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Pornography Use and Marital Quality: Testing the Moral Incongruence Hypothesis

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Abstract

Studies often report a negative association between pornography use and marital quality. A number of studies, however, find this negative association to be stronger among religious Americans, suggesting that “moral incongruence” may be a key moderating factor. This theory is tested with panel data from the nationally representative 2006-2012 Portraits of American Life Study (N = 612). Support for the theory is mixed. Any pornography use in 2006 predicts lower marital quality in 2012 regardless of whether the viewer felt pornography use was always immoral. However, among pornography viewers, the negative association between marital quality and viewing frequency is stronger for those who morally oppose pornography. Findings hold regardless of gender. Data limitations and implications for future research are discussed.

Key words: pornography, marital quality, morality, gender

Introduction

There is a burgeoning research literature examining the connection between pornography use and heterosexual relationship outcomes (for reviews, see Campbell & Kohut, 2017; Manning, 2006; Newstrom & Harris, 2016; Rasmussen, 2016). Though there are some exceptions, studies have most consistently found that, on the whole, pornography use—either at all or in higher frequencies—is negatively associated with various measures of relationship quality for those in dating or marriage relationships, and particularly for men (e.g., Bridges & Morokoff, 2011; Doran & Price, 2014; Lambert, Negash, Stillman, Olmstead, & Fincham, 2012; Minarcik, Wetterneck, & Short, 2016; Morgan, 2011; Muusses, Kerkhof, & Finkenauer, 2015; Perry, 2016, 2017a; Perry & Davis, 2017; Poulsen, Busby, & Galovan, 2013; Stack, Wasserman, & Kern, 2004; Yucel & Gassanov, 2010). The exceptions to this trend are situations in which heterosexual couples are viewing pornography together rather than one partner (most often the man) viewing in isolation (e.g. Bridges & Morokoff, 2011; Maddox, Rhoades, & Markman, 2011; Minarcik et al., 2016; Poulsen et al., 2013). Coupled use of sexually explicit material, however, is far less common than solo use (Maddox et al., 2011), which would help explain why the overall association is negative (Doran & Price, 2014; Perry, 2016, 2017a).

While there is general consensus that pornography use—as it is most commonly practiced—tends to be negatively correlated with relationship quality, there is far less consensus regarding the primary mechanisms at work in this association. The most popular theory suggests that viewing pornography can influence relationship quality by shaping viewers’ “sexual scripts” about sexual relationships, intimacy, and body image (Perry, 2017a; Sun, Bridges, Johnason, & Ezzell, 2016; Wright, Tokunaga, & Bae, 2014; Zillmann & Bryant, 1988). To the extent that viewers internalize these scripts or messages, they may be less satisfied with their actual

romantic relationships in terms of sexual quality and/or physical appearance (e.g., Sun et al. 2016; Wright et al. 2014; Staley and Prause, 2013). Other theories propose there is nothing intrinsic to the *content* of pornography that negatively influences relationships. For example, one line of research suggests that the link between pornography use and relationship quality is largely due to discrepancies between men and women in their viewing practices and how this may shape the dynamic of the relationship (Maddox et al. 2011; Minarcik et al., 2016; Poulsen et al., 2013; Staley & Prause, 2013; Willoughby, Carroll, Busby, & Brown, 2016). And still another line of research is premised on skepticism that pornography use is directly connected to committed relationship quality at all (e.g. Baer, Kohut, & Fisher, 2015; Campbell & Kohut, 2016). Scholars in this vein suggest that pornography use could be a proxy for other factors that would otherwise cause men (and to a lesser extent, women) to have poorer relationship quality, including holding certain attitudes toward sex and relationships (Peter & Valkenburg, 2009) or experiencing psychological distress or depression (Cooper, Griffin-Shelley, Delmonico, & Mathy, 2001; Stein, Black, Shapira, & Spitzer, 2001).

One recent theory that may help explain the connection between pornography use and marital quality in particular is what may be termed the “moral incongruence” hypothesis. Incorporating insights from cognitive dissonance and stress process theories (Festinger, 1957; Pearlin, 1989), moral incongruence theory integrates and builds on a growing body of research demonstrating the negative psychological and social consequences for violating one’s own moral values, particularly with pornography use (Grubbs et al., 2015a; Grubbs & Perry, 2017; Perry, 2017b). Foundational to the theory is the idea that social and cultural values become internalized and sacralized such that their (repeated) violation holds consequences for both mental health and social relationships. Numerous studies of religious Americans, for example, have shown that

such persons are often gripped with considerable shame and guilt regarding their pornography use, despite the fact that they tend to view pornography less than other Americans (Grubbs et al. 2015b; Nelson, Padilla-Walker, & Carroll, 2012; Patterson & Price, 2012; Perry, 2017b; Regnerus, 2007). In their study of undergraduate men and women, for example, Short, Kasper, and Wetterneck (2015) observe that religious young people who view pornography manifest what Miller and Hedges (2008) call “scrupulosity,” a psychological disorder characterized by pathological guilt that can impair social functioning, contributing to individuals withdrawing emotionally and physically from loved ones. Closely related to this idea, moral incongruence represents the experience of violating one’s deeply held moral values, that may result in the patterns observed by Short et al. (2015) and others (e.g., Grubb et al., 2015; Perry, 2017b).

Several empirical studies suggest that moral incongruence may help explain the consistent finding that the negative association between pornography use and committed relationship outcomes is often exacerbated for religious Americans. Using aggregated data from the General Social Survey (GSS), Doran and Price (2014) found that viewing an X-rated movie in the previous year was associated with lower marital happiness and a higher likelihood of divorce or an extramarital affair. They also found, however, that among Americans who attended church at least weekly, the magnitude of pornography’s association with marital outcomes was larger than for less frequent attendees. Those who attended church weekly or more *and* viewed an X-rated movie were more likely to report a divorce, have an extramarital affair, and report lower marital happiness compared to those who did not attend weekly. Doran and Price (see also Patterson & Price, 2012) also found that the negative association between general life satisfaction and pornography use is stronger for more frequent attendees. These authors theorize that, for Americans embedded in moral communities that oppose pornography use, viewing

pornography has greater “psychic costs,” and thus affects the religious more strongly. More recently, Perry (2016) showed that the association between pornography use and marital quality was stronger for married Americans with religiously devout spouses. While Perry’s finding could also be attributed to religious spouses punishing their spouses who view pornography, rather than moral incongruence per se, elsewhere, Perry and Snawder (2017) also demonstrated that the negative associations between pornography use and measures of parent-child relationship quality were stronger for more frequent worship attendees. This latter finding suggests that parental distress or withdrawal due to moral incongruence is the more likely factor.

Because religious communities almost unanimously oppose pornography (Whitehead & Perry, 2017), it is likely that religious commitment (however measured) in these studies is serving as a proxy for moral opposition to pornography use. What their findings imply is that Americans who violate their own moral convictions by using pornography are more likely to experience moral incongruence which may lead them to withdraw from intimate relationships or otherwise be less invested. While studies of pornography use and relationships occasionally include measures controlling for participants’ moral acceptance of pornography (e.g., Poulsen et al., 2013; Willoughby et al., 2016), none have directly assessed whether the violation of one’s own moral views about pornography moderates the link between pornography use and relationship quality.

Focusing on married Americans specifically, the current study seeks to test the “moral incongruence” hypothesis more directly by assessing the extent to which the association between marital quality and pornography use is moderated by whether Americans are violating their own moral convictions in pornography use. In light of previous research finding pornography consumption to be negatively associated with marital quality specifically (e.g., Doran & Price,

2014; Muusses et al. 2015; Perry, 2016, 2017a; Stack et al. 2004; Yucel & Gassanov, 2010), it is first generally expected that:

Hypothesis 1: Earlier pornography use, either at all or in greater frequencies, will be negatively associated with marital quality over time, net of other factors.

Next, following research (Doran & Price, 2014; Perry, 2016; Perry & Snawder, 2017), which suggests that the experience of moral incongruence (believing pornography use to be wrong, but viewing it anyway) may exacerbate the negative association between pornography use and marital quality, it is expected that:

Hypothesis 2: The negative association between pornography use and marital quality will be stronger for Americans who believe it is morally wrong.

Alternatively, if this hypothesis does not hold true, it would suggest that the connection between pornography use and marital quality stems primarily from other factors described in the literature outlining scripting and viewing discrepancy theories (Perry, 2017a; Sun et al., 2016; Wright et al., 2014; Willoughby et al., 2016).

In terms of viewing frequency, Grubbs et al. (2015a) demonstrate that pornography users who oppose pornography morally are more likely to consider themselves “addicted” to it, and these individuals are also more likely to experience internal struggles including symptoms of psychological distress or depression (Grubbs et al., 2015b; Perry, 2017b). Thus, it is possible that those who view pornography more frequently, while also opposing it morally, would suffer greater attendant cognitive dissonance and internalized guilt compared to those who oppose pornography and only view it on occasion. Stated more formally, it is predicted that:

Hypothesis 3: The moderating effect of moral incongruence on the association between pornography use and marital quality will increase as pornography viewing frequency increases.

Lastly, previous research also underscores that the connection between pornography use and committed relationship quality is highly gendered. Pornography use is generally found to be more consistently and negatively associated with men's relationship quality compared to women, likely owing to different use patterns between the two (Bridges & Morokoff, 2011; Doran & Price, 2014; Maddox et al., 2011; Perry, 2017a; Poulsen et al., 2013). However, if the moral incongruence hypothesis holds true, it is likely that men, viewing pornography more frequently than women, would experience stronger relationship effects compared to women (see also Perry & Snawder, 2017). This leads to the fourth hypothesis:

Hypothesis 4: The moderating effect of moral incongruence on the association between pornography use and marital quality will be stronger for men than for women.

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 participants in their homes, from April to October 2006. The response rate was 58 percent. The second wave was conducted from March to September 2012, with 1,314 participants successfully re-interviewed. After accounting for participants 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 the analysis focused on marital quality as the outcome, only respondents who were married at wave 1 of PALS were included. Using this criteria, the full models ultimately use data from 612 participants who provided valid responses to focal measures used in the analyses.

Measures

Marital Quality. The outcome for this study was a measure of marital quality made from the sum of two questions asked in both 2006 and 2012. The first question asked participants, "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." Participants 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 Cronbach's alpha = .72; 2012 Cronbach's alpha = .77). The measures were thus standardized into z scores and summed to create a single marital quality measure.¹ Because the marital quality measure was standardized and has a broad range of values, ordinary least squares (OLS) regression is used as the modeling strategy.

Pornography Beliefs and Use. The focal predictors for this study are a combination of variables constructed from responses to two PALS questions in 2006 concerning (1) the morality

¹ Models were also estimated with these two measures separate and the results were virtually identical in both substantive and statistical significance (results are available upon request).

of viewing² pornography and (2) participants' pornography viewing history in the previous year. Regarding the morality of viewing pornography, participants could indicate they felt it was: (1) "always morally wrong," (2) "usually morally wrong," (3) "sometimes morally wrong," (4) "never morally wrong," (5) "not a moral issue," and (6) "case by case." Because the theoretical expectations of this study hinge on actors' moral rejection of something they willingly participate in, this measure was dichotomized into 1 = always morally wrong (about 62 percent of the sample) and 0 = not always morally wrong. PALS also asked participants, "In the past twelve months, how often have you viewed pornographic materials?" Responses ranged from 1 = once a day or more to 8 = never.³ This measure was recoded in two ways for the analysis. First, a dichotomous measure was constructed indicating that someone either did or did not view pornography in the previous year with 1 = yes (about 39 percent of the sample) and 0 = no. Second, the full measure was reverse-coded so that higher scores indicate greater pornography viewing frequency. This measure is used in analyses to determine the potential association between pornography viewing frequency and marital quality either for all Americans or for those who already admit to viewing pornography at all.

From the dichotomized morality and usage measures, four dummy categories of respondents were constructed representing four combinations (see Author, DATE). These include: "principled porn abstainers" or those who believe viewing pornography is always morally wrong, and do not view it (49 percent of the sample); "uninterested porn abstainers" or

² It is important that the question specifically asked about the morality of "viewing" pornography. Participants were not being asked about the legality or distribution of pornography (as in the GSS, see Doran & Price, 2014; Patterson & Price, 2012), but actually viewing it. This underscores the potential moral contradiction for those who claimed viewing pornography is "always morally wrong," even as they reported viewing it themselves.

³ These two measures were asked at different times in the interview so it is unlikely that participants were primed for either question. Moreover, Emerson, Sikkink, & James (2010) explain that in order to mitigate social desirability bias for sensitive questions like one's pornography viewing habits, each PALS participant 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.

those who do not believe viewing pornography is always morally wrong, but do not view it anyway (12 percent of the sample); “unconflicted porn viewers” or those who do not believe viewing pornography is always morally wrong, and view it (27 percent of the sample); and “conflicted porn viewers” or those who believe viewing pornography is always morally wrong, but still view it (12 percent of the sample). Each category is rotated as a reference in the analysis in order to test for significant differences in marital quality across categories.

Controls. Regression models included a number of sociodemographic correlates following previous research on marital quality and for their relevant theoretical contribution (see Amato, Johnson, Booth, & Rogers, 2003; Ellison, Henderson, Glenn, & Harkrider, 2010; Mahoney, 2010). Several controls were from wave 1 of PALS. Along with participants’ marital quality at the 2006 wave, a control was included for how satisfied participants were with their married sex life in 2006 in order to account for the possibility that participants’ pornography use in 2006 might have been a result of sexual frustrations in their marriages at the time (Perry, 2017a). Responses ranged from 1 = completely dissatisfied to 5 = completely satisfied. Also, it is possible that persons who use pornography more frequently also happen to be less committed to making long-term monogamous relationships work, and thus report lower marital quality because of endogenous personal factors, not necessarily pornography use. As a way to account for this possibility, a dichotomous dummy variable was included for whether a participant had experienced a divorce or annulment before 2006.

All other sociodemographic controls were from wave 2 of PALS. Age was measured in years, from 24 to 80. Dummy variables were constructed for gender (male = 1), education (Bachelor’s degree or higher = 1), and whether participants had any children (any children = 1), and a series of dummy variables were used for region (south = reference) and race (white =

reference). Household income was measured in categories from (1) less than \$5,000 to (19) \$200,000 or more. Religious factors are highly correlated with both pornography use (Perry, 2016; Perry & Hayward, 2017; Poulsen et al., 2013; Short, Kasper, & Wetterneck, 2015) and marital quality (Ellison et al., 2010; Mahoney, 2010; Perry, 2016). Thus, models 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, other religion, and none or unaffiliated. The religiously unaffiliated were the reference category. Theological conservatism was measured with a PALS question asking participants about whether they believed their religious text to be “fully inspired by God.” Responses included 1 = fully inspired by God to 4 = I have never heard of the religious text. This measure was dichotomized so that 1 = fully inspired by God, 0 = other. Participants 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.

Plan of Analysis

Table 1 presents descriptive statistics for all variables in the analysis in order to provide an overview of the outcome variable and focal predictors. Table 1 also presents zero-order correlation coefficients for all predictor variables and the outcome variable in order to establish the bivariate relationships. For the multivariate analyses, the outcome variable measuring marital quality has multiple response categories and so OLS regression models were estimated to predict marital quality in 2012 while including marital quality in 2006 as a control variable, otherwise

called a lagged dependent variable (LDV) model.⁴ Tables 2-4 present OLS regression models predicting higher marital quality. Table 2 establishes the net association between viewing pornography either at all or more frequently in 2006 on marital quality in 2012, while also taking into account participants' moral beliefs about pornography in order to provide a context for the potential influence of moral incongruence. Table 3 predicts marital quality using the four constructed categories of pornography belief and usage. Reference categories are alternated in order to isolate whether it is pornography use generally or moral incongruence that is associated with lower marital quality. Lastly, Table 4 predicts marital quality with the sample restricted only to those who report using pornography in the previous year in order to assess how moral opposition to pornography may moderate the association between pornography viewing frequency and marital quality. Models in Tables 2-4 present both unstandardized (*b*) and standardized (β) beta coefficients in order to discern substantive significance as well as statistical significance.

Results

Bivariate correlations in Table 1 demonstrate that viewing pornography at all in 2006 ($r = -.16, p < .001$) and pornography viewing frequency ($r = -.27, p < .001$) are negatively associated with marital quality in 2012. Moreover, when the sample is restricted to Americans who report using pornography, viewing frequency ($r = -.33, p < .001$) is even more strongly associated with

⁴ While fixed-effects models are helpful for handling the problem of omitted variable bias caused by time-invariant omitted variables, estimating these models would not be possible given the data. It could not be discerned whether a change in participants' pornography use or beliefs about pornography 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.

marital quality. Believing pornography is “always morally wrong” ($r = .08, p < .05$) in 2006 is weakly, but positively associated with marital quality in 2012. This is consistent with other studies finding moral acceptance of pornography and relationship quality to be negatively associated (Poulsen et al., 2013; Willoughby et al., 2016). Looking at the four categories of pornography belief and usage, being a “principled porn abstainer” ($r = .15, p < .001$) is positively associated with marital quality later on, though being an “uninterested porn abstainer” is not associated with marital quality ($r = .00, p = ns$). Among those who view pornography, being an “unconflicted porn viewer” ($r = -.09, p < .05$) is weakly and negatively associated with marital quality as is being a “conflicted porn viewer” ($r = -.11, p < .01$). Taken together, these bivariate associations would suggest it is pornography use, rather than whether one is violating one’s own moral convictions, that is negatively associated with marital quality.

Turning to the multivariate findings, Table 2 presents OLS regression models predicting marital quality with pornography use and belief measures and the full array of controls. Models 1 and 2 show that viewing pornography at all (Model 1: $b = -.53, p < .01, \beta = -.14$) or more frequently (Model 2: $b = -.27, p < .001, \beta = -.25$) in 2006 is negatively associated with marital quality in 2012. Standardized regression coefficients in both models indicate that earlier pornography use and pornography viewing frequency are the second strongest predictors of later marital quality, behind only previous marital quality. The first hypothesis is thus strongly supported. Believing pornography use is “always morally wrong” is statistically non-significant in either model. Interaction terms were tested for both pornography use at all and pornography viewing frequency $\times$ believing pornography is always morally wrong, and neither term was statistically significant (results available upon request). The potential moderating relationship of moral incongruence, however, will be examined more fully in Tables 3 and 4.

Table 3 estimates OLS regression models predicting marital quality with the four constructed categories for pornography beliefs and usage. Models 1 through 4 rotate the reference categories in order to test for differences in later marital quality across categories. Together the models indicate two things. (1) Both unconflicted porn viewers and conflicted porn viewers in 2006 report lower marital quality in 2012 compared to either principled porn abstainers or uninterested porn abstainers in 2006. Indeed, in each model, the contrast between either porn using group and the porn abstaining groups are among the strongest in the models. And (2) there are no significant differences between porn-users (conflicted or unconflicted) nor between porn-abstainers (principled or uninterested) in terms of marital quality. These results would not support the moral incongruence theory (hypothesis 2). Rather, moral incongruence regarding pornography use is not a key factor in predicting lower marital quality over time, but the fact of viewing pornography *at all*. Cross-product interaction terms for the pornography beliefs and usage categories $\times$ gender were included and none were statistically significant (results available upon request). The fourth hypothesis is unsupported.

But how might moral opposition to pornography use interact with viewing frequency to potentially shape later marital quality? While there was not a significant interaction between pornography viewing frequency $\times$ moral opposition to pornography use for the full sample, Table 4 presents OLS regression models predicting marital quality in 2012 with the sample restricted to Americans who reported viewing pornography in 2006. Model 1 shows that pornography viewing frequency ($b = -.28, p < .001, \beta = -.24$) among pornography viewers is negatively associated with marital quality later on. Again, viewing frequency is the second strongest predictor of marital quality in 2012, behind only earlier marital quality. Moral opposition to pornography use is not statistically associated with later marital quality. Model 2

includes an interaction term for pornography viewing frequency $\times$ believing pornography is always immoral and the term is significant and negative ($b = -.41, p < .01, \beta = -.33$) indicating that the two slopes differ and invert. Moreover, the interaction term is the strongest predictor in the model, moving ahead of previous marital quality in 2006.

Figure 1 illustrates the moderating effect of moral opposition to pornography on the link between viewing frequency and later marital quality. At lower use frequencies (monthly or less), those who morally oppose viewing pornography tend to report higher marital quality compared to those who do not believe pornography use is always wrong. However, as pornography viewing frequency increases, marital quality in 2012 declines more sharply for those who morally oppose pornography such their marital quality is relatively lower at viewing frequencies of weekly or more compared to those who do not oppose pornography. This trend affirms the moral incongruence theory: the negative association between pornography viewing frequency and marital quality is stronger for those who are violating their own moral beliefs by viewing pornography (hypothesis 3). Three-way interaction terms were also included in ancillary analyses to test for a potential moderating effect of gender and the interactions were not statistically significant, though this might have been due to the reduced sample size. The fourth hypothesis was not supported.

Discussion and Conclusion

Building on previous research suggesting that viewing pornography is more strongly and negatively associated with relationship quality for those who morally oppose its use (Doran & Price, 2014; Perry, 2016; Perry & Snawder, 2017), the current study directly assessed whether moral incongruence (believing pornography to be wrong, but viewing it anyway) moderated the association between pornography use and marital quality. Support for the moral incongruence

theory was mixed. Results showed that married Americans who viewed pornography at all in 2006 reported lower relationship quality in 2012 compared to abstainers, regardless of whether the pornography user viewed pornography as “always morally wrong.” This would suggest that the influence of moral incongruence was negligible compared to actually viewing pornography or not. However, when only those who report viewing pornography are considered, the negative association between pornography viewing frequency and marital quality is stronger for those who morally oppose pornography use. This would suggest that the negative association between pornography viewing frequency and marital quality is contingent somewhat on whether the viewer is violating their own moral views. All results seemed to hold regardless of gender.

Findings from this study extend the research on pornography use and committed heterosexual relationships in several ways. First, viewing pornography at all predicts lower levels of marital quality over time and this relationship is not significantly moderated by whether married Americans are violating their moral views by using it. This would suggest that the primary issue is not whether pornography users are experiencing moral incongruence thereby negatively affecting their marriage, but the other factors that are attendant to pornography use which could include negatively influencing viewers’ sexual scripts (Sun et al., 2016; Wright et al., 2014; Zillmann & Bryant, 1988) or creating tension in the relationship around one partner’s private pornography use (Maddox et al., 2011; Willoughby et al., 2016). And yet, moral incongruence plays a role in intensifying the negative association between pornography use and marital quality for those who already view pornography. Pornography users who morally oppose pornography and view it more often are more likely to report lower marital quality over time compared to those who oppose pornography and view it infrequently. Conversely, for pornography users who do not believe pornography is always immoral, viewing frequency was

not strongly related to later marital quality. In other words, for pornography users who are not violating their own moral convictions by using pornography, the frequency with which they view pornography at one time does not predict their marital quality later on.

The findings regarding viewing frequency and moral incongruence affirm research by others suggesting that violations of one's own moral standards comes with "psychic costs" (Patterson & Price, 2012; see also Grubbs et al., 2015b; Nelson et al., 2010; Perry, 2017b; Short et al., 2015) that can have relational consequences (Doran & Price, 2014; Perry, 2016, Perry & Snawder, 2017). It is possible that pornography users who are violating their own moral convictions against pornography use feel more frustrated or ashamed as their pornography use increases and thus may withdraw or self-isolate (Grubbs et al., 2015b; Perry & Hayward, 2017; Short et al., 2015) thereby negatively influencing their marriage relationship. Unfortunately, the data do not provide enough detail to know exactly how pornography use and moral incongruence may have influenced marital quality for participants. Future research on this topic could include more detailed questions and perhaps a qualitative component in order to further flesh out the observed connections between these variable.

Several other data limitations are worth addressing in order to chart a path for future research. First, while the panel design of PALS permits the determination of temporal precedence and directionality of effect between viewing pornography at wave 1 and marital quality in wave 2, because the question about pornography use was not asked in wave 2, the possibility of assessing bi-directionality or reverse causation is precluded (see Muusses et al., 2015; Willoughby et al., 2016). Future research would ideally make use of data that contain measures for both pornography use and marital quality at two different time periods so as to view which factor more strongly predicts the other. A related limitation is that these data cannot rule

out the possibility that there are self-selection issues that may account for both the pornography use at time 1 and lower marital quality later on. While the analysis controlled for Time 1 marital happiness, sexual satisfaction, and previous divorce, other confounding factors could include whether participants were from families with histories of marital trouble (Amato et al., 2003) and personality characteristics which are related to both pornography use (Egan & Parmar, 2013) and poorer marital outcomes (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). Another intervening factor could include the subjective evaluations and experiences of participants' spouses (Bridges et al., 2003; Stewart. & Szymanski, 2012; Zitzman & Butler, 2009). Indeed, as Perry's (2016) findings suggest, another mechanism connecting pornography use with poorer marital quality is not only one's *own* moral commitments, but those of one's spouse, which might result in greater marital conflict. Dyadic data in future studies would be ideal to account for this latter possibility.

Another limitation is that the pornography use measure does not specify what sort of "pornographic material" is being viewed. Respondents can have different ideas of what constitutes "pornography" (Willoughby & Busby, 2016), and it is possible that persons who morally reject sexually explicit media have a more expansive view of what constitutes "pornography" while those who do not morally reject it may reserve the term for more graphic material. Alternatively, Americans generally understand what the term "pornography" means (Regnerus, Gordon, & Price, 2016), and definitions would likely not vary so widely as to drastically influence the outcomes observed here. Nevertheless, future studies would ideally use more specific questions regarding the explicit content being viewed. Thirdly, the measure for moral opposition to pornography use was limited in that it was a single-item binary measure. Moral opposition to pornography may more accurately be measured on a continuum and future

research would ideally utilize several questions to create a scale or index of moral acceptance or rejection of pornography (e.g., Poulsen et al., 2013; Willoughby et al., 2016). Lastly, because the data are not dyadic, it was not possible to see whether married participants were viewing pornography alone or with their partner. As discussed above, scholars have more recently argued that viewing differences play a role in explaining the negative association between pornography use and relationship outcomes (Maddox et al., 2011; Willoughby et al., 2016). The moderating effect of moral incongruence would likely look differently (or be non-existent) among couples who view sexually explicit material together as opposed to one partner viewing it alone. Future research would ideally make use of longitudinal dyadic data where both spouses' pornography viewing can be taken into account, and preferably, with more precise measures of pornography use so as to clarify what sort of content is being consumed.

Despite these limitations, this study provides important clarification as to the mechanisms connecting pornography use with heterosexual relationship quality. While pornography use in general predicts lower marital quality later on regardless of whether the users are violating their own moral views, viewing pornography at higher frequencies while contradicting one's moral values may potentially take a toll on relationship quality. As attitudes toward pornography become more accepting in the United States (Lykke & Cohen, 2015; Price, Patterson, Regnerus, & Walley, 2016), it is possible that any moderating effect of moral incongruence will be attenuated. Conversely, if the attitudes of young Americans toward pornography are not changing tremendously (see Price et al., 2016) even as pornography use continues to increase, it may be that more Americans will find themselves in the situation where they are violating their own consciences in viewing pornography, thus holding greater consequences for mental health (Grubbs et al., 2015b; Perry, 2017b) or intimate relationships.

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Table 1: Descriptive statistics

Variables	Range	Mean	SD	Corr. ^a
<i>Outcome Variable</i>				
Marital Quality in 2012	-6-2	-.02	1.8	
<i>Marriage Controls</i>				
Marital Quality in 2006	-6-2	.16	1.7	.40***
Sexual Satisfaction in 2006	1-5	4	1.2	.22***
Previous Divorce before 2006		.24		-.02
<i>Focal Predictors</i>				
Viewed Pornography At All	0-1	.39		-.16***
Pornography Viewing Frequency	1-8	2	1.6	-.27***
Pornography Viewing Frequency†	1-7	2.5	1.8	-.33***
Viewing Pornography “Always Morally Wrong”	0-1	.62		.08*
Principled Porn Abstainer	0-1	.49		.15***
Uninterested Porn Abstainer	0-1	.12		.00
Unconflicted Porn Viewer	0-1	.27		-.09*
Conflicted Porn Viewer	0-1	.12		-.11**
<i>Controls</i>				
Male	0-1	.55		.06
Age	24-80	53.6	13.7	.14***
Bachelors	0-1	.36		.01
Household Income	1-19	11.1	4.4	-.04
Any Children	0-1	.95		-.01
South	0-1	.35		.05
West	0-1	.25		-.13***
Midwest	0-1	.24		-.04
Northeast	0-1	.15		.05
White	0-1	.75		.01
Black	0-1	.07		.01
Hispanic	0-1	.12		-.09*
Asian	0-1	.06		-.09*
Native American	0-1	.01		-.03
Religious Service Attendance	1-8	3.9	2.5	.07
Scriptural Fully Inspired	0-1	.64		-.01
Unaffiliated	0-1	.15		.04
Conservative Protestant	0-1	.33		.01
Mainline Protestant	0-1	.11		-.04
Other Protestant	0-1	.09		.03
Catholic	0-1	.24		.01
Other Religion	0-1	.09		-.06

Source: 2006-2012 PALS, N = 612

^a Correlation with the outcome variable.* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed test).

Table 2: Ordinary least squares regression predicting marital quality in 2012.

Predictor	Model 1			Model 2		
	<i>b</i>	SE	β	<i>b</i>	SE	β
Viewed Pornography At All	-.53**	.17	-.14			
Pornography Viewing Frequency				-.27***	.05	-.25
Viewing Porn “Always Morally Wrong”	-.11	.18	-.03	-.20	.17	-.06
Marital Quality in 2006	.40***	.05	.37	.37***	.05	.34
Sexual Satisfaction in 2006	.07	.07	.05	.04	.07	.03
Previous Divorce Before 2006	-.09	.16	-.02	-.04	.16	-.01
Male	.21	.15	.06	.33*	.15	.09
Age	.02**	.01	.12	.02**	.01	.11
Bachelors	.04	.16	.01	.02	.16	.00
Household Income	-.02	.02	-.05	-.01	.02	-.03
Any Children	-.23	.29	-.03	-.17	.29	-.02
South (reference)						
West	-.42*	.18	-.10	-.37*	.18	-.09
Midwest	-.16	.18	-.04	-.13	.17	-.03
Northeast	.20	.21	.04	.21	.21	.04
White (reference)						
Black	-.12	.28	-.02	-.08	.27	-.01
Hispanic	-.24	.24	-.04	-.11	.23	-.02
Asian	.45	.30	.06	.46	.29	.06
Native American	.66	.91	.03	.69	.90	.03
Religious Service Attendance	.06	.03	.09	.06	.03	.08
Scriptural Fully Inspired	-.19	.17	-.05	-.18	.17	-.05
Unaffiliated (reference)						
Conservative Protestant	-.41	.25	-.11	-.42	.25	-.11
Mainline Protestant	-.71*	.28	-.12	-.84**	.28	-.15
Other Protestant	-.46	.32	-.07	-.51	.31	-.08
Catholic	-.45	.26	-.11	-.48	.25	-.11
Other Religion	-.76*	.31	-.12	-.88**	.31	-.14
Intercept	-.20	.60		.17	.59	
Adjusted R ²	.21			.23		
N	612			612		

Source: 2006-2012 PALS, N = 612

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed test).

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

Predictor	Model 1			Model 2			Model 3			Model 4		
	<i>b</i>	SE	β	<i>b</i>	SE	β	<i>b</i>	SE	β	<i>b</i>	SE	β
Principled Porn Abstainer	—			-.13	.23	-.04	.43*	.20	.12	.51*	.22	.14
Uninterested Porn Abstainer	.17	.23	.02	—			.55*	.25	.10	.63*	.28	.11
Unconflicted Porn Viewer	-.43*	.20	-.11	-.55*	.25	-.14	—			.08	.25	.02
Conflicted Porn Viewer	-.51*	.22	-.09	-.63*	.28	-.12	-.08	.25	-.02	—		
Marital Quality in 2006	.40***	.05	.37	.40***	.05	.37	.40***	.05	.37	.40***	.05	.37
Sexual Satisfaction in 2006	.07	.07	.05	.07	.07	.05	.07	.07	.05	.07	.07	.05
Previous Divorce Before 2006	-.09	.16	-.02	-.09	.16	-.02	-.09	.16	-.02	-.09	.16	-.02
Male	.22	.15	.06	.22	.15	.06	.22	.15	.06	.22	.15	.06
Age	.02**	.01	.12	.02**	.01	.12	.02**	.01	.12	.02**	.01	.12
Bachelors	.04	.16	.01	.04	.16	.01	.04	.16	.01	.04	.16	.01
Household Income	-.02	.02	-.05	-.02	.02	-.05	-.02	.02	-.05	-.02	.02	-.05
Any Children	-.23	.29	-.03	-.23	.29	-.03	-.23	.29	-.03	-.23	.29	-.03
South (reference)												
West	-.43*	.18	-.10	-.43*	.18	-.10	-.43*	.18	-.10	-.43*	.18	-.10
Midwest	-.16	.18	-.04	-.16	.18	-.04	-.16	.18	-.04	-.16	.18	-.04
Northeast	.20	.21	.04	.20	.21	.04	.20	.21	.04	.20	.21	.04
White (reference)												
Black	-.12	.28	-.02	-.12	.28	-.02	-.12	.28	-.02	-.12	.28	-.02
Hispanic	-.24	.24	-.04	-.24	.24	-.04	-.24	.24	-.04	-.24	.24	-.04
Asian	.46	.30	.06	.46	.30	.06	.46	.30	.06	.46	.30	.06
Native American	.66	.91	.03	.66	.91	.03	.66	.91	.03	.66	.91	.03
Religious Service Attendance	.06	.03	.09	.06	.03	.09	.06	.03	.09	.06	.03	.09
Scriptural Fully Inspired	-.19	.17	-.05	-.19	.17	-.05	-.19	.17	-.05	-.19	.17	-.05
Unaffiliated (reference)												
Conservative Protestant	-.41	.25	-.11	-.41	.25	-.11	-.41	.25	-.11	-.41	.25	-.11
Mainline Protestant	-.71*	.28	-.12	-.71*	.28	-.12	-.71*	.28	-.12	-.71*	.28	-.12
Other Protestant	-.46	.32	-.07	-.46	.32	-.07	-.46	.32	-.07	-.46	.32	-.07
Catholic	-.45	.26	-.11	-.45	.26	-.11	-.45	.26	-.11	-.45	.26	-.11
Other Religion	-.76*	.31	-.12	-.76*	.31	-.12	-.76*	.31	-.12	-.76*	.31	-.12
Intercept	-.30	.61		-.18	.62		-.73	.58		-.81	.63	
Adjusted R ²	.21			.21			.21			.21		

Source: 2006-2012 PALS; N = 612

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed test).

Table 4: Ordinary least squares regression predicting marital quality in 2012 for reported pornography users.

Predictor	Model 1			Model 2		
	<i>b</i>	SE	β	<i>b</i>	SE	β
Pornography Viewing Frequency	-.28***	.08	-.24	-.19*	.09	-.16
Viewing Porn “Always Morally Wrong”	-.17	.31	-.04	1.11+	.62	.25
Porn Frequency $\times$ Pornography Always Wrong				-.41*	.17	-.33
Marital Quality in 2006	.39***	.08	.36	.35***	.08	.32
Sexual Satisfaction in 2006	-.07	.12	-.04	-.08	.12	-.05
Previous Divorce Before 2006	-.17	.32	-.03	-.30	.32	-.06
Male	.22	.33	.04	.33	.33	.07
Age	.01	.01	.08	.01	.01	.07
Bachelors	.05	.31	.01	-.01	.31	-.00
Household Income	-.05	.04	-.11	-.05	.04	-.11
Any Children	-1.11*	.48	-.14	-1.10*	.48	-.14
South (reference)						
West	-.67*	.33	-.14	-.60+	.33	-.13
Midwest	-.53	.35	-.10	-.52	.34	-.10
Northeast	.45	.38	.09	.54	.38	.10
White (reference)						
Black	-.75	.53	-.08	-.82	.53	-.09
Hispanic	.50	.43	.08	.63	.43	.10
Asian	.38	.62	.04	.42	.61	.04
Native American	-.76	1.20	-.04	-.98	1.19	-.06
Religious Service Attendance	-.05	.07	-.06	-.06	.07	-.07
Scriptural Fully Inspired	.02	.29	.01	.12	.29	.03
Unaffiliated (reference)						
Conservative Protestant	-.46	.42	-.10	-.59	.42	-.13
Mainline Protestant	-.34	.52	-.05	-.33	.51	-.05
Other Protestant	-.50	.56	-.07	-.50	.55	-.07
Catholic	-.99*	.42	-.21	-.93*	.42	-.19
Other Religion	-1.47**	.53	-.20	-1.49**	.52	-.20
Intercept	2.67*	1.18		2.32*	1.17	
Adjusted R ²	.27			.29		

Source: 2006-2012 PALS; N = 238

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

Figure 1: Marital quality in 2012 for reported pornography users by viewing frequency and moral opposition to viewing porn.