors.

Research also reports that the relationship between porn use and relationship outcomes often differs by gender. While frequent pornography use is often negatively associated with measures of marital quality for men, some studies report that pornography consumption among women is either positively related to relationship quality (Bridges & Morokoff, 2011; Daneback et al., 2009; Poulsen et al., 2013) or unrelated (Doran & Price, 2014; Yucel & Gassanov, 2010). Scholars theorize that different patterns of consumption may result in men being more strongly influenced by pornography's messages and scripts about sexuality and relationships, thereby negatively influencing their relationship experiences and those of their partners (Bergner & Bridges, 2012; Daneback et al., 2009; Schneider, 2000; Stewart & Szymanski, 2012). For women, however, their own porn use may actually improve their relationship quality either as a way of learning about their own sexuality or done as a part of sex with their husband (Grov et al., 2011; Poulsen et al., 2013; Weinberg, et al., 2010). In light of this research, I expect that:

Hypothesis 2a: For married men, pornography use will be negatively associated with marital quality over time.

Hypothesis 2b: For married women, pornography use will either be unassociated or positively associated with marital quality over time.

Methods

Participants

Data for this study were drawn from two waves of the Portraits of American Life Study (PALS), which was fielded in 2006 and 2012 (Emerson & Sikkink, 2006-2012). PALS is a nationally representative panel survey with questions focusing on a variety of topics including

social networks, moral and political attitudes, and religious life. The original PALS sampling frame includes the civilian, non-institutionalized household population in the continental United States who were 18 years of age or older at the time the survey was conducted. Cluster sampling was used to achieve the goal of racially diverse oversamples. Surveys were administered in English or Spanish. For Wave 1, face-to-face interviews were conducted with 2,610 respondents in their homes, from April to October 2006. The response rate was 58 percent. Interviewers used audio computer-assisted self-interviewing (ACASI) for more sensitive questions (e.g., how often they view pornography). The second wave was conducted from March to September 2012, with 1,314 respondents successfully re-interviewed. After accounting for respondents from 2006 who died or were mentally incapacitated, the Wave 2 response rate is 53 percent. The second wave was administered through self-administered web survey, computer-assisted telephone interviewing, and face-to-face interviewing. PALS data include sampling weights that, once applied, bring the PALS sample in line with the U.S. Census Bureau's American Community Survey, 2005 and 2011. Weights also adjust for non-response in Wave 2. These weights were used in all analyses. Because this study focuses on marriage outcomes over time, only respondents who answered marriage questions in both waves were included in the analytical sample. In order to take full advantage of available data and avoid potential bias that listwise deletion may introduce (Allison, 2009), missing cases were handled using multiple imputation.⁵

Measures

Marital Quality

⁵ Outside of attrition, missing values are either minimal or non-existent for most variables, with the majority of missing values coming from the Wave 2 marital outcome variables (between 11-12% missing values). The independent variables, by comparison, were missing between 0-4 percent. Because imputing on the dependent variable can risk bias (Allison, 2009), imputation was only done for independent variables with missing information. The MI procedure generated 10 imputation models and then combined them into a single estimation model. The results from all regression models use the MI data. In the end, the results from the MI model estimates were nearly identical to those from regression models I initially ran using listwise deletion.

The outcome for this study was a measure of marital quality made from the sum of two questions asked in both 2012 and 2006. The first question asked respondents, “All things considered, how would you consider your marriage relationship?” Responses ranged from (1) “completely unhappy” to (7) “completely happy,” with (4) being “neither happy nor unhappy.” Respondents were also asked about how satisfied they were with “the love and affection you receive from your spouse/partner.” For this question, responses ranged from (1) “completely dissatisfied” to (5) “completely satisfied” with (3) being “neither satisfied nor dissatisfied.” For both waves, the measures were strongly correlated (2006: $r = .56$; 2012: $r = .59$) and the alpha coefficients were acceptable (2006: $\alpha = .72$; 2012: $\alpha = .77$). The measures were thus standardized into Z scores and summed to create a single marital quality measure.⁶ Because the marital quality measure was standardized and has a broad range of values, I estimated ordinary least squares (OLS) regression models with a lagged dependent variable (LDV).

Frequency of Pornography Viewing.

The focal independent variable for this study was how frequently respondents viewed pornographic materials in Wave 1. PALS asked respondents, “In the past twelve months, how often have you viewed pornographic materials?” Responses ranged from 1 = once a day or more to 8 = never. I reverse-coded these responses so that higher scores on this measure indicated more frequent pornography viewing. Because this measure provides a range of porn viewing, it is superior to the porn use measure in the GSS which only asks whether or not a respondent watched an X-rated movie in the previous year (Doran & Price, 2014; Price & Patterson, 2012; Wright, 2013, Wright et al., 2013). Certainly, social desirability could discourage honest answers given that porn consumption in larger amounts is still viewed as morally objectionable. Emerson,

⁶ I also estimated models with these two measures separate and the results were virtually identical in both substantive and statistical significance (results are available upon request).

Sikkink, and James (2010) explain that for questions like this, each PALS respondent wore earphones to hear the questions prerecorded, and then entered their responses directly into the computer apart from the knowledge or help of the interviewer. This procedure would help mitigate social desirability bias for this question. Because the question about pornography consumption was only asked in 2006, I only included this measure in regression models.⁷

Controls.

Regression models included a host of sociodemographic correlates following previous research on marital quality and for their relevant theoretical contribution (see Amato et al., 2003; Ellison et al., 2010). Preliminary analyses indicated that these control variables were associated with marital outcome measures either at the bivariate level or in regression analyses.

Several controls were from Wave 1 of PALS. To account for the possibility that more frequent pornography viewing in 2006 might have been a result of sexual frustrations or perceived power asymmetries in respondents' marriages at the time, I included controls for how satisfied respondents were with their sex-life in 2006 and their decision-making as a couple in 2006. Responses ranged from 1 = completely dissatisfied to 5 = completely satisfied. Because people who had previously been married and divorced might evaluate their current marriage differently, I constructed a dichotomous dummy variable for whether a respondent had experienced a divorce or annulment before 2006.

All other sociodemographic controls were from Wave 2 of PALS. Age was measured in years, from 19 to 80. Dummy variables were constructed for gender (male = 1), education (Bachelors degree or higher = 1), and region (South = 1), and a series of dummy variables were

⁷ While I am unable to discern whether pornography use remained stable in respondents' lives between Wave 1 and Wave 2, any observed effect of earlier porn use on later marital quality net of relevant controls would suggest either that porn use at that specific time had a lasting effect on respondents' marital quality or that the trend observed at Wave 1 was indicative of a consistent pattern of porn use in respondents' lives.

used for race (white = reference). Household income was measured in categories from (1) less than \$5,000 to (19) \$200,000 or more. The presence of children has also been associated with marital quality, and thus I included a measure of how many children a respondent had (range 0-9). Religious factors are highly correlated with both pornography use (Doring, 2009; Perry, 2015, 2016b; Poulsen et al., 2013; Short, Kasper, & Wetterneck, 2015) and marital quality (Ellison et al., 2010; Mahoney, 2010), and thus I included controls for religious commitment, tradition, and conservatism. Religious commitment was measured with religious service attendance. Responses ranged from 1 = never to 8 = three times a week or more. Religious tradition was measured with a modified version of the RELTRAD classification scheme (Steensland et al., 2000). Categories included conservative Protestant, mainline Protestant, Other Protestant, Catholic, Jewish, Other, and None or Unaffiliated. Conservative Protestants were the reference category. Theological conservatism was measured with a PALS question asking respondents about whether they believed their religious text to be “fully inspired by God.” Responses included 1 = fully inspired by God, 2 = partly inspired by God, 3 = not inspired by God, and 4 = I have never heard of the religious text. I dichotomized this measure so that 1 = fully inspired by God, 0 = other. Respondents with a 1 for this measure would be more likely to view the moral teachings of their sacred text as authoritative. For descriptive statistics on all variables, see Table 1.

Procedure

Table 1 presents basic descriptive statistics for all variables in the analysis. This provides a general overview of pornography consumption and marital outcomes for both waves. Table 2 presents zero-order correlations between pornography consumption and measures of marital quality in 2006 and 2012 in order to establish and compare important bivariate relationships.

Table 3 presents results from OLS LDV models predicting marital quality in 2012. While change-score models (e.g., fixed effect) are helpful for handling the problem of omitted variable bias caused by time-invariant omitted variables, estimating these models would not be possible since the question about pornography was not asked in 2012. Thus I could not test for whether a change in respondents' frequency of porn consumption between 2006 and 2012 influenced a change in marital quality measures during the same time frame. While some scholars have recommended change-score models over LDV models (e.g., Johnson, 2005), other scholars (e.g., Keele & Kelly, 2006; Wilkins, 2014) have shown with Monte Carlo simulations that LDV models with OLS generally produce accurate estimates with no more bias introduced than alternative estimation strategies. Moreover, even critiques of LDV models argue that such models are more likely to cause Type 2 error, suppressing significant effects rather than artificially inflating them (Achen, 2000), in which case, LDV models would likely yield more conservative estimates regarding the focal independent variable for this study.

Models in Table 3 were organized as follows. Model 1 includes pornography viewing, the lagged dependent variable, and socio-demographic controls. Model 2 introduces both satisfaction with sex-life and decision-making in 2006 in order to test for whether frequent porn consumption is serving as a proxy for sexual dissatisfaction or perceived power imbalance at that time. The full model for the OLS LDV analyses are straightforward (Johnson, 2005).

$$MQ_{2012} = b_0 + b_1MQ_{2006} + b_2Porn_{2006} + B_3X_3 + \varepsilon$$

Where MQ_{2012} is the predicted score for the marital quality measure in Wave 2, b_0 is the intercept term, b_{1-2} are unstandardized regression coefficients; MQ_{2006} is the marital quality measure in Wave 1 (the lagged dependent variable); $Porn_{2006}$ is the respondents' reported frequency of pornography viewing in Wave 1; X_3 is a vector of control variables; B_3 is a vector of

unstandardized regression coefficients for X_3 ; and ε is the random disturbance term. Lastly, Model 3 introduces the interaction term for pornography viewing \times male in order to test for the moderating effect of gender. All Models for Table 3 include both unstandardized (b) and standardized (β) beta coefficients in order to discern substantive significance as well as statistical significance.⁸

Results

Several findings from the zero-order correlations in Table 2 are worth addressing. First, more frequent porn consumption at Wave 1 is negatively correlated with married respondents' satisfaction with their sex life ($r = -.16$; $p < .001$) and decision-making as a couple ($r = -.11$; $p < .01$) at Wave 1. While it is impossible to discern temporal precedence and directionality in this association, descriptively the correlation would suggest that, on the whole, married persons who use porn more often tend to report lower satisfaction with their sex-life and decision-making for whatever reason. Also worth noting, while pornography consumption among married persons in Wave 1 is negatively correlated with marital quality at both waves, pornography viewing is actually more strongly correlated to the outcome measure at Wave 2 than in Wave 1. Specifically, while pornography consumption at Wave 1 is correlated with marital quality at Wave 1 ($r = -.17$; $p < .001$), this correlation is stronger at Wave 2 ($r = -.23$, $p < .001$).

Turning to the regression analyses, Table 3 predicts reported marital quality in Wave 2 on pornography viewing at Wave 1, while controlling for the lagged marital quality measure at Wave 1 and sociodemographic correlates. Unsurprisingly, the lagged dependent variable is the strongest predictor in the model ($b = .34$, $p < .001$; $\beta = .31$). However, pornography consumption at Wave 1 is the second strongest predictor of marital quality at Wave 2 ($b = -.22$, $p < .001$; $\beta = -$

⁸ Diagnostics for collinearity issues indicated that variance inflation factors (VIFs) and tolerance levels were all well within acceptable ranges. VIFs were all below 1.84 and tolerance levels were all above .55.

.19). Model 2 introduces measures for satisfaction with sex-life and satisfaction with decision-making in Wave 1, and the effect of pornography viewing on marital quality is not discernibly affected ($b = -.22, p < .001; \beta = -.19$). In the full model, satisfaction with sex-life is not a significant predictor of marital quality. Satisfaction with decision-making is significantly related to marital quality at Wave 2 and is the third strongest predictor in the model ($b = .22, p < .05; \beta = .12$), behind the lagged dependent variable and pornography viewing at Wave 1. Overall, findings from the first two models strongly support the first hypothesis that pornography viewing, in its main effect, is strongly and negatively related to marital quality over time, and this effect is robust to the inclusion of controls for earlier satisfaction with sex-life and decision-making.

In order to test the second set of hypotheses, Model 3 includes an interaction term for porn viewing frequency \times male in order to discern whether gender significantly moderates the link between pornography use and marital quality over time. The interaction term is significant and negative ($b = -.36, p < .018; \beta = -.37$), indicating that the negative relationship between porn use and marital quality at Wave 2 is stronger for men than for women. This supports hypothesis 2a. The standardized coefficient for the interaction term also indicates that the interaction is the strongest predictor in the model.

Figure 1 clearly illustrates both the general trend observed in Model 2 and the moderating effect of gender observed in Model 3. I have plotted the predicted values (with standard error bars) of marital quality at Wave 2 across scores on frequency of pornography viewing at Wave 1, for the full sample and for men and women separately. For the sake of comparison, I have also included a line indicating the mean marital quality score (at zero). The trend lines are informative. In general, those who never viewed pornography in Wave 1 reported scores higher

than the mean for marital quality in Wave 2. But as pornography viewing increased in Wave 1 for the full sample, marital quality fell further below the average in Wave 2. Looking more closely, while there is a slight decline in marital quality at Wave 2 as porn viewing at Wave 1 increases, the biggest decline takes place at the most extreme end of porn viewing.

The trend lines for the full sample and men alone are nearly identical. Comparing married men with women, it can be observed that married men who never viewed pornography at Wave 1 reported equal or slightly higher marital quality at Wave 2 than married women who never viewed pornography. This is consistent with previous research suggesting that men on the whole tend to report higher marital quality than women (Fowers, 1991; Nock, 1998). Yet as pornography viewing at Wave 1 increases for both women and men, men's marital quality at Wave 2 declines more notably while the trend line for married women tells a different story. Women show an initial decline in marital quality at Wave 2 as pornography viewing at Wave 1 increases similar to that of men. However, at porn viewing frequencies greater than "once a month," women's marital quality goes back up and stays up into the higher frequencies of porn viewing at Wave 1. In fact, for women who view pornography in ranges between "2-3 times a month" to "once a day or more," their marital quality is actually higher than those who never view pornography, and higher than the average marital quality for the full sample. This strongly supports hypothesis 2b, that viewing pornography would not be negatively associated with marital quality for women, but could in fact be positively associated with marital quality.

Discussion and Conclusions

Following scripting theory, scholars have often theorized that frequent pornography use can have negative effects on various aspects of marital quality. While studies have often (though not unanimously) found a negative association between porn use and relationship outcomes, in

almost every instance the quantitative data have been cross-sectional, thus precluding the possibility of establishing directionality and testing for causal effects with confidence. The current study is the first to test for directionality using nationally-representative, longitudinal data. The findings provide *qualified* support for the notion that more frequent pornography viewing—rather than simply being a proxy for respondents’ dissatisfaction with sex-life or marital decision-making—may negatively influence marital quality over time. Consistent with previous research, I show that this effect of pornography on marital quality applies almost exclusively to married men. Moreover, while the general trend for men was that higher porn use led to lower marital quality, it appears that the marriages that were most negatively affected are those of married men who are viewing pornography at the highest frequencies (once a day or more). These levels of porn use were statistically extreme and may be suggestive of an addiction or otherwise compulsive behavior that could itself have a negative effect on romantic relationships, even if it were another behavior entirely besides porn use.⁹ In contrast, I find no evidence that frequent pornography viewing negatively influences marital quality for women. In fact, some of the trends observed in Figure 1 suggest that women’s marriages at Wave 2 were actually benefited by more frequent porn use in Wave 1.

In order to better frame the implications of these findings, several data limitations should be acknowledged. First, while the panel design and analysis permits the determination of temporal precedence and directionality of effect between pornography viewing in Wave 1 and marital outcomes in Wave 2, the fact that the question about porn use was not asked in Wave 2 precludes the possibility of determining whether and to what extent marital quality at T1 predicts

⁹ Supplementary analyses were run to test for whether the men at more extreme levels of porn use are to blame for the statistically significant effect of porn use on marital quality for men. Results (available upon request) indicated the greatest difference was between those who did not view pornography at all and those who did, rather than between those who view pornography at moderate levels and those at more extreme levels.

pornography use at T2. Some research suggests that relational problems can predict pornography use (Paul, 2005; Stack et al., 2004; Willoughby et al., 2015) and it would be helpful to compare the bi-directional effects porn use and marital quality over time. Future research would ideally make use of data that contains measures for both pornography use and marital quality at two different time periods so as to view which factor more strongly predicts the other. This data limitation also precluded the possibility of other estimation procedures that rely on changing scores, like fixed effects. Though the effects are so strong with the LDV models that fixed effects would be unlikely to change the substantive findings, these sorts of analyses would provide another test to ensure that omitted variable bias was not influencing the effects.

Second, while the pornography measure is an improvement on other measures that only ask whether a respondent looks at pornography at all (e.g., the GSS), the measure does not specify the type of sexually explicit media that are used, but leaves this open for the respondent to determine whether they are viewing “pornographic materials.” It could be that perhaps the difference between married women and men in the effects of porn use on marital quality is due to what types of pornography are typically consumed by either. To the extent that men consume pornography that is more likely to contain portrayals of female objectification and degradation while women are more likely to consume material that contains sensuality and intimacy, they may be influenced in their relationship behaviors and outlooks differently. Future research would thus benefit from measures that more explicitly define what sort of sexually explicit materials are being consumed and by whom. These sorts of data could help to test and elaborate on the scripting idea, that certain sorts of pornography provide scripts that consciously or unconsciously influence expectations about intimacy, sex, body images, etc. and thus influence committed romantic relationships (Willoughby et al., 2015; Wright, 2013).

A third limitation is that I am unable to see whether married respondents were viewing pornography alone or with their partner. As discussed above, scholars have more recently argued that pornography use, when done as a couple, can potentially benefit the relationship (Groves et al., 2011; Lofgren-Martenson & Mansson, 2010; Maddox et al., 2011; Weinberg, et al., 2010; Willoughby et al., 2015). The link between porn use and relationship outcomes may look differently for women and men to the extent that men and women engage in different use patterns. Studies find that men are considerably more likely than women to report viewing pornography alone (Maddox et al., 2011), and others find that men more often report using porn for masturbation while women are more likely to report using pornography primarily as a part of loving-making (Bridges & Morokoff, 2011). While the current study is unable to test for these distinctions, to the extent that men are more likely to use pornography in isolation while women are more likely to do so as a way to build romantic intimacy, it would be unsurprising to find that married women's relationships were benefited in some ways by greater pornography use, while men's relationships seemed to be negatively affected by more frequent (isolated) use. Future research would ideally draw on data that would allow the researcher to control for whether the respondents' spouse also views pornography, how often, and whether they do it together.

Lastly, my analyses only include respondents who were married at Wave 1 in 2006 and stayed married until Wave 2 in 2012. Thus, I do not show how pornography use may have contributed to the divorce of some couples in between waves 1 and 2. The number of divorces among PALS respondents between waves 1 and 2 was unfortunately too few to conduct any meaningful analyses with ($n < 30$). However, the fact that the current study omits persons who were divorced between waves 1 and 2 actually makes the findings more conservative. It could be that porn consumption became so frequent that respondents divorced thus leaving them out of the

analytic sample. The fact that the sample only includes couples who stayed married means that the analysis only includes couples for whom pornography had not caused a split. Future research would benefit from panel data with large enough numbers of divorces to adequately predict whether more frequent pornography consumption leads to greater likelihood of divorce over time. On a similar note, this study only includes persons who were already married at Wave 1. Thus, I am unable to see whether more frequent pornography use made persons less likely to get married at all. Future research would also benefit by testing for whether pornography viewing can diminish persons' likelihood of entry into marriage, or perhaps delay marriage entry. Or conversely, perhaps couples' porn use might contribute to their intimacy and thus lead to greater likelihood of marriage.

As pornography becomes more pervasive and accepted within the United States, and young people are exposed to it at younger ages with greater ease of access (Carroll et al., 2008), it is worth considering how porn use will shape their future relationships. To the extent that men's committed romantic relationships are negatively affected by porn use—particularly at higher extremes of usage—scholars, policy-makers, parents, and counselors will have to consider the long-term ramifications and whether interventions are in order. Conversely, the fact that women's marital relationships may be benefited somewhat by their viewing pornography suggests that as women feel more comfortable viewing such material, romantic intimacy in marriage relationships may be improved. Moreover, it is possible that current cultural trends will mitigate any negative influence of pornography on romantic or marriage relationships for men or their partners. As pornography becomes more common and accepted within the broader culture, it is possible that more married adults will share their interest in sexually explicit media with their partner. Thus, more couples could enjoy the salutary effects of viewing sexually explicit

material together. Future research should examine whether the negative association between porn use and marital quality for men is indeed weakening over time as stigma toward porn use declines (for an initial step in this direction, see Doran & Price, 2014).

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Table 1: Descriptive Statistics

| Predictors | Range | Mean or % | SD |
|--|-------|-----------|-----|
| Marital quality at Time 2? ^b | -6-2 | 0 | 1.8 |
| Marital quality at Time 1? ^a | -6-2 | 0 | 1.8 |
| Pornography Viewing ^a | 1-8 | 2 | 1.6 |
| How satisfied with sex-life? ^a | 1-5 | 4 | 1.2 |
| How satisfied with decision-making? ^a | 1-5 | 4.1 | 1 |
| Age ^b | 25-80 | 53 | 14 |
| Male ^b | 0-1 | 55% | |
| Number of children ^b | 0-9 | 2.7 | 1.6 |
| Ever divorced/annulment ^a | 0-1 | 24% | |
| Bachelors or higher ^b | 0-1 | 35% | |
| Household income ^b | 1-19 | 11 | 4.5 |
| White ^b | 0-1 | 74% | |
| Black ^b | 0-1 | 7% | |
| Hispanic ^b | 0-1 | 12% | |
| Asian ^b | 0-1 | 6% | |
| Native American ^b | 0-1 | 1% | |
| South ^b | 0-1 | 35% | |
| Religious Service Attendance ^b | 1-8 | 3.9 | 2.4 |
| Scripture Fully Inspired ^b | 0-1 | 63% | |
| Conservative Protestant ^b | 0-1 | 33% | |
| Mainline Protestant ^b | 0-1 | 11% | |
| Other Protestant ^b | 0-1 | 9% | |
| Catholic ^b | 0-1 | 24% | |
| Jewish ^b | 0-1 | 2% | |
| Other Religion ^b | 0-1 | 6% | |
| Unaffiliated ^b | 0-1 | 15% | |

Source: PALS 2006-2012

^a 2006 PALS

^b 2012 PALS

Table 2: Correlations for pornography viewing and marital quality measures

| Variables | 1 | 2 | 3 | 4 | 5 |
|--|---------|--------|--------|--------|------|
| 1 Pornography Viewing ^a | 1.00 | | | | |
| 2 How satisfied with sex-life? ^a | -.16*** | 1.00 | | | |
| 3 How satisfied with decision-making? ^a | -.11** | .54*** | 1.00 | | |
| 4 Marital quality at time 1 ^a | -.17*** | .57*** | .57*** | 1.00 | |
| 5 Marital quality at time 2 ^a | -.23*** | .18*** | .26*** | .35*** | 1.00 |

Source: PALS 2006-2012

^a 2006 PALS

^b 2012 PALS

+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

Table 3: Ordinary least squares regression predicting marital quality in 2012

| Predictors | Model 1 | | Model 2 | | Model 3 | |
|--|------------------|---------|------------------|---------|-----------------|---------|
| | <i>b</i> | β | <i>b</i> | β | <i>b</i> | β |
| Pornography viewing ^a | -.22*** (.05) | -.19 | -.22*** (.05) | -.19 | .11 (.15) | .09 |
| Marital quality in 2006? ^a (lagged) | .34*** (.04) | .31 | .30*** (.05) | .28 | .31*** (.05) | .28 |
| How satisfied with sex-life? ^a | | | -.08 (.07) | -.05 | -.10 (.07) | -.06 |
| How satisfied with decision-making? ^a | | | .21* (.08) | .12 | .22** (.08) | .12 |
| Pornography viewing \times Male | | | | | -.36* (.15) | -.37 |
| Age ^b | .01* (.01) | .09 | .01* (.00) | .08 | .01* (.01) | .09 |
| Male ^b | .33* (.16) | .09 | .32* (.15) | .09 | .84** (.27) | .23 |
| Number of children ^b | .01 (.05) | .01 | .01 (.05) | .01 | .01 (.05) | .01 |
| Ever divorced/annulment ^a | -.07 (.17) | -.02 | -.08 (.17) | -.02 | -.06 (.17) | -.01 |
| Bachelors or higher ^b | -.05 (.18) | -.01 | -.06 (.18) | -.02 | -.08 (.18) | -.02 |
| Household income ^b | -.01 (.02) | -.03 | -.02 (.02) | -.04 | -.01 (.02) | -.03 |
| White (ref.) ^b | | | | | | |
| Black ^b | -.04 (.28) | -.01 | -.05 (.28) | -.01 | -.06 (.28) | -.01 |
| Hispanic ^b | -.45+ (.24) | -.08 | -.47+ (.24) | -.08 | -.44+ (.24) | -.07 |
| Asian ^b | .43 (.32) | .06 | .43 (.32) | .06 | .47 (.32) | .06 |
| Native American ^b | .43 (1.02) | .02 | .39 (1.02) | .01 | .44 (1.02) | .02 |
| South ^b | .14 (.15) | .04 | .17 (.15) | .04 | .14 (.15) | .04 |
| Religious Service Attendance ^b | .05 (.03) | .06 | .06 (.03) | .07 | .06+ (.03) | .07 |
| Scripture Fully Inspired ^b | -.22 (.18) | -.06 | -.21 (.18) | -.06 | -.21 (.18) | -.06 |
| Conservative Protestant (ref.) ^b | | | | | | |
| Mainline Protestant ^b | -.29 (.25) | -.05 | -.27 (.25) | -.05 | -.28 (.25) | -.05 |
| Other Protestant ^b | -.02 (.27) | -.01 | -.03 (.27) | -.01 | -.12 (.27) | -.02 |
| Catholic ^b | .00 (.21) | .00 | .00 (.21) | .00 | -.02 (.21) | -.01 |
| Jewish ^b | .25 (.57) | .02 | .31 (.57) | .02 | .35 (.57) | .02 |
| Other Religion ^b | -.43 (.34) | -.06 | -.31 (.34) | -.05 | -.44 (.35) | -.06 |
| Unaffiliated ^b | .33 (.26) | .06 | .37 (.26) | .07 | .33 (.26) | .06 |
| Constant | -.33 (.46) | | -.79 (.61) | | -1.28* (.65) | |
| Adjusted R ² | .17 | | .17 | | .18 | |

Source: PALS 2006-2012 (N=602). ^a 2006 PALS; ^b 2012 PALS

Note: Standard errors in parentheses. + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

Figure 1: Plotted predicted values of marital quality in 2012 at each level of porn viewing frequency in 2006 for the full sample and by gender

