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Examining the Mediating Factors Between Religiosity and Pornography Use in Adolescents

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Pornography Use in Adolescents

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ABSTRACT

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The purpose of this study was to examine relations between adolescent religiosity and pornography use, and the roles of self-regulation, attitudes towards pornography, and social control as mediators of these relations. It was hypothesized that religiosity would protect adolescents from exposure to pornography by increasing their self-regulation capacity, their conservative attitudes about pornography, and their perceived social norms regarding pornography. The sample consisted of 419 adolescents (ages 15 - 18 years; M age = 15.68, SD = .98; 56% male) recruited online from across the U.S. Participants completed an online survey. All variables were bivariately associated as expected. Path models were used to examine the hypotheses regarding links between religiosity (religious internalization, religious involvement, and religious salience) and pornography use (purposeful and accidental) by way of mediators (self-regulation, attitudes towards pornography, and social control). This proposed model was partially supported by the analyses. Models without direct effects from the religiosity variables to pornography use fit the data as well as those with the direct paths, and thus the full mediation models were preferred (as they were more parsimonious). Religious salience had the strongest bivariate relationships while religious internalization revealed the most significant indirect paths. Religious involvement had the strongest indirect paths in the models. Attitudes towards pornography had the most effects as a mediator for purposeful pornography viewing, though all mediators played some role. For accidental pornography viewing, social control had the most effects, with attitudes towards pornography having no effect at all. The findings suggest that religiosity may protect adolescents from purposeful and accidental exposure to pornography, and that self-regulation, attitudes towards pornography, and social control may serve as mechanisms underlying these protective effects.

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Introduction

With recent advances in technology, pornography is becoming more widespread and easily obtainable. The trend toward increased pornography consumption is of concern given possible negative implications for work performance (Richard, 2003), relationships (Simmons, Lehmann, & Collier-Tenison, 2008), and individual well-being (Morrison, Ellis, Morrison, Bearden, & Harriman, 2006). More importantly for the current study, such negative effects are present or perhaps more pronounced among adolescents. Viewing pornography can change adolescents' perceptions about sex (Peter & Valkenburg, 2006b), increase their passive and physical harassment against others (Malamuth & Huppin, 2005), increase the likelihood of repeated sexual offenses (Kingston, Fedoroff, Firestone, Curry, & Bradford, 2008), and alter their sexual attitudes and behaviors in unhealthy ways (Greenfield, 2004). Despite such dangers of pornography, especially for youth, little research has examined predictors of pornography use in adolescence. Given the role of religiosity as a salient protective factor against sexual risk-taking (Hardy & Raffaeli, 2003; Regnerus, 2007), it may also postpone or inhibit pornography use as well. More specifically, high religiosity may protect against pornography use by fostering social control, self-regulation, and conservative attitudes towards pornography. The purpose of this study was to examine links between religiosity and adolescent pornography use, and the potential mediating role of social control, self-regulation, and pornography attitudes.

Pornography Use

Pornography is a growing issue in today's world. In the United States alone, the pornography industry earns approximately $13 billion dollars a year (Lee, 2009). It has been

estimated that each second $3075 is spent on pornography, 28,000 internet users are viewing pornography, 372 people are typing adult terms into search engines, and that every 39 minutes a new pornographic video is being produced. Five of the top 100 websites viewed by Americans are pornographic in nature (Lee, 2009).

In the past if a person wanted to view pornography, they had to go out in public to do so (Lee 2009). This meant that person would have to risk being identified by their peers. Today, pornography is at the world's fingertips. While there still is an abundance of adult stores and theaters, with advances in technology (e.g., cable and satellite TV, internet, cell phones, and PDA's) people can now obtain pornographic materials easily without leaving their homes. Cooper (1998) came up with the Triple A Engine to account for the ways in which technological advances have led to increases in pornography use. This model combines the factors of *accessibility*, *affordability*, *anonymity* to explain why the internet is such a strong force for viewing pornography. The internet runs nonstop. This means a person has access to pornography no matter what time it is. Because there is so much pornography that can be accessed free of charge, even sites that charge for its use keep prices to a small amount. If people can afford the internet, they can afford to use pornography that can be found there. Because people cannot be seen, they believe that no one can know who they are. This anonymity makes them more willing to indulge in sexual fantasies and discuss their sex life in ways that they would not do face to face, even with someone they knew well (Cooper, 1998). Jackson et al. (2007) wanted to know how influential the role of technology was for adolescent pornography use. They gave computers to families who had never previously owned one to measure how the internet would be used by the youth. In the first three months, pornography was ranked as the fourth most popular type of website visited.

Unfortunately, with easier access comes increased potential for problems. With expansion of the online pornography industry, more youth are being exposed to unwanted sexual material. Mitchell, Finkelhor, and Wolak (2003) performed a telephone survey to examine how much internet exposure to pornography was unwanted. They found that a quarter of the youth between the ages of 12 and 17 had been exposed to pornography that they were not trying to find. A large majority of these youth were just surfing the internet when they came across the pornography. The rest of the unwanted exposures came from clicking on links in emails and instant messages. The types of pornography varied from nudity to sex to violent sexual acts. The youth in this study were often exposed to pornography because of a misspelled word or because they thought a link would lead to a different, non-pornographic web page (Mitchell et al., 2003).

Not all pornographic exposure is unwanted by adolescents. Brown and L'Engle (2009) found that over half of male youth and over a quarter of female youth that they surveyed had intentionally viewed pornography. The most common ways males used to find pornography were the internet, X-rated videos, and magazines. For females, the most common source of pornography was X-rated videos. A tenth of all females sampled also viewed pornographic images online. While the information was published in 2009, the data were collected in 2001. At this time, only a third of the sample had access to the internet (Brown & L'Engle, 2009). Today the internet is more prevalent. Because of this, it is reasonable to assume that even more youth are using the internet to view pornography today.

Outcomes of pornography use. In an address to Congress, Greenfield (2004) reviewed research on how pornography and other sexual media can influence values, sexual attitudes, sexual violence, and sexual activity in children and youth. For example, Malamuth and Huppin

(2005) found that when adolescents have exposure to pornography which shows deviant sexual acts such as rape and humiliation, then adolescents will begin to favor that kind of sexual behavior. Peter and Valkenburg (2006b) reported that male adolescents who view pornography see it as more realistic. In other words, they think of pornography as the way sex happens or is supposed to happen. The more frequently pornography is viewed by these young men; the more realistic pornography seems to them. This perceived realism of pornography continued into their participants' sex life as far as sexual behaviors were concerned (Peter & Valkenburg, 2006b). Bonino, Ciairano, Rabaglietti, and Cattelino (2006) observed that young adults who view any form of pornography are more likely to participate in sexual harassment. The overall effects of pornography on the user seem to cause them to have less conservative morals and more recreational attitudes towards sex (Peter & Valkenburg, 2006b).

An increasing number of clinicians and researchers are becoming persuaded that pornography use has the potential to evolve into an addiction similar to addictions to gambling, overeating, shoplifting, and other behaviors (Bostwick & Bucci, 2008). One reason why pornography can be addictive is that pornography can cause those who use it to experience a thrill which they will want to feel again (Haney, 2006). In a time where adolescents are trying to form their own identity, an addiction could become part of that identity. The addictions that are formed in adolescence are likely to transfer to adulthood unless there is an intervention to stop it (Sussman, 2007). In one case of sexual addiction, the patient started using pornography when he was ten years old, and as an adult, spent hours at a time using pornography and sex chat rooms (Bostwick & Bucci, 2008). Although not all youth who view pornography will become addicted, the potential is always there. Thus protecting youth from pornography viewing may be important to promoting positive youth development.

Predictors of pornography use. Given potential negative effects of pornography use, a number of studies have sought to identify predictors of pornography use, many which might be seen as risk or protective factors (Brown & L'Engle, 2009; Carroll et al., 2008; Lam & Chan, 2007; Peter & Valkenburg, 2006a). There are several demographic factors that serve as predictors. In terms of individual characteristics, males are more likely to view pornography than females (Brown & L'Engle, 2009; Peter & Valkenburg, 2006a), and African Americans have a higher rate of pornography use than European Americans (Brown & L'Engle, 2009). According to Mitchell, Wolak, and Finkelhor (2007), between 2000 and 2005, pornography use has increased for racial minorities and decreased for Caucasians, most likely because of minorities obtaining easier access to the internet. Brown and L'Engle (2009) also found other factors, such as lower education levels of the parents, lower socioeconomic status, and higher levels of sensation seeking, are predictive of pornography use.

Age and pubertal timing have also been linked to pornography use, although the findings have not always been consistent. Brown and L'Engle (2009) found that the time adolescents hit puberty was not correlated to pornography use, but Peter and Valkenburg (2006a) found that the earlier males came into puberty, the more frequently they reported using pornography (see also Skoog, Stattin, & Kerr, 2009). Brown and L'Engle (2009) also stated in their analysis that youth around the age of 15 reported more frequent pornography use than youth who were 12 years old. In contrast, Wallmyr and Welin (2006) reported that younger participants were more likely to use pornography than the older youth even though older youth were more likely to view pornographic videos.

There are also personality factors that have been shown to influence pornography use. The interaction a person has with their friends can influence the likelihood of viewing

pornography. Lam and Chan (2007) found that online pornography use is strongly correlated with how likely someone is to give in to peer pressure and the type of peer pressure friends typically apply. In other words, if a person typically goes along with whatever their friends want, and their friends try to pressure them into viewing pornography, then they most likely will view the pornography. Perhaps the most thorough analysis of individual traits that can be predictors was done by Mesch (2009). He looked at several different factors and how they related to pornography use. He discovered that factors such as religiosity, family commitment, school attachment, and pro-social attitudes were stronger in those who did not view pornography than those who did. In contrast, factors such as violent attitudes and behaviors had stronger correlations in those who did use pornography compared to those who did not.

Religiosity and Pornography Use

Unfortunately, studies on religiosity and pornography use are both limited and conflicting. Stack, Wasserman, and Kern (2004) found that people with weak religious ties are more likely to use pornography than strongly religious counterparts. On the other hand, Abell, Steenbergh, and Boivin (2006) found that pornography use was not related at all to spiritual well-being. Mesch (2009) defined religiosity as attending a religious school, but he did find that those who attended religious schools viewed pornography less than those who attended secular schools. Thus, relations between religiosity and pornography use remain tentative and unclear

Religiosity is a potentially important protective factor against pornography use. As discussed previously, studies have consistently found that pornography use has been linked to sexual behaviors and attitudes. Further, there is some evidence linking religiosity to sexual attitudes and behaviors (e.g., Hardy & Raffaelli, 2003). Given these connections, it would seem reasonable to assume that if something about religiosity influences sexual attitudes and

behaviors, then it might also influence pornography use.

Despite the paucity and inconclusiveness of prior work linking religiosity to pornography use, a fair amount of theory and research exist linking religiosity to sexual behaviors. This work has generally found greater involvement in and commitment to religion predictive of delayed and less frequent sexual behaviors among youth (Regnerus, 2007; Rostosky, Wilcox, Wright, & Randall, 2004). A few of the key proposed mechanisms linking religiosity to decreased adolescent sexual behaviors are social control (Whitehead, Wilcox, Rostosky, Randall, & Wright, 2001), self-regulation (McCullogh & Willoughby, 2009; Crockett, Raffaelli, & Shen, 2006), and sexual attitudes (Meier, 2003). These same mediating factors may similarly be at work in linking religiosity to delayed and decreased adolescent use of pornography.

Mediators of Relations between Religiosity and Pornography Use

Social control. One of the first sociologists to state that social control can be used as a way for religion to control deviant behavior was Durkheim (1957). Durkheim felt that religions were social institutions, but because religions are "rich in social elements," they should be allowed to continue. Keeping with this purpose, social control will be defined as any form of social pressure that attempts to encourage or discourage certain behaviors. This pressure could come from many different sources including peers, parents, or religious leaders (Regnerus, 2007; Church, Wharton, & Taylor, 2009). While there are studies that claim social control has an effect on behaviors, it is rarely actually measured. More often than not it is assumed to be present, usually as part of religiosity (e.g., Crockett, Bingham, Chopak, & Vicary, 1996; Johnson, Jang, Li, & Larson, 2000).

Since Durkheim, scholars have continued to theorize about and study social control as a mechanism leading religiosity to protect adolescent sexual risk-taking (Whitehead et al., 2001).

There are several different theories on why religion uses social control. Some people consider social control to be an aspect of religiosity through youth programs such as seminaries and Sunday schools, while others consider religiosity to be another form of social control that parents use to make their children behave well (Regnerus, 2007). Either way, social control provides social consequences for unconventional behaviors.

The attitudes and requirements of the individual influence the role social control will have. If an adolescent has no fear of a consequence for deviant behaviors then social control will not have an effect on them (Church et al., 2009). Likewise, if youth tend to avoid taking risks, they will be more likely to give in to social control and be just fine with it (Regnerus, 2007). Crockett et al. (1996) found that social control varies between boys and girls. For girls, social control had a stronger influence because, both socially and religiously, girls are expected to be more virtuous. Social control played a role for boys because of religiosity. Society does not stress that boys should abstain from sex as strongly as it does for girls, but religiosity is constant for both boys and girls. The researchers concluded that this effect was determined by attachment to secular and religious organizations (Crockett et al., 1996). This makes sense given findings that when a child has friends of the same religious faith, then the age of first sexual intercourse goes up (Mott, Fondell, Hu, Kowaleski-Jones, & Menaghan, 1996). It would be expected for this effect to carry over from sexual behaviors to pornography use assuming the religious institutions speak against pornography use.

Self-regulation. Self-regulation is another factor that might link religiosity and sexual behavior. There are several proposed reasons for the role of self-regulation. One is that a religion can influence goal selection (McCullogh & Willoughby, 2010). The influences of religion on goal selection include factors such as determining the importance of goals and which

goals become moral principles. Determining the importance of goals with the aid of religion is fairly straightforward. When religion is involved, goals that are either spiritual in nature or based on spiritual ideals become more sacred to the individual. When goals are thought of as sacred, they begin to take higher precedence over other goals. Another influence of religion on self-regulation is encouraging self-monitoring. This is caused because of the idea that someone is watching. Put another way, when a person feels that their behaviors can be seen, they are more likely to keep their behaviors in check. This has an effect in both private and public. In private, individuals can experience negative feelings about themselves if they do something wrong and they feel that a supernatural being can see this bad behavior. In public, keeping behaviors in check is caused by the moral standards of those who are gathered around as well as that supernatural being that watches them. When a negative behavior does occur, guilt can make the individual not want to perform the undesired behavior again. In summary, religion encourages the use of self-regulation of behaviors because either "God is watching" or because it is what is expected by others. The result of this is that one would have to monitor their behaviors more closely (McCullogh & Willoughby, 2010).

Religion also encourages the individual to embrace religion-based behaviors to help themselves (McCullogh & Willoughby, 2010; Koole, McCullogh, Kuhl, & Roelofsma, 2010). According to Koole et al., (2010), religion encourages the individual to turn to religious behaviors such as prayer to help them both in times of temptation and times the individual experiences undesired feelings such as anger. By mastering this strategy, self-regulation can protect the individual from performing behaviors that are considered wrong. There are behaviors other than prayer which provide this protection though, such as reading scriptures and viewing religious imagery (McCullogh & Willoughby, 2010). As described, the dedication to religious

behaviors aids in developing self-regulation through practice and helps in putting those ideas into effect when faced with negative temptations.

Not only has religiosity been linked to greater capacity for self-regulation, but other work has linked greater self-regulation to decreased sexual risk-taking. Self-regulation has been found to have both direct and indirect effects on sexual behaviors (Crockett et al., 2006). Poor self-regulation increases the chances of participating in sexual behaviors. On top of the adolescent behavior, poor self-regulation can also be a predictor of the riskiness of the behavior. Adolescents with poor self-regulation have a higher chance of not only having sex, but having sex without a condom (Hernandez & DiClemente, 1992). While social situations encourage inhibiting the expression of sexual thoughts and behaviors, youth with lower self-regulation are less influenced by those social norms, and thus more likely to engage in such unconventional behaviors (Gailliot & Baumeister, 2007).

Sexual/pornography attitudes. Much work has linked attitudes and behaviors, and the same is true for sexual attitudes and behaviors (Zimmer-Gembeck & Hefland, 2008). In fact, Meier (2003) found that attitudes about sex mediate the relationship between religiosity and sexual behavior (see also Murray, Ciarrocchi, & Murray-Swank, 2007). Because sexual attitudes mediate the relationship between religiosity and sex, it is likely that conservative attitudes towards pornography would mediate the relationship between religiosity and pornography use as well. Although no research has yet examined this, we might anticipate that religious people would be more likely to see pornography use as more inappropriate, negative, or immoral than less religious people.

The Present Study

This study's primary purpose was to examine relations between religiosity and

pornography use in adolescence, and identify potential mediators of these relations. Religiosity has been shown to be correlated with reduced risk behaviors such as drug use, sexual activity, depression, and skipping school (Sinha, Cnaan, & Gelles, 2007). For this reason, it was anticipated that greater religiosity would be predictive of less frequent pornography use. Further, it was expected that social control, self-regulation, and attitudes towards pornography would mediate links between religiosity and pornography use.

The primary hypothesis was that religiosity would negatively predict pornography use. Three aspects of religiosity were tapped as part of the proposed study: involvement, salience, and internalization. I chose each aspect because I believed that each contributed a unique aspect to religiosity. Involvement entails the degree of engagement in religious behaviors such as church attendance and prayer (Ellison, Boardman, Williams, & Jackson, 2001). Such behaviors help youth to feel more spiritually connected to transcendent reality (Krause, 2002), learn moral values (Hardy & Carlo, 2005), and interact with peers with similar values (Krause, 2002) – all of which might protect against pornography use. Salience is the extent to which religious beliefs play a role in one's decisions and behaviors (Mason & Spoth, 2011). While religion is not that consequential for most adolescents (Smith & Denton, 2005), those who have high religious salience perceive it as a more important part of their life and who they are as a person. Internalization is regarding the degree to which a person's religious behaviors are autonomously motivated (based on things such as values and identity) rather than controlled (based on perceived consequences or perceived self-evaluative affect; Neyrinck, Vansteenkiste, Lens, Duriez, & Hutsebaut, 2006). When religion is internalized it should have more potential to motivate and direct behavior. This led to three supporting hypotheses:

1. Religious involvement will negatively predict pornography use.

2. Religious salience will negatively predict pornography use.

3. Religious internalization will negatively predict pornography use.

This study also explored social control, self-regulation, and attitudes towards pornography as potential mediators of relations between religiosity and pornography use. The hypotheses for the mediators were as follows:

4. Social control will mediate the relationships between religiosity and pornography use so that those with higher religiosity will score higher on social control and in turn lower on pornography use.

5. Self-regulation will mediate the relationships between religiosity and pornography use so that those with higher religiosity will score higher on self-regulation and in turn lower on pornography use.

6. Attitudes towards pornography will mediate the relationships between religiosity and pornography use so that those with higher religiosity will have more conservative attitudes towards pornography and in turn score lower on pornography use.

Methods

Sample

The sample for the proposed project was 419 adolescents ages $15 - 18$ ($M = 15.68$, $SD = .98$; 56% males; 84% European American, 5% Latin American, 5% Asian American, 4% African American, and 2% multi-racial). Participants were recruited through an online national survey panel, and thus, came from 45 of the 50 states in the U.S. Roughly 65% of the adolescents lived with both of their biological or adoptive parents. Approximately 61% had annual household incomes of under $100,000.

Procedure

The primary contacts were individuals who were members of the survey panel (eRewards) who also had teenage children between the ages of 15 and 18. These parents were emailed an invitation by the survey panel company, and those who consented to allowing their adolescent to participate were then invited to have their adolescent take the online survey. Adolescents who consented to participate were directed to the survey and included in the study. This survey took approximately 30 minutes to complete, and involved demographic questions as well as a number of open-ended and closed-ended questions regarding participants' thoughts, feelings, behaviors, and relationships. All measures included in the present study were adolescent-report.

Measures

Religious involvement. Religious involvement was measured by six items. Three items were based on public religious behaviors and three items were based on private religious behaviors. Three items were taken from the Brief Multidimensional Measure of

Religiousness/Spirituality (Harris et al., 2007). The other three items were made up based on previous studies (Hill & Hood, 1999). Scoring for items ($\alpha = .90$) was based on an eight-point Likert scale ranging from 1 (*never*) to 8 (*several times a day*). Higher scores indicated more religious involvement. Examples of items are "How frequently do you pray by yourself (alone)" and "How frequently do you attend religious worship services?"

Religious salience. Religious salience was based on four items from the Religious Beliefs and Commitment Scale (Erickson, 1992). Participants were asked to rate how true statements were for them. Scoring for items ($\alpha = .94$) was based on a seven-point Likert Scale ranging from 1 (*never true*) to 7 (*always true*). Higher scores indicate higher salience of religion into everyday behaviors. Examples of items are "My faith shapes how I think and act every day."

Religious internalization. Religious internalization was measured by the 32-item Religious Internalization Index (Neyrinck et al., 2006). Participants chose a religious activity that was the most meaningful to their religious belief. Then, they responded to 32 statements about why they perform that activity using a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Examples of the items include "because I find it personally important" and "because I would feel guilty if I don't." Neyrinck et al. (2006) found that the scale is best made into a composite score. Twenty of the 32 items were divided into three separate subscales labeled identified (4-items; $\alpha = .93$), introjected (8-items; $\alpha = .89$), and external (8-items; $\alpha = .93$). Identified regulation describes those who have begun to identify themselves by their religious beliefs. This is the fullest type of internalization. A lesser part of internalization is called introjection. This is where religious principles are followed mainly because of feelings of guilt or shame when a person does not obey their religious beliefs.

Religious beliefs are externalized when the reason for obeying religious principles is outside of oneself such as to fulfill the expectations of others. The composite score was obtained by weighting the means of identified, introjected, and external regulation scores with the values of +3, -1, and -2 respectively. Higher scores indicate higher internalization of religious beliefs while lower scores indicate more external-based reasons for religious beliefs.

Social control. Social control was assessed using a measurement approach derived from prior research on subjective norms (Zhao & Cai, 2008). The items were adapted to assess norms regarding pornography. Specifically, participants were asked to rate the extent to which various people in their life would feel about them viewing pornography (i.e. the participant's mother, father, sibling/siblings, best friend, other peers, religious leaders, religion, and God). The eight items (α = .90) were rated from 1 (*strongly disapprove*) to 5 (*strongly approve*), but responses were reverse-coded such that higher scores would reflect stronger perceived norms against pornography use. There was also an option for those participants for whom the question did not apply (i.e. the participant did not have a religion). An example of an item is "How do you think your mother would feel about you using pornography?"

Self-regulation. Self-regulation was assessed using the 10-item (α = .80) self-regulation scale from the Early Adolescent Temperament Questionnaire (Capaldi & Rothbart, 1992). This scale measures the capabilities of teens to activate and inhibit behaviors. The items were rated from 1 (*almost always untrue of you*) to 5 (*almost always true of you*). Examples of items include "I have a hard time finishing things on time" and "The more I try to stop myself from doing something I shouldn't, the more likely I am to do it." Higher scores indicate greater self-regulation capacity.

Pornography attitudes. Attitudes towards pornography were measured using 12 items

(α = .92) adapted from prior research (Espinosa-Hernandez & Lefkowitz, 2009; Evans-DeCicco & Cowan, 2001). Participants rated agreement with statements such as "Pornography degrades women" and "Pornography gives false expectations about the opposite sex," using a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate more conservative attitudes towards pornography use. Certain items were reverse coded to keep this trend.

   Pornography use. Participants were asked if they had ever seen pornography in twelve different situations. Six situations were for accidental exposure to pornography and the other six were for purposive viewing of pornography. Participants were asked about accidental and purposive pornography viewing on a cell phone, in books or magazines, while using email or other forms of online communication, on television or in movies, while searching the internet, or from media saved to their computer. For each situation in which participants indicated they had viewed pornography, they were then asked to indicate how often they had seen pornography in that situation in the past six months using a scale from 1 (*not at all*) to 9 (*several times a day*). Participants who reported that they had never viewed pornography in a given situation on the dichotomous items were given a score of 0 on the frequency items, resulting in frequency variables with a 10-point scale from 0-9. Two composite scores were created from these items. The accidental exposure items were summed to create a total for accidental pornography exposure (α = .83), and the purposive viewing items were summed to create a total for purposive pornography viewing (α = .85).

Results

Preliminary Analysis

Means, standard deviations, alphas, ranges, and skewness are presented in Table 1. With the exception of the pornography variables, all study variables were approximately normally distributed (i.e., skewness and kurtosis values less than an absolute value of 2). All variables correlated at least at the $p < .05$ level of significance (see Table 2.) The predictors (the three religious variables) and mediating variables (self-regulation, social control, and pornography attitudes) were all positively correlated with each other and negatively correlated with the pornography use variables (accidental exposure and purposive viewing).

To determine whether or not gender differences were present, a MANOVA was run using all variables in SPSS 19. The F-test was significant, Wilk's lambda = .81, $F (8, 285) = 8.55$, $p < .001$, Partial $\eta^2 = .19$. In terms of follow-up univariate ANOVAs (values in parenthesis are Partial η^2, and thus are proportion variance accounted for each outcome by the group variable), females were higher on attitudes towards pornography (.06) and social control (.15). They were lower on purposeful exposure (.13) and accidental exposure (.07). There were no significant gender differences for religious internalization, religious involvement, religious salience, or self-regulation.

Mediation Models

The primary analyses were conducted using the Mplus software. In Mplus, model parameters were estimated using full information maximum likelihood estimation (ML). This estimation procedure handles missing data by estimating parameters using available information, and thus cases with data on any of the variables are included in the analyses. As indicators of model fit (Brown, 2006), I used the Chi-Square (χ^2) statistic, the Root Mean Squared Error of

Approximation (RMSEA; values below .05 indicate good fit, below .08 indicate moderate fit, and below .10 indicating mediocre fit), and the Comparative Fit Index (CFI; values above .95 indicate good fit, and values above .90 indicate moderate fit). Additionally, χ^2 difference tests were used to assess the relative fit of nested models.

Mediation was tested using path analysis. Essentially path analysis is a type of linear regression where all paths in the model are tested simultaneously. This is more efficient than linear regression, which handles only one endogenous variable at a time. In addition, overall indirect effects were obtained using the "Model Indirect" command to generate results for Sobel tests, which essentially test the significance of the product of the regression coefficient for the path from a predictor to a mediator and the coefficient for the path from that mediator to the outcome. Gender was controlled for in all models by adding it as a covariate predicting the mediators and outcomes.

Mediation path analyses were conducted separately for each of the two outcomes (purposeful viewing and accidental exposure). The first model was a Direct-Indirect (D-I) model (see Figure 1). This is what is known as a saturated model because every possible path is included, meaning there are zero degrees of freedom. If this is the best-fitting model, there is a significant indirect effect from a predictor through at least one mediator, and a significant direct effect, suggesting partial mediation. In other words, while there is some evidence for indirect-effects through the mediators, there is more to the relationship between religiosity and pornography use than is accounted for by that set of mediators. The second model is an Indirect-Only (I-O) model (see Figure 2). In this model, the direct paths have been removed. The fact that there are missing paths in this model yields degrees of freedom. This model cannot fit worse, but, it might not fit significantly worse. If this reduced model is not a worse fit to the

data, then it is the preferred model, as it is more parsimonious, in which case, it suggests full

mediation (that the mediators account for most of the relations between the predictors and

outcome).

Purposeful Pornography Viewing

Because the D-I model for purposeful pornography viewing was saturated, the χ^2 test of

model fit was 0 with 0 degrees of freedom, the RMSEA was 0, and the CFI was 1.00, indicating

perfect fit. For the I-O model, although the χ^2 was not zero (because it was not saturated), it was

not significantly different from zero, $\chi^2 (3) = 3.773$, *ns*, RMSEA = .03, CFI = 1.00. This means

the I-O model fit well, and the fit of the two models was not significantly different. Thus, the I-

O model was the preferred model because it was simpler (it includes three fewer paths),

indicating that the direct effects were not necessary.

Religious internalization had significant paths through all mediators, self-regulation (β =

-.02, *p* = .040), attitudes towards pornography (β = -.03, *p* = .042), and social control (β = -.04, *p*

= .027). Religious involvement showed significant mediation through attitudes towards

pornography (β = -.04, *p* = .025) and social control (β = -.07, *p* = .003). Religious salience only

showed significant mediation through attitudes towards pornography (β = -.08, *p* = .001; see

Table 3 and Figure 2).

Accidental Pornography Exposure

As was the case for purposeful pornography viewing, the D-I model for accidental

exposure was also saturated. For the I-O model, χ^2 was not significantly different from zero, χ^2

(3) = 3.653, *ns*, RMSEA = .02, CFI = 1.00. This means the I-O model fit well, and the fit of the

two models was not significantly different. Thus, the I-O model was the preferred model

because it was simpler (it includes three fewer paths), indicating that the direct effects were not necessary.

Referring back to Table 3, the significant paths for religious internalization were through self-regulation (β = -.03, p = .031) and social control (β = -.04, p = .025). The only significant path for religious involvement was also through social control (β = -.08, p = .003). Religious salience had no significant indirect paths for accidental exposure (see Table 3 and Figure 2).

Other Analyses

Given the skewness of the pornography use variables, I reran the models above using maximum likelihood estimation with robust standard errors (MLR), which is robust to non-normality. As can be seen by comparing Figure 2 and Figure 3, however, the parameter estimates are identical to those using standard ML estimation. However, the standard errors are somewhat different, meaning that some of the significance tests provide different statistical conclusions. In this case, the only differences were that for the models for all two outcomes the paths from religious salience to social control were no longer significant.

Discussion

The primary purpose of the study was to examine whether religiosity is a protective factor against exposure to pornography, and whether social control, self-regulation, and pornography attitudes mediate these linkages. It was hypothesized the adolescents higher on religious internalization, religious involvement, and religious salience would have greater self-regulation and more conservative attitudes and social control towards pornography, and that in turn such adolescents would less frequently view pornography. Mediation analyses for purposeful and accidental viewing found partial support for these hypotheses. Indeed, the three aspects of religiosity were associated with less exposure to pornography, and in most cases these relations were mediated by at least one of the proposed mediators. In fact, the analyses suggested that these mediators accounted for much of the associations between religiosity and pornography use.

In line with prior research that has fairly consistently shown religiosity to be a protective factor for sexual intercourse (Regnerus, 2007) and other risk behaviors (Kendler & Myers, 2009; Regnerus, 2003), the present study suggests that it might also protect against wanted and unwanted exposure to pornography. Further, the mechanisms involved might be similar, particularly to those linking religion and sexual intercourse. Prior research suggests that greater self-regulation (Crockett et al., 2006), conservative attitudes towards sex (Zimmer-Gembeck & Hefland, 2008), and stronger perceived norms against sex (Mott et al., 1996), should lead to delayed initiation of sexual intercourse. Similarly, the present findings indicate that attitudes towards pornography and perceived norms against pornography might be means by which religious internalization, involvement, and salience lead to less pornography use.

The present study examined three aspects of religiosity: internalization, involvement, and salience. In terms of bivariate relations, religious salience was the most strongly related to pornography use. A possible reason for this pattern lies within the definition of salience. As stated earlier, salience describes the extent religious beliefs influence decisions and behaviors (Mason & Spoth, 2011). It could be a logical conclusion to say that the more religiosity influences a person's behaviors, then the more likely that they are to refrain from behaviors that are proscribed by their religious beliefs. However, religious internalization had the most indirect relations to pornography use through the mediators. It is possible that religious internalization had the most effects because the more religious behaviors are autonomously or internally motivated, the more likely one would be to follow his or her religious precepts (Neyrinck et al., 2006). Additionally, perhaps the most salient indirect effect (strongest average indirect effect across the two outcomes) was that from religious involvement through social control. This provides support for arguments that of religion is a powerful source of social control (Durkheim, 1957; Church et al., 2009; Crockett et al., 1996; Regnerus, 2007). Religious involvement increases the possibility that the adolescent will be associated with people that are not only religious, but who share their attitudes towards behaviors such as pornography.

In this study I looked at two indices of pornography use: purposeful or wanted use and accidental or unwanted viewing. Based on the number of paths, it would seem that purposeful exposure was the most strongly predicted by the religiosity and the mediators. Purposeful exposure is under the adolescent's control. In order for this exposure to occur, the adolescent has to make a choice. Religiosity provides a buffer against making the choice to use pornography. The ability of religiosity to do this by influencing a person's attitudes towards pornography and social control follows the theory of reasoned action (Fishbein & Ajzen, 1975). Additionally,

self-regulation has been linked to religiosity and sexual behaviors in past studies, and there are different theories that attempt to explain why these effects are present (McCullogh & Willoughby, 2010; Koole et al., 2010; Crockett et al., 2006). These studies believe that reasons for the effects of self-regulation could be that they are more likely to feel that God is watching them and that religion tries to teach them to be strong in the face of temptation.

Interestingly, religiosity had several important effects on accidental exposure to pornography as well. Perhaps the most important finding is the lack of association between attitudes towards pornography and accidental exposure to pornography. Regardless of an individual's views on pornography, it is still likely to be encountered accidentally through various sources of media. On the other hand, self-regulation and social control were predictive of accidental exposure. This suggests that somehow self-regulation and social control might lead to media use that is less prone to exposure to pornography. For example, teens might perceive more social control against pornography when their parents do more to monitor their online activities (Greenfield, 2004). Further, teens with greater self-regulation capacity might better follow the family rules regarding media use.

Another interesting finding is that each mediator seemed to have a predictor with which it related most strongly. Religious internalization related most strongly to self-regulation. This is congruent with the definition of religious internalization, which is that religious behaviors are enacted autonomously (they are self-regulated rather than controlled by external forces; Neyrinck et al., 2006). Religious involvement related most strongly to social control. Again, this is in line with the notion that religion is a source of social control (i.e., it provides strong norms against unconventional behaviors; Durkheim, 1957; Regnerus, 2007). Finally, religious salience had the strongest relationship with attitudes towards pornography. This follows from

prior work showing that religious salience leads ones religion to have a stronger impact on ones attitudes and values (Mason & Spoth, 2011; Smith & Denton, 2005).

Limitations

Despite the interesting pattern of findings, this study did have a number of noteworthy limitations. First, all measures were adolescent self-report. While self-reports lead to concerns about social desirability bias, adolescents do appear to be reasonably accurate in reporting about their own attitudes and behaviors (Clarke, Lewinsohn, Hops, & Seeley, 1992). Nevertheless, future research is needed employing different measurement strategies (such as actually tracking online activity). Second, this study involved cross-sectional, correlational data, thus limiting our ability to draw causal inferences. Future studies of adolescent religion and pornography use should include longitudinal and perhaps experimental data to further establish temporal ordering and causality. Third, reports of pornography use were positively skewed. It is unclear to what extent this might be due to characteristics of the sample (e.g., middle adolescent, mostly European American, and mostly from two-parent homes). To account for this skewness, the analyses were run using an estimation method that is robust to non-normality, in addition to standard maximum likelihood estimation.

Conclusion

The present study examined relations between adolescent religiosity and pornography use, including an exploration of potential mediators. Indeed, adolescents who were more religious tended to view pornography less frequently, both purposefully and accidentally. Thus, pornography can be added to the list of risk behaviors for which religiosity might protect against. In other words, just as religion leads youth to delay or minimize sexual intercourse (Regnerus, 2007) and other risk behaviors, also it may similarly delay or minimize use of pornography. This

is important to know given what research has uncovered regarding the potential negative effects of pornography use on attitudes, behaviors, and relationships (Bonino et al., 2006; Greenfield, 2004; Malamuth & Huppin, 2005; Peter & Valkenburg, 2006b).

The present study also identified a few potential mechanisms by which religion might have this protective effect against pornography use. In particular, religion seemed to protect against purposeful pornography use by engendering more conservative attitudes about pornography, while it protected against accidental pornography use through norms against pornography use. On the other hand, although teens with greater self-regulatory capacity tended to less frequently view pornography, self-regulation was not a significant mediator because of weak relations with religiosity. Future research should examine the extent to which these mediating mechanisms might also enable other individual and contextual factors to similarly protect against pornography use. For instance, adolescents do not necessarily need to be religious to have more conservative attitudes about pornography, or to perceive more conservative norms about pornography (even though our study showed that more religious teens to have more conservative attitudes and norms about pornography). Additionally, although self-regulation did not mediate relations between religiosity and pornography use in the present study, given that is was negatively related to pornography use, it may in fact be a mechanism by which other individual and contextual factors might protect against pornography use.

In terms of applied implications, perhaps more can be done in terms of public health promotion to convey the risks involved with pornography use. Further, the present findings might encourage religious leaders, school administrators, youth workers, and parents to do more to educate youth about the risks of pornography use, in an effort to minimize their exposure to pornography. Similarly, these individuals who work with youth might find ways to help foster

self-regulation, in order that adolescents might better avoid using pornography. By doing what we can to reduce purposeful and accidental exposure to pornography, we can enrich the development, well-being, and relationships of our youth.

References

Abell, J. W., Steenbergh, T. A., Boivin, M. J. (2006). Cyberporn use in the context of religiosity. *Journal of Psychology and Theology*, *34*(2), 165-171. Retrieved from http://findarticles.com/p/articles/mi_hb6566/is_2_34/ai_n29279992/

Bonino, S., Ciairano, S., Rabaglietti, E., & Cattelino, E. (2006). Use of pornography and self-reported engagement in sexual violence among adolescents. *European Journal of Developmental Psychology*, *3*(3), 265-288. doi:10.1080/1740620600562359

Bostwick, J. M., & Bucci, J. A. (2008). Internet sex addiction treated with naltrexone. *Mayo Clinic Proceedings*, *83*(2), 226-230. doi:10.4065/83.2.226

Brown, J. D., L'Engle, K. L. (2009). X-rated: sexual attitudes and behaviors associated with early U.S. adolescents' exposure to sexually explicit media. *Communication Research*, *36*(1), 129-151. doi:10.1177/0093650208326465

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York, NY: Guilford Press.

Capaldi, D. M., & Rothbart, M. K. (1992). Development and validation of an early adolescent temperament measure. *The Journal of Early Adolescence*, *12*(2), 153-173. doi:10.1177/0272431692012002002

Carroll, J. S, Padilla-Walker, L. M., Nelson, L. J., Olson, C. D., Barry, C. M., & Madsen, S. D. (2008). Generation XXX: pornography acceptance and use among emerging adults. *Journal of Adolescent Research*, *23*(1), 6-30. doi:10.1177/0743558407306348

Church, W. T., Wharton, T., & Taylor, J. K. (2009). An examination of differential association and social control theory: family systems and delinquency. *Youth Violence and Juvenile Justice*, *7*(1), 3-15. doi:10.1177/1541204008324910

Clarke, G. N., Lewinsohn, P. M., Hops, H., & Seeley, J. R. (1992) A self- and parent-report

    measure of adolescent depression: The Child Behavior Checklist Depression scale

    (CBCL-D). *Behavioral Assessment, 14,* 443-463.

Cooper, A. (1998). Sexuality and the internet: surfing into the new millennium.

    CyberPsychology & Behavior, *1*(2), 187-193. doi:10.1989/cpb.1998.1.187

Crockett, L. J., Bingham, C. R., Chopak, J. S., & Vicary, J. R. (1996). Timing of first sexual

    intercourse: the role of social control, social learning, and problem behavior. *Journal of*

    Youth and Adolescence, *25*(1), 89-111. doi:10.1007/BF01537382

Crockett, L. J., Raffaelli, M., & Shen, Y. (2006). Linking self-regulation and risk proneness to

    risky sexual behavior: pathways through peer pressure and early substance use. *Journal*

    of Research on Adolescence, *16*(4), 503-525. doi:10.1111/j.1532-7795.2006.00505.x

Durkheim, E. (1957). *The elementary forms of the religious life*. London, England: George Allen

    & Unwin Ltd.

Ellison, C. G., Boardman, J. D., Williams, D. R., & Jackson, J. S. (2001). Religious involvement,

    stress, and mental health: Findings from the 1995 Detroit Area Study. *Social Forces*

    80(1):215-249. doi:10.1353/sof.2001.0063

Erickson, J. A. (1992). Adolescent religious development and commitment: a structural equation

    model of the role of family, peer group, and educational influences. *Journal for the*

    Scientific Study of Religion, *31*(2), 131-152. doi:10.2307/1387004

Espinosa-Hernandez, G., & Lefkowitz, E. S. (2009). Sexual behaviors and attitudes and ethnic

    identity during college. *Journal of Sex Research*, *46*(5), 471-482.

    doi:10.1080/00224490902829616

Evans-DeCicco, J. A., & Cowan, G. (2001). Attitudes toward pornography and the

characteristics attributed to pornography actors. *Sex Roles*, *44*(5-6), 351-361.

doi:10.1023/A:1010985817751

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to

theory and research*. Reading, MA: Addison-Wesley.

Gailliot, M. T., & Baumeister, R. F. (2007). The physiology of willpower: linking blood glucose

to self-control. *Personality and Social Psychology Review*, *11*(4), 303-327.

doi:10.1177/1088868307303030

Greenfield, P. M. (2004). Inadvertent exposure to pornography on the internet: implications of

peer-to-peer file-sharing networks for child development and families. *Applied

Developmental Psychology*, *25*, 741-750. doi:10.1016/j.appdev.2004.09.009

Haney, J. M. (2006). Teenagers and pornography addiction: treating the silent epidemic. *Vistas;

compelling perspectives on counseling*, 49-52. Retrieved from

http://counselingoutfitters.com/vistas/vistas06.10.pdf

Hardy, S. A., & Carlo, G. (2005). Religiosity and prosocial behaviors in adolescence: The

mediating role of prosocial values. *Journal of Moral Education, 34*, 231-249.

Hardy, S. A., & Raffaelli, M. (2003). Adolescent religiosity and sexuality: an investigation of

reciprocal influences. *Journal of Adolescence*, *26*(6), 731-739.

doi:10.1016/j.adolescence.2003.09.003

Harris, S. K., Sherritt, L. R., Holder, D. W., Kulig, J., Shrier, L. A., & Knight, J. R. (2007).

Reliability and validity of the brief multidimensional measure of religiousness/spirituality

among adolescents. *Journal of Religion and Health*, *47*, 438-457. doi:10.1007/s10943-

007-9154-x

Hernandez, J. T., & DiClemente, R. J. (1992). Self-control and ego identity development as predictors of unprotected sex in late adolescent males. *Journal of Adolescence*, *15*(4), 437-447. doi:10.1016/0140-1971(92)90073-E

Hill, P. C., & Hood, R. W. Jr. (1999). *Measures of religiosity*. Birmingham, AL: Religious Education Press.

Jackson, L. A., Samona, R., Moomaw, J., Ramsay, L., Murray, C., Smith, A. & Murray, L. (2007). What children do on the internet: domains visited and their relationship to socio-demographic characteristics and academic performance. *Cyber Psychology & Behavior*, *10*(2), 182-190. doi:10.1089/cpb.2006.9970

Johnson, B. R., Jang, S. J., Li, S. D., & Larson, D. (2000). The 'invisible institution' and black youth crime: the church as an agency of local social control. *Journal of Youth and Adolescence*, *29*(4), 479-498. doi:10.1023/A:1005114610839

Kendler, K. S., & Myers, J. (2009). A developmental twin study of church attendance and alcohol and nicotine consumption: a model for analyzing the changing impact of genes and environment. *American Journal of Psychiatry*, *166,* 1150-1155. doi:10.1176/appi.ajp.2009.09020182

Kingston, D. A., Fedoroff, P., Firestone, P., Curry, S., & Bradford, J. M. (2008). Pornography use and sexual aggression: the impact of frequency and type of pornography use on recidivism among sexual offenders. *Aggressive Behavior*, *34*(4), 341-351. doi:10.1002/ab.20250

Koole, S. L., McCullough, M. E., Kuhl, J., & Roelofsma, P. H. M. P. (2010). Why religion's burdens are light: from religiosity to implicit self-regulation. *Personality and Social Psychology Review*, *14*(1), 95-107. doi:10.1177/1088868309351109

Krause, N. (2002). Church-based social support and health in old age: Exploring variations by

    race. *Journal of Gerontology: Social Sciences*, *57B*(*6*), S332–S347.

    doi:10.1093/geronb/57.6.S332

Lam, C. B., & Chan, D. K. S. (2007). The use of cyberpornography by young men in Hong

    Kong: some psychosocial correlates. *Archives of Sexual Behavior*, *36*(4), 588-598.

    doi:10.1007/s10508-006-9124-5

Lee, M. (Writer). (2009). Porn: business of pleasure [Television series episode]. In S. Cannold

    (Executive producer), *CNBC Originals*. Englewood Cliffs, NJ: CNBC Inc.

Malamuth, N. & Huppin, M. (2005). Pornography and teenagers: the importance of individual

    differences. *Adolescent Medicine Clinics*, *16*(2), 315-326. doi:

    10.1016/j.admecli.2005.02.004

Mason, W. A., & Spoth, R. L. (2011). Thrill seeking and religiosity in relation to adolescent

    substance use: tests of joint, interactive, and indirect influences. *Psychology of Addictive

    Behaviors*. Advance online publication. doi:10.1037/a0023793

McCullough, M. E., & Willoughby, B. L. B. (2009). Religion, self-regulation, and self-control:

    associations, explanations, and implications. *Psychological Bulletin*, *135*(1), 69-93.

    doi:10.1037/a0014213

Meier, A. M. (2003). Adolescents' transition to first intercourse, religiosity, and attitudes about

    sex. *Social Forces*, *81*(3), 1031-1052. doi:10.1016/j.adolescence.2003.09.003

Mesch, G. S. (2009). Social bonds and internet pornographic exposure among adolescents.

    Journal of Adolescence, *32*, 601-618. doi:10.1016/j.adolescence.2008.06.004

Mitchell, K. J., Finkelhor, D., & Wolak, J. (2003). The exposure of youth to unwanted sexual

    material on the internet: a national survey of risk, impact, and prevention. *Youth and*

    Society, *34*, 330-358. doi:10.1177/0044118X02250123

Mitchell, K. J., Wolak, J., & Finkelhor, D. (2007). Trends in youth reports of sexual solicitations,

    harassment, and unwanted exposure to pornography on the internet. *Journal of*

    Adolescent Health, *40*(2), 116-126. doi:10.1016/j.jadohealth.2006.05.021

Morrison, T. G., Ellis, S. R., Morrison, M. A., Bearden, A., & Harriman, R. L. (2006). Exposure

    to sexually explicit material and variations in body esteem, genital attitudes, and sexual

    esteem among a sample of Canadian men. *The Journal of Men's Studies*, *14*(2), 209-222.

    doi:10.3149/jms.1402.209

Mott, F. L., Fondell, M. M., Hu, P. N., Kowaleski-Jones, L., & Menaghan, E. G. (1996). The

    determinants of first sex by age 14 in a high-risk adolescent population. *Family Planning*

    Perspectives, *28*(1), 13-18. doi:10.1363/2801396

Murray, K. M., Ciarrocchi, J. W., & Murray-Swank, N. A. (2007). Spirituality, religiosity,

    shame, and guilt as predictors of sexual attitudes and experiences. *Journal of Psychology*

    and Theology, *35*(3), 222-234. Retrieved from

    http://findarticles.com/p/articles/mi_hbb6566/is_3_35/ai_n29385824

Neyrinck, B., Vansteenkiste, M., Lens, W., Duriez, B., & Hutsebaut, D. (2006). Cognitive,

    affective and behavioral correlates of internalization of regulations for religious activities.

    Motivation and Emotion, *30*, 323-334. doi:10.1007/s11031-006-9048-3

Peter, J., & Valkenburg, P. M. (2006a). Adolescents' exposure to sexually explicit material on

    the internet. *Communication Research*, *33*, 178-204. doi:10.1177/0093650205285369

Peter, J., & Valkenburg, P. M. (2006b). Adolescents' exposure to sexually explicit online

    material and recreational attitudes toward sex. *Journal of Communication*, 56, 639-660.

    doi: 10.1111/j.1460-2466.2006.00313.x

Regnerus, M. D. (2003). Moral communities and adolescent delinquency: Religious contexts and

    community social control. *The Sociological Quarterly, 44,* 523-554.   doi:10.1111/j.1533-

    8525.2003.tb00524.x

Regnerus, M. D. (2007). *Forbidden fruit: Sex and religion in the lives of American teenagers*.

    New York, NY: Oxford University Press.

Richard, M. A. (2003). Cyberspace: issues and challenges for EAP providers. *Employee*

    Assistance Quarterly, *19*(2), 51-60. doi:10.1300/J022v19n02_04

Rostosky, S. S., Wilcox, B. L., Wright, M. L. C., & Randall, B. A. (2004). The impact of

    religiosity on adolescent sexual behavior: a review of the evidence. *Journal of Adolescent*

    Research, *19*(6), 677-697. doi:10.1177/0743558403260019

Simmons, C. A., Lehmann, P., & Collier-Tenison, S. (2008). Linking male use of the sex

    industry to controlling behaviors in violent relationships: an exploratory analysis.

    Violence Against Women, *14*(4), 406-417. doi:10.1177/1077801208315066

Sinha, J. W., Cnaan, R. A., & Gelles, R. J. (2007). Adolescent risk behaviors and religion:

    findings from a national study. *Journal of Adolescence*, *30*(2), 231-249. doi:

    10.1016/j.adolescence.2006.02.005

Skoog, T., Stattin, H., & Kerr, M. (2009). The role of pubertal timing in what adolescent boys do

    online. *Journal of Research on Adolescence*, *19*(1), 1-7. doi:10.1111/j.1532-

    7795.2009.00578.x

Smith, C., & Denton, M. L. (2005). *Soul searching: The religious and spiritual lives of American teenagers.* New York: Oxford University Press.

Stack, S., Wasserman, I., & Kern, R. (2004). Adult social bonds and use of internet pornography. *Social Science Quarterly*, *85*(1), 75-88. doi:10.1111/j.0038-4941.2004.08501006.x

Sussman, S. (2007). Sexual addiction among teens: a review. *Sexual Addiction and Compulsivity*, *14*, 257-278. doi:10.1080/10720160701480758

Uecker, J. E. (2008). Religion, pledging, and the premarital sexual behavior of married young adults. *Journal of Marriage and Family*, *70*(3), 738-744. doi:10.1111/j.1741-3737.2008.00517.x

Wallmyr, G., & Welin, C. (2006). Young people, pornography, and sexuality: sources and attitudes. *The Journal of School Nursing*, *22*(5), 290-295. doi:10.1177/10598405060220050801

Whitehead, B. D, Wilcox, L. B., Rostosky, S. S., Randall, B. A., & Wright, M. L. C. (2001). *Keeping the faith: The role of religion and faith communities in preventing teen pregnancy*. Washington, DC: National Campaign to Prevent Teen Pregnancy.

Zhao, X., & Cai, X. (2008). From self-enhancement to supporting censorship: The third-person effect process in the case of internet pornography. *Mass Communication and Society*, *11*(4), 437-462. doi:10.1080/15205430802071258

Zimmer-Gembeck, M. J., & Helfand, M. (2008). Ten years of longitudinal research on U.S. adolescent sexual behavior: developmental correlates of sexual intercourse, and the importance of age, gender, and ethnic background. *Developmental Review*, *28*(2), 153-224. doi:10.1016/j.dr.2007.06.001

Table 1

Descriptive Statistics for Predictors, Mediators, and Outcomes

Variable	Male		Female		α	Range		Skewness
	M	*SD*	*M*	*SD*		Potential	Actual	
Predictor								
Religious Internalization	4.46	4.58	5.15	4.30	.93	-15-15	-10-14.5	-.51
Religious Involvement	3.47	1.54	3.77	1.56	.90	1-8	1.0-8.0	.27
Religious Salience	4.66	1.53	4.91	1.57	.94	1-7	1.0-7.0	-.26
Mediator								
Self-regulation	3.36	.61	3.49	.66	.80	1-5	1.5-5.0	.02
Pornography Attitudes	3.30	.80	3.68	.69	.92	1-5	1.1-5.0	-.02
Social Control	3.97	.69	4.48	.51	.90	1-5	2.0-5.0	-.78
Outcome								
Purposeful Exposure	5.98	8.45	1.00	2.97	.85	0-36	0.0-36.0	2.12
Accidental Exposure	6.30	6.92	3.14	4.14	.83	0-36	0.0-32.0	1.82

Note. While the total number of participants was 419, only 158 males and 136 females specified their gender. The number of participants used while calculating the reliabilities ranged from 277-385.

Table 2

Bivariate Correlations for the Predictors, Mediators, and Outcomes

Variable	Religious Internalization	Religious Involvement	Religious Salience	Self-regulation	Pornography Attitudes	Social Control	Purposeful Exposure	Accidental Exposure
Religious Internalization	1							
Religious Involvement	.25**	1						
Religious Salience	.38**	.70**	1					
Self-regulation	.24**	.24**	.25**	1				
Pornography Attitudes	.28**	.43**	.50**	.28**	1			
Social Control	.26**	.41**	.37**	.21**	.65**	1		
Purposeful Exposure	-.20**	-.24**	-.29**	-.27**	-.52**	-.55**	1	
Accidental Exposure	-.12*	-.18**	-.22**	-.25**	-.34**	-.44**	.56**	1

Note. Range of ns are 314-356.

*significant at *p* < .05; **significant at *p* < .01

Table 3

Standardized Coefficients for Indirect Paths in the Indirect-Only Model (Maximum Likelihood Estimation)

Predictors	Outcomes	
Mediators	On Purpose	Accidental
Internalization		
Self-regulation	-0.02*	-0.03*
Attitudes	-0.03*	-0.01
Social Control	-0.04*	-0.04*
Involvement		
Self-regulation	-0.02	-0.02
Attitudes	-0.04*	-0.01
Social Control	-0.07**	-0.08**
Salience		
Self-regulation	-0.01	-0.02
Attitudes	-0.08**	-0.02
Social Control	-0.04	-0.05

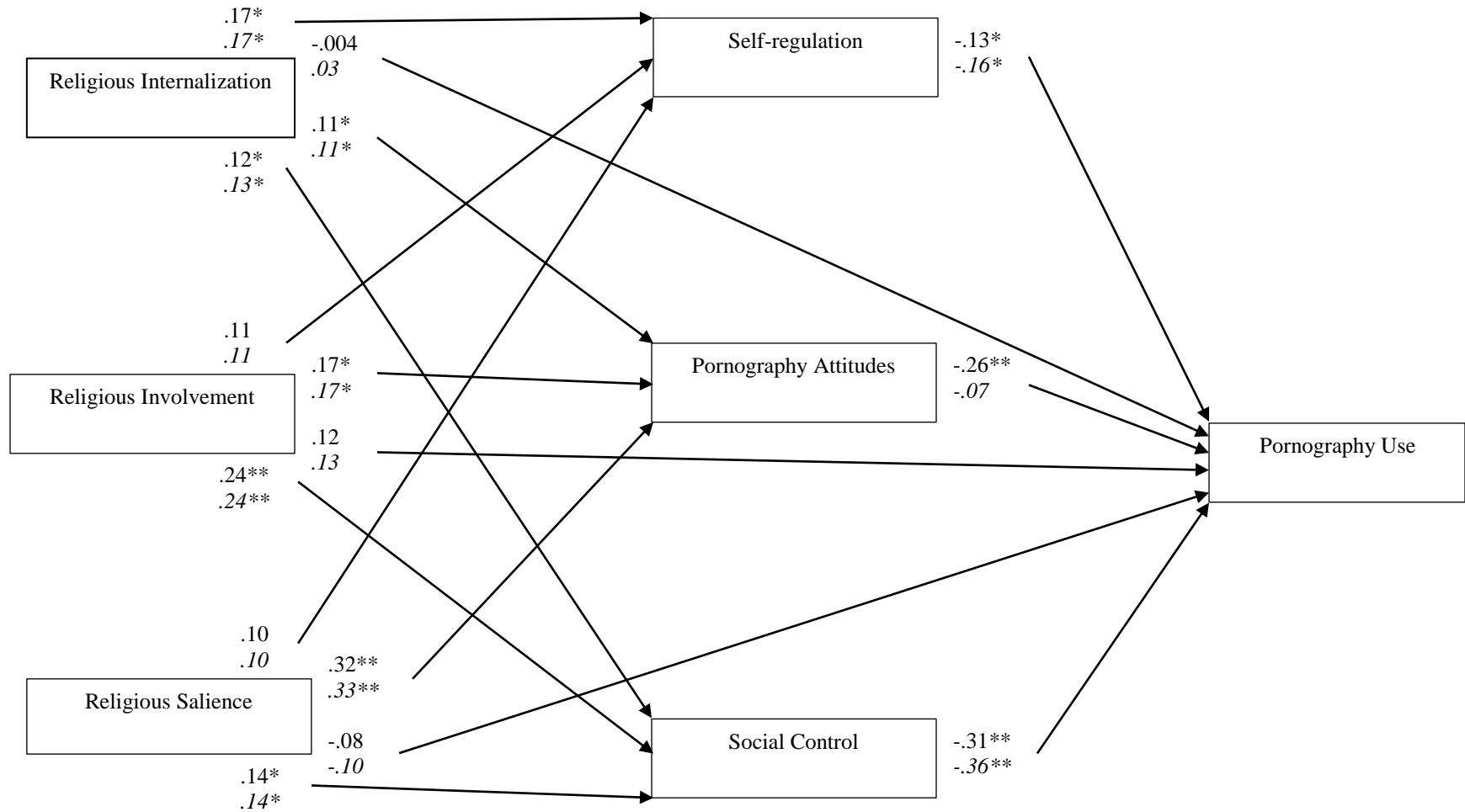*significant at $p < .05$; **significant at $p < .001$

Figure 1. Standardized Coefficients for the Direct-Indirect Model (Maximum Likelihood Estimation).
Purposeful Exposure; *Accidental Exposure*. * - significant at p = .05 or better, ** - significant at p = .001 or better.
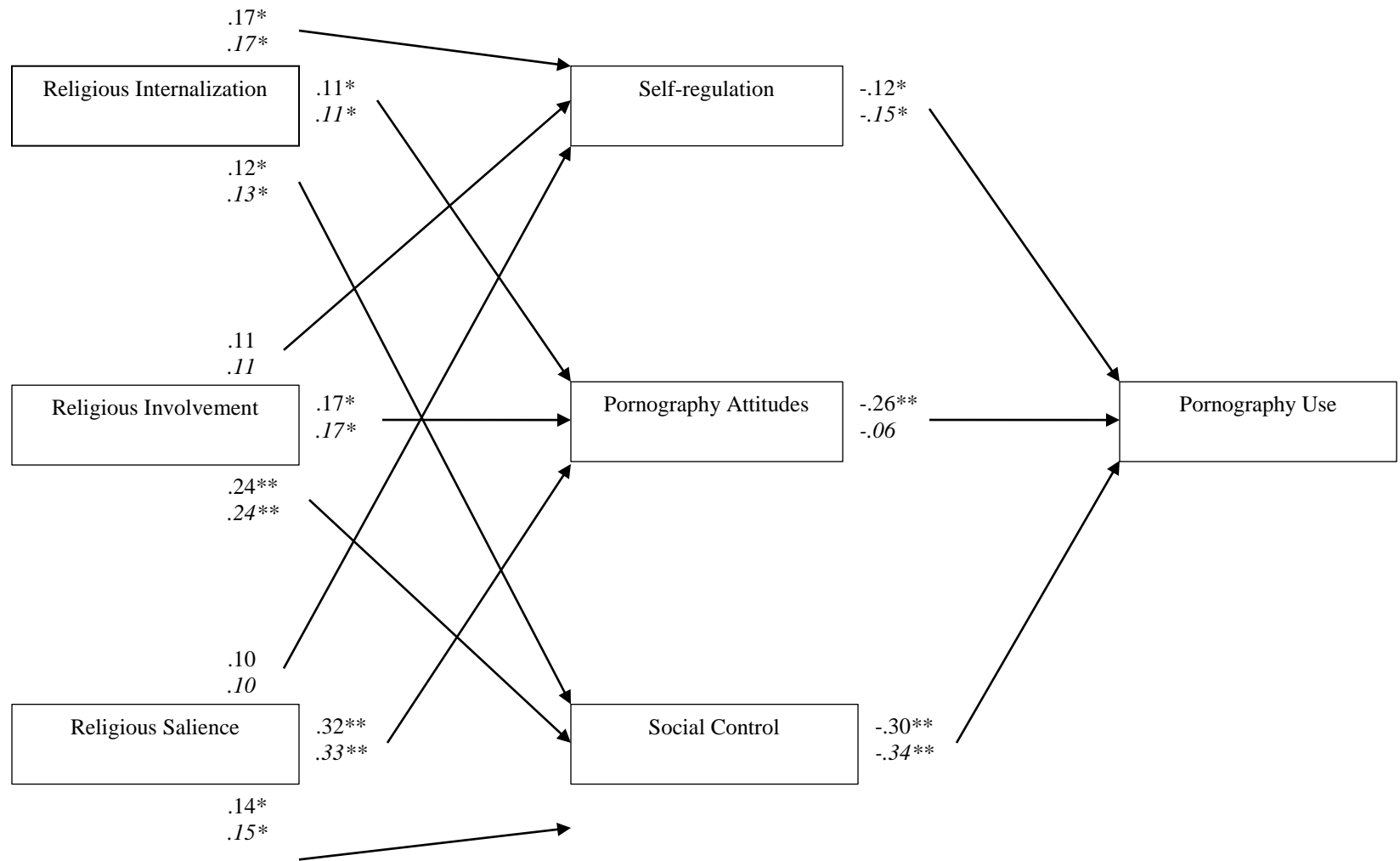
Figure 2. Standardized Coefficients for the Indirect-Only Model (Maximum Likelihood Estimation).
Purposeful Exposure; *Accidental Exposure*. * - significant at p = .05 or better, ** - significant at p = .001 or better.
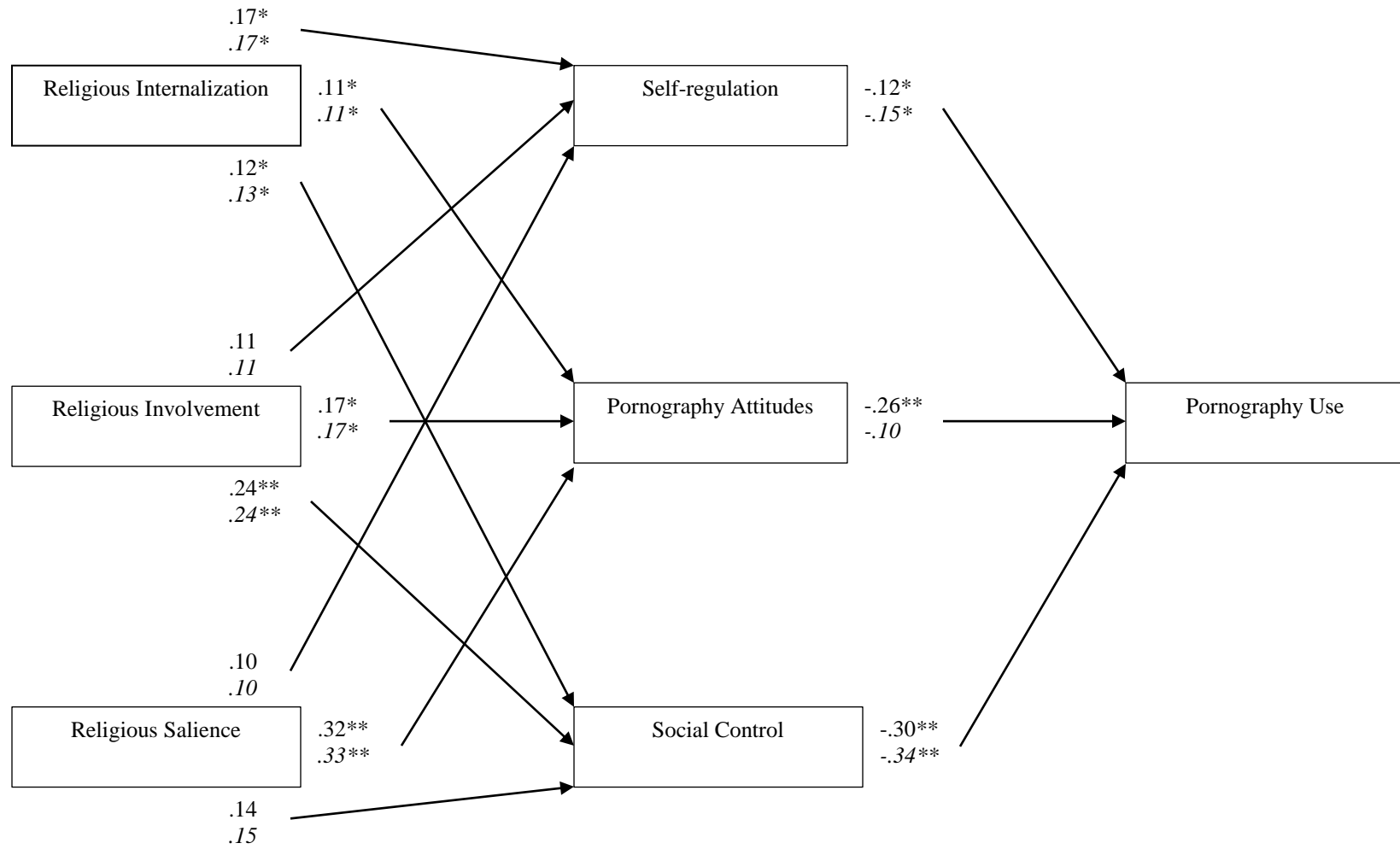
Figure 3. Standardized Coefficients for the Indirect-Only Model (Maximum Likelihood Robust Estimation). Purposeful Exposure; *Accidental Exposure*. * - significant at p = .05 or better, ** - significant at p = .001 or better.

Appendix

Religious Internalization

Obviously, religious people perform religious activities. For example, you can celebrate eucharist, you can pray personally, you can attend readings about some religious theme, etcetera. For you personally, what is your most important religious activity in which your attitude towards religious belief is particularly expressed?

……………………………………………………………………………………………

WHY DO YOU PERFORM THIS RELIGIOUS ACTIVITY?

Please indicate your level of agreement with each statement by placing one of the numbers with the following meaning:

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

Intrinsic Motivation

Because I like it.

Because I find it fun.

Because I find it pleasant.

Because I enjoy it.

Integrated Regulation

Because it connects well with what I want in life.

Because it is in harmony with my way of life.

Because it corresponds well with how I approach other things in life.

Because it is in accordance with my vision of life.

Identified Regulation

Because it is a meaningful activity to me.

Because I find it personally important.

Because I find it a personally valuable attitude.

Because I fully endorse it.

Introjected-Approach Regulation

Because I feel better about myself when I do this.

Because then I feel better.

Because I can only be satisfied with myself when I do this.

Because I can only feel good about myself when I do this.

Introjected-Avoidance Regulation

Because I would feel like a failure if I didn't do it.

Because I would feel ashamed if I didn't do it.

Because I would feel guilty if I don't.

Because I would feel bad if I don't.

External-Approach Regulation

Because then I get acknowledgement from others.

To please others who force me to do it.

Others only appreciate me when I do this.

Because then I get approval from others.

External-Avoidance Regulation

Others would get mad at me if I didn't do it.

Others would criticize me if I didn't do it.

Others would be disappointed in me if I didn't do it.

Others would have negative comments on me if I didn't do it.

A-Motivation

 I wonder what's the use of this.

The reasons why I do this are not that clear to me anymore.

In fact I do not really know why I perform this behavior.

I ask myself why I do this.

Religious Salience

from 16-item Religious Beliefs and Commitment Scale

1. My faith shapes how I think and act every day.

2. My faith helps me know right from wrong.

3. I try to apply my faith to political and social issues.

4. My life is committed to God.

Religious involvement

From BMMR

1 - Several times a day

2 - Once a day

3 - A few times a week

4 - Once a week

5 - A few times a month

6 - Once a month

7 - Less than once a month

8 - Never

1. How often do you pray privately in places other than at church or synagogue?

2. How often do you watch or listen to religious programs on TV or radio?

3. How often do you read the Bible or other religious literature?

Other items

4. How often do you attend Sunday school, Bible study, or other religious study groups?

5. How often do you attend religious worship services?

6. How often do you attend religious youth activities (outside of religious study groups or worship services)?

Social Control

Subjective Norms Pornography Scale

1. How do you think your mother would feel about you using pornography?

2. How do you think your father would feel about you using pornography?

3. How do you think your sibling (or siblings) would feel about you using pornography?

4. How do you think your best friend would feel about you using pornography?

5. How do you think your other teens at your school would feel about you using pornography?

6. How do you think your religious leaders would feel about you using pornography?

7. How do you think your religion would feel about you using pornography?

8. How do you think God would feel about you using pornography?

1 – Strongly approve

2 – Approve

3 – Neither approve nor disapprove

4 - Disapprove

5 – Strongly disapprove

    does not apply

Self-regulation

      On the following page you will find a series of statements that people might use to describe themselves. For each statement, please circle the answer that best describes how true each statement is **<u>for you</u>**. There are no best answers. People are very different in how they feel about these statements.

You will use the following scale to describe how true or false a statement is about you:

<u>Circle number:</u>	<u>If the statement is:</u>
1	Almost always untrue of you
2	Usually untrue of you
3	Sometimes true, sometimes untrue of you
4	Usually true of you
5	Almost always true of you

1. I have a hard time finishing things on time.

2. I do something fun for a while before starting my homework, even when I'm not supposed to.

3. If I have a hard assignment to do, I get started right away.

4. I finish my homework before the due date.

5. I put off working on projects until right before they're due.

6. It's hard for me not to open presents before I'm supposed to.

7. When someone tells me to stop doing something, it is easy for me to stop.

8. The more I try to stop myself from doing something I shouldn't, the more likely I am to do it.

9. It's easy for me to keep a secret.

10. I can stick with my plans and goals.

Pornography Attitudes

These questions should be measured on a 5 point Likert scale looking at levels of agreement.

1. There is too much sex on television. (taken from # 23 of Espinosa-Hernandez and Lefkowitz, 2009)

2. Movies today are too sexually explicit. (taken from #24 of Espinoza-Hernandez and Lefkowitz, 2009)

3. Pornography degrades women. (taken from #2 of Evans-DeCicco and Cowan's, 2001)

4. Pornography degrades men. (taken from #10 of Evans-DeCicco and Cowan's, 2001)

5. Pornography increases violence towards women. (taken from #6 of Evans-DeCicco and Cowan's, 2001)

6. Pornography is harmful to romantic relationships. (adapted from #8 of Evans-DeCicco and Cowan's, 2001)

7. Pornography gives false expectations about the opposite sex. (adapted from #3 & #13 of Evans-DeCicco and Cowan's, 2001)

8. Pornography leads to sexual addiction. (taken from #4 of Evans-DeCicco and Cowan's, 2001)

9. Pornography destroys families. (adapted from #12 of Evans-DeCicco and Cowan's, 2001)

10. (R)* Pornography is a harmless activity. (taken from #9 of Evans-DeCicco and Cowan's, 2001)

11. (R)* Pornography is educational. (taken from #5 of Evans-DeCicco and Cowan's, 2001)

12. (R)* Pornography is a healthy way to express one's sexuality. (adapted from #7 of Evans-DeCicco and Cowan's, 2001)

* (R) indicates reverse scoring

Pornography Use

The following items are about pornography use. For purposes of this survey, "pornography" is

defined as images or videos of people naked or having sex which are intended to cause sexual

arousal (this might exclude many documentaries and art pieces).

Please indicate whether you HAVE or HAVE NOT done the following UNEXPECTEDLY (not

intentionally):

1. Unexpectedly viewed pornography while checking email, instant messaging, or other

   forms of online communication.

2. Unexpectedly viewed pornography that had been downloaded onto the computer.

3. Unexpectedly viewed pornographic movies or television shows.

4. Unexpectedly viewed pornography while searching the internet.

5. Unexpectedly viewed pornography while using a cell phone.

6. Unexpectedly viewed pornographic books or magazines.

Please indicate whether you HAVE or HAVE NOT done the following ON PURPOSE

(intentionally):

1. On purpose, used a cell phone to view pornography.

2. On purpose, viewed pornographic books or magazines.

3. On purpose, viewed pornography while checking email, instant messaging, or other

   forms of online communication.

4. On purpose, viewed pornographic movies or television shows.

5. On purpose, viewed pornography on the internet.

6. On purpose, viewed pornography that had been downloaded onto the computer.

For those questions where the answer is yes, participants will be asked: "In the past 6 months, how often have you unexpectedly/on purpose viewed pornography" using whichever method the question asked about.

The following scale will be used:

1 = not at all

2 = a few times

3 = once a month

4 = a few times a month

5 = once a week

6 = a few times a week

7 = once a day

8 = a few times a day

9 = several time a day