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Religiosity Reduces Sexual Aggression and Coercion in a Longitudinal Cohort of College Men: Mediating Roles of Peer Norms, Promiscuity, and Pornography

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Abstract

Extensive literature suggests that religiosity is a protective factor in reducing a number of deviant behaviors, including sexual aggression. Whereas previous research focused on the role of risky alcohol consumption in mediating the relationship between religiosity and sexual aggression, this study explores the hypothesized mediational paths from religiosity to sexual aggression and technology-based coercive behavior through peer norms, pornography consumption, and promiscuity. Findings from a four-year longitudinal study of male college students suggest that peer norms and promiscuity mediate the relationship between religiosity and both outcome measures, while pornography consumption mediates the relationship between religiosity and technology-based coercive behavior. These findings may inform ongoing practice and future research into possible mechanisms by which problematic sexual behaviors may be influenced.

Keywords

religiosity; sexual aggression; technology-based coercive behavior; peer norms; pornography; promiscuity

Introduction

Sexual aggression is a persistent issue of serious concern across the United States (Banyard et al. 2007; Fisher, Cullen, and Turner 2000; Gross et al. 2006; Koss, Gidycz, and Wisniewski 1987). National data indicate that women's first experiences with sexual aggression often occur when they are 18–24 years of age (Black et al. 2011). Although sexual aggression is a concern for young adults regardless of their college enrollment status, recent national attention has focused on sexual violence on college campuses (White House Task Force to Protect Students from Sexual Assault 2014). The federally-funded Campus

Climate Survey (Krebs et al. 2016) revealed that 10% of females had experienced a sexual assault during the academic year, with 4% experiencing completed rape. A further 20% had experienced a sexual assault at some point during college. As such, sexual aggression on college campuses continues to warrant deep concern.

Similarly, in an era of unprecedented technological advancements, the role of technology-based coercive behavior also warrants further research in relation to sexual aggression on campuses. Early studies suggested one-eighth (Wolak, Mitchell, and Finkelhor 2006) to one-fifth (Finkelhor, Mitchell, and Wolak 2000) of minors reported unwanted online sexual solicitation in the previous year. A 2008 study (National Campaign to Prevent Teen and Unplanned Pregnancy) found that 59% of 20–26-year-olds reported having sent sexually suggestive text messages or posted such content in social media, and in a 2012 study, 5.9% of teen survey respondents reported receiving unwanted sexually explicit images (Mitchell, Finkelhor, Jones, and Wolak). Of that latter group, 22% perceived the purpose of such photos as coercive, threatening, or an attempt to start a relationship or get noticed (Mitchell, Finkelhor, Jones, and Wolak 2012).

Religiosity may be a protective factor both against sexual aggression (SA) and technology-based coercive behavior (TBC). In this study, SA is understood as attempted or completed acts of non-consensual sexual contact as interpreted through the perpetrator version of the revised Sexual Experiences Survey (SES; Koss et al. 2007). TBC is understood as attempts to persuade someone to discuss, share, or do something sexual online against his or her will (Thompson and Morrison, 2013).

Smith's (2003) account of religious influence in adolescent lives provides a theoretical framework to suggest that religiosity is a rich and complex factor that may operate through mediators of social networks, role models, and lived experience. Smith (2003) theorized that the moral order, role models, intergenerational social capital, and closed networks, among other dimensions of religious communities, likely work together to affect many of the outcomes of religiosity.

In the present study, these elements of religiosity may reduce propensities to associate with peers who support SA. Furthermore, social control or social bond theory (e.g. Hirschi 1977; Schroeder 2016) would imply that regular involvement in religious activities and communities may expose participants to religious messages that reinforce the importance of healthy sexual practices that discourage promiscuity, pornography, and affiliation with peers who adhere to deviant behaviors. Indeed, previous research suggests that religious participation influences moral attitudes toward sexuality, even among members of less conservative denominations (Hertel and Hughes 1987; Sherkat and Ellison 1997), and that religious attendance is inversely associated with domestic violence (Ellison and Anderson 2001). Participation in religious services measured by attendance likely facilitates regular contact with adherents, which could enable behavioral monitoring, detection of counter-normative behavior, and possible social sanctions (Sherkat and Wilson 1995). As such, attendance fosters compliance to religious beliefs and practices.

Research suggests that religiosity may impact SA or TBC through the role of other factors that it promotes. Kingree, Thompson, and Ruetz (2015) found that religiosity was associated with lower levels of high-risk drinking, and that lower risky drinking accounted for the association between religiosity and SA. The finding by Thompson and Morrison (2013) that higher levels of religiosity were significantly associated with lower TBC—although that association was attenuated in a multivariate analysis that controlled for other predictors of TBC—suggests that other, unexplored mediators of the association between religiosity and TBC may exist. More broadly, the three hypothesized mediators of peer norms, pornography consumption, and promiscuity do not appear to have been explored as mediators of religiosity on SA or TBC, and are thus examined in this study.

The theoretical underpinnings of this study expand upon Smith's (2003) theory that religiosity impacts behavior in complex ways. That complexity can be untangled to some degree with help from three other theories explaining behavior related to SA and which can be extended to TBC, including Male Peer Support theory (MPS [DeKeseredy 1990; DeKeseredy and Kelly 1995; DeKeseredy and Schwartz 1993; 2013; 2016; Schwartz and DeKeseredy 1997]), script theory (Huesmann 2007; Wright 2011), and the sexual promiscuity dimension of the Confluence Model (Malamuth, Addison, and Koss 2000; Malamuth, Heavey, and Linz 1996; Malamuth et al. 1995; Malamuth et al. 1991).

DeKeseredy and colleagues (DeKeseredy 1990; DeKeseredy and Kelly 1995; DeKeseredy and Schwartz 1993; 2013; 2016; Schwartz and DeKeseredy, 1997) have presented MPS in many variations, yet the core element relevant to this study is that male peer groups may encourage and support peer group members to engage in violence against women as a way to uphold the purported values of that peer group. Smith's (2003) theory of religious effects includes the moral order that young people learn in religious communities and the closed social networks they may develop in such communities. Just as MPS groups may provide normative standards encouraging sexual prowess and male dominance, even violence, the male peer groups in religious communities also provide a set of normative standards to guide behavior and examples of role models for such behavior. Furthermore, Smith's (2003) theory, much like social bond theory (Schroeder, 2016), emphasizes the role of social capital and dense networks in providing members of religious communities with many contacts who will keep them accountable, invest in their spiritual development, and, of particular importance, may encourage them to avoid social networks that esteem behaviors contrary to those of the religious community, such as male peer groups who might encourage SA or TBC. In synthesizing theory from Smith's (2003) theory of religious effects and DeKeseredy and colleagues' MPS theories (DeKeseredy 1990; DeKeseredy and Kelly 1995; DeKeseredy and Schwartz 1993; 2013; 2016; Schwartz and DeKeseredy, 1997), the current study proposes that attendance in religious services will discourage men from involvement in peer groups supportive of SA or TBC and thus one of the hypothesized pathways from religiosity to SA and TBC is through peer norms (PN).

This theorized path from religiosity to SA and TBC is also derived from empirical evidence. Peer norms appear to be impacted by religiosity (Adamczyk 2009; Mott et al. 1996). In turn, peer norms have been found in some instances to predict greater willingness to intervene to stop SA (Banyard, Moynihan, and Plante 2007; Brown, Banyard, and Moynihan 2014), and

although such effects may not persist in the long term, peer norm interventions may reduce personal positive reinforcement of SA behavior, association with those who approved of SA, and increase the assumption that other peers would intervene to stop SA (Gidycz, Orchowski, and Berkowitz 2011). Perceptions of peer approval of forced sex have been found to be associated with increased rates of SA perpetration (Thompson, Kingree, Zinzow, and Swartout 2015) and peer norms have been found to mediate the effects of peer pressure for sex, heavy drinking, and negative childhood experiences on SA (Thompson et al. 2011).

Although the association between peer norms and SA may be bi-directional, with peer norms impacting sexual behavior and sexual behavior impacting selection into peer groups (Adamczyk 2009; Thompson, Swartout, and Koss 2013), research by Kingree and Thompson (2013) found evidence in a longitudinal study that peer groups influenced attitudes and behavior that in turn predicted sexual aggression. Swartout (2013) further found that the density of peer networks was significant and that individuals in dense peer networks that rejected SA were least likely to perpetrate SA. Given the empirical and theoretical literature, it is hypothesized that peer norms may mediate the association between religiosity and SA.

Likewise, peer norms have been shown to predict TBC. Thompson and Morrison (2013) found that peer approval of forced sex positively predicted TBC. Congruent with this finding, a technology-enabled intervention was found to impact aspects of sexual behavior (Bull et al. 2012) and references to sex in social media (Moreno et al. 2009) among respondents, suggesting that even modest changes in perceived norms may impact sexual behavior or communication. Furthermore, given the theory linking MPS to sexual aggression (DeKeseredy and Schwartz, 2013) and to the coercive behavior of revenge porn (DeKeseredy and Schwartz, 2016), it is likely that MPS will support other coercive behaviors. As such, it is hypothesized that peer norms will mediate the relationship between religiosity and TBC.

Pornography consumption is another possible mediator of religiosity on SA and TBC. Theory for such a pathway is derived from Smith's (2003) theory of religious effects and Huesmann's (2007) and Wright's (2011) script theories of violence and pornography. Smith (2003) theorized that effects of religiosity follow paths through moral order and role models. Traditional religious moral codes typically discourage lust—looking at or fantasizing about someone who is not one's legitimate spouse for purposes of sexual arousal—and by discouraging lust, would also discourage pornography consumption. Furthermore, religious communities provide participants with role models of those who have kept such moral codes and teach their members the good that can result from following those moral codes. Drawing from Smith's (2003) theory, we theorize that those with greater attendance in religious services would thus be less likely to consume pornography.

Huesmann's (2007) and Wright's (2011) script theories suggest that those who consume violent or sexually explicit media learn the value systems and behavior explicitly or implicitly portrayed in such media. Pornography would thus script a certain set of values and behavior in its consumers. As pornography may involve coercion or violence (DeKeseredy and Schwartz, 2016), we extend this theory to suggest that religious attendance is inversely

related to pornography consumption, but that pornography consumption is positively related to SA. Likewise, as much pornographic material is available online (Edelman 2009), consumers of pornography may train themselves to satisfy their sexual urges online and may thus engage in TBC towards that goal. While MPS and sexual promiscuity may also be related to pornography consumption and its impact on SA and or TBC (e.g. DeKeseredy and Schwartz 2013, 2016; Vega and Malamuth 2007), those additional interactions are not addressed in the current study.

This synthesized theoretical framework from Smith (2003), Huesmann (2007), and Wright (2011) suggesting a pathway from religiosity through pornography to SA may also be inferred from empirical literature. Increased religiosity does appear to predict lower rates of pornography consumption (Baltazar et al. 2010; Wright 2013). In turn, although direct causal links between pornography consumption and SA are disputed (e.g. Baer, Kohut, and Fisher 2015), the “weight of the evidence” (Wright, Tokunaga, and Kraus 2016) suggests that pornography consumption does predict SA (see also Malamuth, Addison, and Koss 2000). Although literature is less developed regarding the link between pornography consumption and TBC, there is some evidence that such a link may exist (Jonsson et al. 2014; Thompson and Morrison 2013).

Promiscuity is theorized to be a third mediating pathway from religiosity to SA and TBC. Drawing on Smith’s (2003) theory of complex social interactions in religious communities and the admonitions for monogamy and fidelity in traditional religions, we theorize that increased participation in religious communities will provide the instruction, models, and shared accountability to discourage promiscuity. As such, religiosity will vary inversely with promiscuity. Furthermore, drawing on the theorized link between promiscuity and SA in the Confluence Model explaining violence against women (Malamuth, Addison, and Koss 2000; Malamuth, Heavey, and Linz 1996; Malamuth et al. 1995; Malamuth et al. 1991), we theorize that increased promiscuity will predict increased SA insofar as greater promiscuity is thought to involve less emotional intimacy in sexual relations and the habituation of sexual encounters without emotional intimacy may facilitate SA. Likewise, we expand upon the link between promiscuity and SA to theorize that promiscuity will also predict TBC, insofar as the habituation of sexual experiences without emotional intimacy may extend to seeking such encounters through online media.

The theorized links between religiosity through promiscuity to SA and TBC finds some empirical support in literature, although the support is tenuous in regards to TBC. Religiosity has been found to negatively predict sexual permissiveness or permissive attitudes (Simons, Burt, and Peterson 2009; Wright 2015), likely because major world religions prohibit premarital or extramarital sex (Adamczyk 2009). Religiosity also predicts later initiation into sexual behavior (Collins et al. 2004; Nonemaker, McNeely, and Blum 2003), and a reduced number of sexual partners (Victor, Miles, and Vaisey 2015), although effects may depend upon having friends who also attend religious services (Mott et al. 1996), depend more upon attendance than other measures of religiosity (Atkins and Kessel 2008), or vary by religion (Mandzik and Young 2013). In turn, promiscuity has been found to predict SA (Baer, Kohut, and Fisher 2015; Malamuth, Addison, and Koss 2000;

Malamuth, Heavey, and Linz 1996). Although the literature on links between promiscuity and TBC is sparse, some evidence suggests such a link (Thompson and Morrison 2013).

In light of the synthesized theory and empirical evidence in literature, this study tested two hypotheses on the mediational roles of peer norms, pornography consumption, and promiscuity in linking religiosity to SA and TBC, respectively:

H1: Peer norms, pornography consumption, and promiscuity will account for the association of religiosity and sexual aggression.

H2: Peer norms, pornography consumption, and promiscuity will account for the association of religiosity and technology-based coercive behavior.

Method

Sample and procedures

The study sample consisted of 795 men at a large public university in the southeastern United States. This sample was taken from an initial population of 1,472 first-year male students. University institutional review board approval and a Certificate of Confidentiality from the National Institutes of Health were obtained before data collection. First-year males were invited to come to the student health center to complete confidential, brief, self-report surveys on men's attitudes and behaviors regarding relationships with women. Surveys were conducted in the spring of 2008 at the end of males' first year in college, and again at the end of their second, third, and fourth years of college. Of the initial respondents in Wave 1, 509 completed both Wave 3 and Wave 4.

Of the analytic sample, participants' average age was 18.58 years at Wave 1 and 90% were white. The sample was representative of the population of first-year male students in terms of age and race based on data provided from the Office of Institutional Research. Attrition analyses indicated that the 286 males in the initial sample who did not complete both Wave 3 and Wave 4 surveys had significantly lower mean religiosity scores ($t = -2.36, p = .02$) and that 284 males who responded to measures of promiscuity at Wave 1 but not in both Wave 3 and Wave 4 were significantly more promiscuous at Wave 1 ($t = 3.19, p = .001$). However, no other study variables were associated with attrition between the original 795 and the later 509 study sample.

Measures

Predictor variable

Religiosity: Religiosity was measured as the mean of three items measuring frequency of church attendance before coming to college, frequency of church attendance in the first year of college, and participation in religious groups on campus during the first year of college (e.g. "In general, how often have you attended religious services or participated in religious activities since coming to [university name]?" with response options: "Never"; "Rarely"; "Once a month"; "Twice a month"; "Once a week"; "More than once a week"). The individual items were z-scored and then the mean of the three items was used to create the religiosity scale ($\alpha = .80$).

Mediators

Peer norms: Peer norms supportive of forced sex were assessed with the mean of six items at Wave 3 measuring peer approval of and pressure for using alcohol, deception, or force to obtain sex (e.g. “To what extent would your *current set* of friends approve of: Forcing a woman to have sex” with four response options: “Not at all”; “A little bit”; “A good bit”; “A lot”). The scale showed adequate internal reliability ($\alpha = .76$).

Pornography consumption: Pornography consumption was measured with a single item in Wave 3 asking respondents how many hours a week they looked at sexually explicit material in magazines or on the internet (“*In the past year*, about how many hours per week have you looked at sexually explicit material in magazines or on the internet?” with seven response options: “None”; “< 1 hr”; “1–2 hrs”; “3–4 hrs”; “5–6 hrs”; “7–8 hrs”; “more than 8 hrs”).

Promiscuity: Promiscuity was assessed at Wave 3 as the mean number of people with whom respondents reported having had vaginal, anal, or oral sex since the age of 14 (e.g. “How many people have you had vaginal or anal sex with since the age of 14?”).

Outcomes

SA: The revised SES (Koss et al. 2007) was used to assess for SA at Wave 4 (during the senior academic year). The SES is the most widely used measure of both victimization and perpetration among college students and has shown good psychometric properties (Koss, Gidycz, and Wisniewski 1987; Koss and Gidycz, 1985; Koss and Oros, 1982). We used the version that assessed perpetration. An advantage of the SES is its use of behaviorally specific questions that help to combat the potential for underreporting SA (Crowell and Burgess 1996; Fisher and Cullen 2000). The 35-item scale includes seven behaviorally specific questions, and within each question, five items assessing strategies for engaging in that behavior. Five items assess for unwanted sexual contact, 12 items assess for sexual coercion, 9 items assess for attempted rape, and 9 items assess for completed rape. Items had a 4-point response format assessing frequency of involvement in sexually aggressive acts, (e.g. “I had oral sex with a woman or had a woman perform oral sex on me without her consent by: [...] c. Taking advantage when she was too drunk or out of it to stop what was happening[;] d. Threatening to physically harm her or someone close to her [...]”) with options ranging from (0) none to (3) 3 or more times. We used a scoring method that accounted for both the severity and frequency of SA, with higher scores reflecting more severe and frequent SA (Thompson, Swartout, and Koss 2013).

Technology-based coercion (TBC): TBC was measured as the sum of three items measuring technology-based sexually coercive behaviors at Wave 4. These questions asked how frequently in the last year the respondent had asked a person to talk about sex, share sexual information, or do something sexual online when the person “did not want to” (e.g. “In the last 12 months, how many times have you done the following on the internet: Asked anyone online for sexual information about themselves when that person did not want to tell” with six response categories: “Never,” “Less than a few times a year,” “Few times a year,” “1 or 2 times a month,” “1–2 times a week,” or “Every day or almost everyday”). The three-item measure showed good reliability in the current sample ($\alpha = .91$).

Analytic Method

Descriptive statistics and bivariate correlations were first conducted using SPSS 20. Next, mediation was tested using PROCESS (Hayes 2013; 2015), a SPSS add-on module. For continuous outcomes, PROCESS uses an ordinary least squares approach to estimate direct and indirect effects, and it can accommodate multiple mediators in the same path analytic framework. PROCESS provides several options for testing indirect effects; we relied on the normal theory approach, also called the product of coefficients approach, to test indirect effects. The standard error of the indirect effect was calculated using the second order delta estimator, whereby $SE_{ab} = a_2se_2b + b_2se_2a + se_2a se_2b$.

As the mediator and outcome measures showed a level of skewness, the analysis was also conducted after applying a square root transformation to those variables.

Results

Sample Descriptives

Approximately two-thirds (65%) of the analytic sample reported coming from a suburban background, one-quarter (26%) from a rural background, and just under one-tenth (9%) from an urban background. Seventy-three percent of the analytic sample reported living in an all-male dorm. Religious participation showed a dramatic decline after starting college, with 60% reporting at least weekly church attendance before coming to college and only 28% reporting at least weekly attendance since coming to college in Wave 1. Participation at least weekly in religious services further declined to 27% in Wave 3 and 24% in Wave 4. Participation in on-campus religious groups paralleled participation in religious services and dropped from 29% at Wave 1 to 27% in Wave 3 to 23% in Wave 4.

In terms of the mediators assessed at Wave 3, the mean value of peer norms—as measured by six items assessing perceptions of peer approval of or pressure to use alcohol, lying, or force to have sex—was 1.24 ($SD = .36$) on a four-point scale in which 1 indicated “not at all” and 4 indicated “a lot.” In terms of pornography viewing, only 13% reporting “none” to the question of approximately how many hours of pornography viewing was engaged in weekly over the past year. Response options ranged from none (0), less than 1 hour (1), 1 to 2 hours (2), 3 to 4 hours (3), 5 to 6 hours (4), 7 to 8 hours (5) to more than 8 hours (6) on average per week over the past year. The mean value was 1.52 ($SD = 1.11$). The mean number of lifetime vaginal, anal, or oral sexual intercourse partners was 4.02 ($SD = 5.87$), with 21% of respondents reporting that they were virgins.

At Wave 4, classifying males based on their most severe form of SA committed that academic year, 2.4% reported having perpetrated unwanted sexual contact, 4.3% reported perpetrating sexual coercion, 1.4% reported perpetrating attempted rape, and 4.1% reported perpetrating a completed rape during the academic year (approximately over the past 7 months). Only 6.5% of the sample reported having engaged in TBC during the past year.

As shown in Table 1, all study variables significantly correlated with one another at $p < .05$ except for religiosity and TBC. Religiosity negatively correlated with all study variables, while proposed meditating variables positively correlated with SA and TBC.

Mediation findings

The results of the mediation analyses are displayed in Figures 1 and 2. Standardized regression coefficients and significant indirect paths are shown in Figures 1 and 2, while unstandardized coefficients, their significant indirect paths using normal theory, and the normal theory significant indirect paths of the analysis using square-root transformed measures are presented below.

The mediation analyses showed that greater religiosity prospectively predicted decreased negative perceptions of peer norms (unstandardized regression coefficient [b] = $-.070$, 95% CI [$-.11$, $-.03$]; $t = -3.82$), less pornography exposure ($b = -.32$, 95% CI [$-.43$, $-.21$]; $t = -5.85$), and less promiscuity ($b = -1.87$, 95% CI [-2.44 , -1.31]; $t = -6.50$). Furthermore, negative peer norms ($b = 1.53$, 95% CI [$.95$, 2.11]; $t = 5.15$) and increased promiscuity ($b = .05$, 95% CI [$.01$, $.09$]; $t = 2.61$) prospectively predicted higher levels of SA, and significantly accounted for the association between religiosity and SA, as reflected by their indirect effects: peer norms (effect = $-.11$, SE = $.04$, $z = -3.03$, $p = .01$) and number of sexual partners (effect = $-.09$, SE = $.04$, $z = -2.40$, $p = .05$). These two indirect pathways appear to be robust, as they were significant using measures to which a square root transformation had been applied (through peer norms, effect = $-.03$, SE = $.01$, $z = -3.27$, $p = .001$; and through promiscuity, effect = $-.03$, SE = $.01$, $z = -2.81$, $p = .01$).

Likewise, the mediation analyses of religiosity on TBC finds that greater religiosity prospectively predicted less negative perceptions of peer norms ($b = -.07$, 95% CI [$-.11$, $-.03$]; $t = -3.76$), less pornography consumption ($b = -.32$, 95% CI [$-.43$, $-.22$]; $t = -5.88$), and less promiscuity ($b = -1.85$, 95% CI [-2.42 , -1.29]; $t = -6.43$). Unlike Figure 1, however, Figure 2 shows that not only did peer norms ($b = .14$, 95% CI [$.04$, $.24$]; $t = 2.66$) and promiscuity ($b = .02$, 95% CI [$.01$, $.02$]; $t = 4.71$) prospectively predict higher levels of TBC, but more pornography use ($b = .04$, 95% CI [$.01$, $.07$]; $t = 2.26$), also prospectively predicted higher levels of TBC. Furthermore, in Figure 2 all three hypothesized mediators significantly accounted for the association between religiosity and TBC as reflected by their indirect effects: peer norms (effect = $-.01$, SE = $.005$, $z = -2.12$, $p = .05$), pornography (effect = $-.01$, SE = $.006$, $z = -2.09$, $p = .05$), and number of sexual partners (effect = $-.03$, SE = $.008$, $z = -3.77$, $p = .001$). These pathways persisted when using the square-root transformed measures (through peer norms, effect = $-.003$, SE = $.002$, $z = -2.07$, $p = .05$; through pornography consumption, effect = $-.004$, SE = $.002$, $z = -2.05$, $p = .05$; through promiscuity, effect = $-.01$, SE = $.003$, $z = -3.16$, $p = .01$).

None of the models showed significant direct effects of religiosity on SA or TBC.

Discussion

This study expanded our understanding of how religiosity may impact SA and TBC by examining the mediational role of peer norms, pornography consumption, and promiscuity on that relationship. It found that religiosity was prospectively associated with SA due to indirect effects through peer norms and promiscuity. Furthermore, it found pathways from religiosity to TBC through all hypothesized mediators—peer norms, pornography consumption, and promiscuity.

The findings of this study partially support the hypotheses in ways that reinforce and extend existing theory. First, building on the synthesis of Smith's (2003) theory of religious effects and DeKeseredy and colleagues' MPS theories (DeKeseredy 1990; DeKeseredy and Kelly 1995; DeKeseredy and Schwartz 1993; 2013; 2016; Schwartz and DeKeseredy, 1997) and findings by Mott et al. (1996), Adamczyk (2009), and Swartout (2013), religiosity seems to impact negative sexual behaviors through peer networks and norms. The current study provides robust support for this theorized pathway to SA and TBC.

Although the theorized mediation pathway from religiosity to SA through pornography consumption was not supported in the findings of this study, the theorized pathway through pornography consumption to TBC was supported. Our synthesis of Smith's (2003) theory of religiosity with script theory (Huesmann 2007; Wright 2011) and the extension of such theory to TBC due to the wide availability of pornography online (Edelman 2009) finds support in the data. It appears that religiosity does negatively predict pornography consumption and that pornography consumption habits are transferred to other forms of electronic media in the form of TBC; pornography consumption thus provides a significant indirect pathway from religiosity to TBC.

Again drawing on the theorized impact of religiosity on social norms (Smith, 2003) and findings in support of such theory (Adamczyk 2009), religiosity may work in part by fostering less promiscuous sexual attitudes and behavior. Our findings support this link and its synthesis with the promiscuity element of the Confluence Model (Malamuth, Addison, and Koss 2000; Malamuth, Heavey, and Linz 1996; Malamuth et al. 1995; Malamuth et al. 1991) in predicting SA. We extended this model to predict TBC and found evidence of a significant indirect path from religiosity through promiscuity to both SA and TBC.

The prospective and longitudinal design of the study is a key strength; nonetheless, the study has some limitations. The primary limitation is that the data are from one university and the results cannot be generalized to the larger population. Additionally, as with most longitudinal studies, there was attrition from the study across time. The attrition is a recognized limitation of this study. Nonetheless, the attrition of less religious and more promiscuous individuals likely reduced variance in the sample and provided more conservative rather than overstated findings.

Despite these limitations, the study provides novel information and provides a reference for further research with more representative samples into the ways in which peer norms, pornography consumption, and promiscuity may mediate the effects of religiosity on SA or TBC.

The practical implications of these findings are complex. Although our study found negative significant indirect paths to SA and TBC from religiosity measured in terms of participation in religious services and campus groups, recent work by Renzetti, DeWall, and Messer (2015) found that what they termed introjected religious behavior (e.g. "because I would feel bad about myself if I didn't") predicted higher rates of intimate partner violence. Thus it may be counter-productive to encourage increased religious activity for ulterior motives; benefits of religiosity in protecting against SA and TBC may be largely side-effects of

intrinsic, identified religious practice. Indeed, Renzetti, DeWall, and Messer's (2015) findings may help explain the absence of a significant total effect of religiosity on TBC despite significant indirect pathways between the two (Figure 2). According to Hayes (2009), this can be possible because other factors not included in the model or indirect effects of opposite signs may cancel out observed indirect effects. Thus other pathways may exist between religiosity and TBC that were not included in the current study and that may cancel out or counteract the protective effect of religiosity on TBC. Additional research will be needed to identify other pathways between religiosity and SA or TBC. Again, in light of the findings by Renzetti, DeWall, and Messer (2015), further research is also needed to untangle motives of religious practice and their implications on the possibility of recommending religious involvement for extrinsic reasons. Furthermore, the recommendations may be restrained insofar as governmental institutions likely find themselves constrained in their freedom to make use of the findings in this study.

Nonetheless, some recommendations for private individuals, families, and institutions can be set forth in light of the findings of this study. The findings, if understood through the lens offered by Renzetti, DeWall, and Messer (2015), may suggest that a pursuit of religiosity for intrinsic reasons may also produce salutary side-effects in reduced negative peer influences, pornography consumption, and promiscuity, and thereby reduce SA and TBC. Furthermore, while claims of causation are difficult to make in studies that are not controlled experiments with random group assignment, the use of a prospective, longitudinal design may allow for stronger inferences of causality (Malvaso, Delfabbro, and Day 2015); as such, these findings may suggest that parents with children leaving home to attend college might consider encouraging their children to actively participate in religious services and on-campus religious activities as a protective mechanism against SA and TBC, although the caveat of proper motivation for such participation should be noted.

Additionally, given the indications from this study that peer norms and promiscuity account for the relationship between religiosity and the outcomes of SA and that all hypothesized mediators account for the relationship between religiosity and TBC, it appears advisable that those interested in reducing SA and TBC not only participate in religious activities, but also associate with peer groups that discourage SA, avoid promiscuity, and, to reduce TBC, also avoid pornography consumption.

Not only can parents and students use the findings of this study to inform their choices in participating in religious activities during the students' college career, but academic institutions can also benefit from the findings. As academic institutions have been prime environments for fraternal organizations and honor societies, they may also consider taking steps to provide spaces and policies that enable student involvement in various religious organizations and activities. Given that motives of religious participation are important, and given the constraints that public institutions have on promoting religious activities, both private and public institutions can at a minimum make space for students, parents, and other stakeholders to engage with findings such as those of this study regarding the prospective paths of religious involvement to SA and TBC and the implications thereof.

Furthermore, the study also may encourage those interested in reducing SA and TBC to take what appear to be protective actions to allow space for intrinsically motivated participation in religious activities, reduce associations with peer networks that support SA, reduce promiscuity, and reduce pornography consumption. Finally, these findings can encourage renewed efforts to understand the interaction between religiosity and healthy human relationships.

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Figure 1.

T3 peer norms (PN), pornography consumption (PC), and promiscuity (PR) mediating the relationship between religiosity and T4 frequency of sexual aggression (SA) using standardized measures.

Total effect of x on y: $-.11^*$

Direct effect of x on y: n.s.

Significant indirect effect through peer norms ($-.05$, $SE = .02$, $z = -3.03^{**}$) and promiscuity ($-.09$, $SE = .04$, $z = -2.40^*$)

* $p .05$, ** $p .01$, *** $p .001$

Note: Only significant coefficients shown.

Figure 2.

T3 peer norms (PN), pornography consumption (PC), and promiscuity (PR) mediating the relationship between religiosity and T4 technology-based coercive behavior (TBC) using standardized measures.

Total effect of x on y: n.s.

Direct effect of x on y: n.s.

Normal theory significant indirect effect through peer norms ($-.02$, $SE = .01$, $z = -2.12^*$), pornography consumption ($-.03$, $SE = .02$, $z = -2.09^*$) and promiscuity ($-.07$, $SE = .02$, $z = -3.77^{***}$).

* $p .05$, ** $p .01$, *** $p .001$

Note: Only significant coefficients shown.

Table 1

Bivariate Correlations of Study Variables

Variable	Religiosity	Peer Norms	Pornography	Promiscuity	SA
Religiosity					
Peer Norms	-.17***				
Pornography	-.25***	.27***			
Promiscuity	-.28***	.29***	.15**		
SA	-.09*	.28***	.10*	.20***	
TBC ^a	-.06	.20***	.15***	.25***	.37***

* $p < .05$,

** $p < .01$,

*** $p < .001$

^a $N = 509$ in all correlations except for TBC, for which $N = 508$.