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**Predictors of Sexual Aggression Victimization and Perpetration among Polish
University Students: A Longitudinal Study**

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ABSTRACT

This two-wave study investigated predictors of sexual aggression victimization and perpetration in a convenience sample of 318 Polish university students (214 women), considering males and females from the perspective of both victims and perpetrators. At T1, we assessed participants' risky sexual scripts (defined as cognitive representations of consensual sexual interactions containing elements related to sexual aggression), risky sexual behavior, pornography use, religiosity, sexual self-esteem, and attitudes toward sexual coercion. These variables were used to predict sexual aggression perpetration and victimization reports obtained 12 months later (T2) for two time windows: (a) since the age of 15 until a year ago and (b) in the past year. As expected, risky sexual scripts were linked to risky sexual behavior and indirectly increased the likelihood of victimization in both time windows. Lower sexual self-esteem predicted sexual victimization since age 15, but not in the past 12 months. Pornography use and religiosity indirectly predicted victimization via risky scripts and behavior. Attitudes toward sexual coercion were a prospective predictor of sexual aggression perpetration. The results extend the international literature on sexual aggression and have implications for sexual education and sexual aggression prevention programs.

Keywords: youth sexual aggression; sexual scripts; pornography; religiosity; Poland

INTRODUCTION

Research has consistently shown that many young adults across the world experience sexual aggression (Bruijn, Burrie, & van Wel, 2006; Jaquier, Fisher, & Johnson, 2011; Romito & Grassi, 2007), and youth sexual aggression has been widely recognized as a public health issue (Centers for Disease Control and Prevention, 2004). Traditionally, studies have concentrated on female victims (for a review see Adams-Curtis & Forbes, 2004) and male perpetrators (Warkentin & Gidycz, 2007; Wheeler, George, & Dahl, 2002). However, male victimization is increasingly acknowledged (for a review of European studies see Krahé, Tomaszewska, Kuyper, & Vanwesenbeeck, 2014).

For the purposes of the present analysis, we define sexual aggression as behavior carried out with the intent or result of making another person engage in sexual activity despite his or her unwillingness to do so (Krahé et al., 2015). Sexual aggression comprises different coercive strategies, such as the use or threat of physical force, exploiting the fact that the victim is unable to resist, or employing verbal pressure, such as threatening to damage the victim's reputation. It includes different sexual acts, such as attempted or completed penetration of the body and sexual touch (Koss et al., 2007), and can be studied from both the perpetrator and the victim perspectives.

Evidence from Poland suggests that sexual aggression is also a problem among Polish young adults. Across the four studies identified by Krahé et al. (2014), the highest one-year prevalence rate of sexual aggression victimization was 57% for females and 38.6% for males. The highest lifetime prevalence of victimization was 8.4% for women and 25.1% for men. The highest one-year and lifetime prevalence rates of sexual aggression perpetration were 41.6% and 21.7% for men and 39% and 4.2% for women. Fewer studies have investigated predictors or correlates of both victimization and perpetration among Polish young adults (Gruszczyńska, 2007; Izdebski, 2012; Krahé et al., 2015).

The present study is the first to prospectively test a theory-based model that predicts sexual aggression victimization and perpetration in a sample of male and female college students in Poland. Our model was based on the proposition that a key to understanding sexual aggression victimization and perpetration lies in young people's cognitive scripts and behavioral patterns for *consensual* sexual interactions. Therefore, we examined sexual scripts as predictors of sexual aggression victimization and perpetration via their impact on sexual behavior. We further analyzed pornography use and religiosity as two potential sources of influence shaping sexual scripts and examined low sexual self-esteem as a specific vulnerability factor for sexual aggression victimization. Moreover, we examined attitudes toward sexual coercion as a specific risk factor for sexual aggression perpetration. These components of our model will be introduced in turn.

Risky Sexual Scripts and Risky Sexual Behavior as Predictors of Sexual Aggression Victimization and Perpetration

Sexual scripts reflect individuals' cognitive representation of "what counts as sex, how to recognize sexual situations, and what to do during sexual encounters" (Frith, 2009, p. 100). Scripts in general and sexual scripts in particular contain descriptive elements, referring to the characteristic or typical events and behaviors in a particular situation, and normative elements, referring to the evaluation of these characteristics and events as acceptable and associated with positive feelings (Huesmann, 1998). Both descriptive and normative elements are essential for the activation of cognitive scripts and their translation into behavior. We propose that scripts for consensual sexual interactions that contain elements linked to an increased risk of sexual aggression, such as engaging in sex with casual partners or drinking alcohol when having sex, may make the perpetration of, and victimization by, sexual aggression more likely. We refer to these cognitive representation of risk factors as risky sexual scripts. Risky sexual scripts serve as guidelines for sexual behavior in specific situations and are assumed to be translated into risky sexual behavior with respect to the

probability of experiencing and committing sexual aggression (D'Abreu & Krahe, 2014; Krahe, Bieneck, & Scheinberger-Olwig, 2007). Past research has identified three distinct types of risk factors in young people's sexual scripts and corresponding sexual behavior that predicted both sexual aggression victimization and perpetration in Germany (Krahe et al., 2007) and Brazil (D'Abreu & Krahe, 2014; 2016): (1) the readiness to engage in casual sexual contacts; (2) the consumption of alcohol in the context of sexual encounters; and (3) the ambiguous communication of sexual intentions.

Engaging in casual sexual contacts has been found to be associated with sexual aggression perpetration (Abbey, Parkhill, BeShears, Clinton-Sherrod, & Zawacki, 2006) and victimization (Bruijn et al., 2006). Because casual sexual activity is linked to a higher number of sexual partners (Malamuth, Sockloskie, Koss, & Tanaka, 1991), the association between casual sex and sexual aggression victimization may be due to a greater probability of encountering a coercive partner. Engaging in casual sex has been linked to sexual aggression perpetration (Anderson, Kontos, Tanigoshi, & Struckman-Johnson, 2005; Tharp et al., 2013) and victimization (French, Tilghman, Malebranche, 2015; Testa, VanZile-Tamsen, & Livingston, 2007) in both men and women.

The link between the consumption of alcohol and male-perpetrated sexual aggression is well established for both general drinking habits (Abbey et al., 2006) and situational drinking in sexual interactions (Krahe et al., 2015). A similar link has been found between alcohol use and female-perpetrated sexual aggression (e.g., Kjellgren, Priebe, Svedin, Mossige, & Långström, 2011). Men and women are more likely to experience sexual victimization under the influence of alcohol (Kuyper et al., 2013). Alcohol consumption may increase an individual's vulnerability to sexual victimization by impairing the clear communication of nonconsent as well as the ability to recognize risk cues and to escape from the risky situation (for a review see Abbey, Zawacki, Buck, Clinton, & McAuslan, 2004). On the part of the perpetrators, alcohol-caused impairment of higher-order cognitive processes,

referred to as alcohol myopia (Steele & Josephs, 1990), may undermine the perception of a partner's cues of nonconsent and promote reliance on more salient cues (e.g., their own sexual arousal).

Finally, the ambiguous communication of sexual intentions, conceptualized as saying no and meaning yes (Muehlenhard & Hollabaugh, 1988) or saying yes and meaning no (O'Sullivan & Allgeier, 1998), has been found to increase the likelihood of sexual aggression victimization and perpetration by creating uncertainty about sexual consent (D'Abreu & Krahe, 2014; Kuypers et al., 2013).

Individuals whose sexual scripts contain these elements as integral and normatively approved elements of consensual sexual interactions are assumed to be more likely to engage in the corresponding risky behaviors (engage in sex with casual partners, drink alcohol in sexual interactions and communicate their sexual intentions in an ambiguous way), thereby increasing their vulnerability to sexual aggression victimization and risk of engaging in sexual aggression perpetration.

Pornography Use and Religiosity as Sources of Influence for Risky Sexual Scripts

Risky sexual scripts and behavior patterns are acquired in the course of individuals' socialization. Two important sources of influence that may operate in this process are pornography and religiosity, both of which convey both descriptive and normative input regarding sexual behavior. For example, presenting the use of force to obtain sexual contact as "normal" in pornographic media may cause young people to find sexual coercion more acceptable, whereas commitment to religious norms and prescriptions may make sex with casual partners appear unacceptable.

As Wright (2011) has theorized, young people's exposure to sexualized media may contribute to the acquisition of sexual scripts, which are primed through repeated exposure to sex media (activation) and, after being evaluated as appropriate and normative, translated into sexual behavior (application). Typical contents of pornographic material, such as

noncommittal sexual relations (Monk-Turner & Purcell, 1999), women's feigned resistance to sexual advances (Dines, 2010), and the presence of alcohol (Norris, Davis, George, Martell, & Heiman, 2004), may feed into risky scripts and behaviors in consensual sexual interactions. Past research has also shown a positive association between pornography use and sexual aggression perpetration (Ybarra, Mitchell, Hamburger, Diener-West, & Leaf, 2011) as well as victimization (D'Abreu & Krahe, 2016), with risky sexual scripts and risky sexual behavior playing a mediating role.

The values and standards prescribed by a particular religion impose restrictions on sexual behavior and may therefore reduce both risky sexual scripts and the readiness to engage in risky sexual behavior (Rowatt & Schmitt, 2003). Higher religious commitment was found to be linked to lower levels of risky sexual behavior, defined as early sexual debut, multiple and casual sexual partners, or drinking alcohol in sexual encounters, in both females and males (Machaj, Roszak, & Stankowska, 2010; Smith, 2015). Thus, stronger religious commitment may be associated with less risky sexual scripts and behavior, indirectly reducing the odds of victimization and perpetration.

Low Sexual Self-Esteem as a Vulnerability Factor for Sexual Aggression Victimization

Whereas risky sexual scripts and behavior as well as pornography use and religiosity are assumed to be related to both victimization and perpetration, two further constructs are included in our model, namely sexual self-esteem and the attitudes toward sexual coercion, that are proposed to be specifically related to sexual aggression victimization and perpetration, respectively.

Zeanah and Schwarz (1996) conceptualized sexual self-esteem as the self-evaluation of women's sexuality-related feelings, thoughts, and behaviors (p. 3). Lower sexual self-esteem was found to increase women's vulnerability to sexual aggression victimization (Van Bruggen, Runtz, & Kadlec, 2006; Zeanah & Schwarz, 1996). A recent study confirmed the

importance of sexual self-esteem in the context of sexual aggression victimization for both gender groups (French, Bi, Latimore, Klemp, & Butler, 2014).

Since previous studies have shown that stronger religious beliefs are associated with reduced sexual activity (Rostosky, Wilcox, Wright, & Randall, 2004), religiosity may be linked to lower sexual self-esteem. Sexual self-esteem has also been shown to be affected by exposure to pornography. For example, men who more frequently used pornography were less satisfied with their physical appearance than less frequent users (Tylka, 2015), and both male and female adolescents were concerned about the negative effect which body ideals in pornography may have on them (Lofgren-Mårtenson & Månsson, 2010).

Attitudes toward Sexual Coercion as a Risk Factor for Sexual Aggression Perpetration

Past research with male college samples has demonstrated that the acceptance of sexually aggressive strategies (Warkentin & Gidycz, 2007) and perceived norms about the acceptability of forced sex (Zinzow & Thompson, 2015) distinguished between perpetrators and nonperpetrators. Goodchilds, Zellman, Johnson, and Giarrusso (1988) found that although adolescents were generally disapproving of the use of force by a boy toward a girl to make her engage in sexual intercourse, the percentage of those who completely rejected the use of force as unacceptable was reduced from 72% to 34% when some justifications for the coercive behavior were provided, (e.g.: “She’s had sexual intercourse with other guys”).

Attitudes toward sexual coercion are assumed to show differential links with pornography use and religiosity. The use of both violent and non-violent pornography was shown to be positively associated with attitudes supporting violence toward women (Hald, Malamuth, & Yuen, 2010) and making young people more callous toward the use of sexual coercion (Hald, Seaman, & Linz, 2014). Since religious commitment generally promotes treating others with respect, religiosity may attenuate young adults’ attitudes condoning sexual coercion.

The Current Study

Building on the theorizing and evidence reviewed above, we examined risk factors for sexual aggression perpetration and vulnerability factors for sexual aggression victimization in a sample of university students in Poland. The study comprised two data waves, T1 and T2, separated by an interval of 12 months. The path models predicting sexual aggression victimization and perpetration are shown in Fig. 1.

We expected that risky sexual scripts would inform risky sexual behavior, which in turn would increase the risk of both perpetration and victimization. Lower sexual self-esteem was predicted to specifically increase the vulnerability for sexual aggression victimization, whereas attitudes toward sexual coercion was included as a specific predictor of sexual aggression perpetration. We further expected that pornography use would be positively associated with risky sexual scripts and behavior as well as with attitudes toward sexual coercion, but negatively with sexual self-esteem. Pornography use was predicted to be indirectly linked to higher odds of perpetration through more risky sexual scripts and behavior and through attitudes more condoning of sexual coercion. We also expected an indirect positive association between pornography use and sexual aggression victimization via more risky sexual scripts and behavior. Religiosity was hypothesized to be negatively linked to risky sexual scripts, risky sexual behavior, sexual self-esteem and attitudes condoning sexual coercion. We expected that religiosity would indirectly predict lower odds of victimization and perpetration through less risky sexual scripts and behavior, and attitudes less condoning of sexual coercion. Finally, we included sexual aggression victimization and perpetration in the time window from age 15 up to T1 as a predictor of victimization and perpetration in the period between T1 and T2. The postulated paths were assumed to hold for both men and women. However, potential gender differences were addressed in the analyses.

METHOD

Participants

The sample consisted of 318 university students (104 men and 214 women) from two universities in Poland, the University of Zielona Góra and Warsaw University of Technology, who took part in two data waves in their first and second study year. From the initial sample of 395 students, 71 participants (24 men and 47 women) were excluded because they did not have coital experience. The sample was limited to coital sexually experienced participants because the measurement of risky sexual behavior referred specifically to sexual intercourse. Six further participants were excluded because they did not indicate their coital experience status ($n = 4$) or self-identified as homosexual ($n = 2$).

The mean age of the sample was 19.7 years ($SD = 1.03$) at Time 1 and 20.7 years ($SD = 1.00$) at Time 2, and all participants had Polish nationality. About 91% of the sample stated to be Roman Catholic; more men (12.5%) than women (6.6%) had no religious affiliation, but the gender difference was not significant, $\chi^2(1, N = 317) = 3.15, p = .076$. Relationship and sexuality-related characteristics of the sample are summarized in Table 1. There was no gender difference in age at first sexual intercourse, but more women than men were in a steady relationship. Men had a higher number of casual sexual partners, (i.e., partners with whom they did not have a steady relationship) and also more partners in a steady relationship at T2, but not at T1.

Measures

We used the back translation procedure for all scales that were translated into Polish from German and English, the original languages. Risky sexual scripts, risky sexual behavior, pornography use, religiosity, sexual self-esteem, and attitudes toward sexual coercion were measured at T1. At T2, reports of sexual aggression victimization and perpetration were collected for two time windows: since age 15 (the legal age of consent in Poland) until a year

ago (i.e., up to the T1 measurement) and in the last 12 months (i.e., in the period between T1 and T2).

Sexual aggression victimization and perpetration

To measure sexual aggression perpetration and victimization, the Sexual Aggression and Victimization Scale (SAV-S; Krahe & Berger, 2013) was used. This measure was employed in multicultural research, including Poland, to collect data on the prevalence of both victimization by, and perpetration of sexual aggression among college students (Krahe et al., 2015; Krahe & Berger, 2013). It includes three coercive strategies: (a) the use or threat of physical force (Victimization: “Has a man/a woman ever made [or tried to make] you have sexual contact with him/her against your will by threatening to use force or by harming you, e.g.; by holding you down?”), (b) the exploitation of the victim’s incapacitated state (e.g., after alcohol use; “Has a man/a woman ever made [or tried to make] you have sexual contact with him/her against your will by exploiting the fact that you were unable to resist, e.g., after you had had too much alcohol or drugs?”), and (c) the use of verbal pressure (“Has a man/a woman ever made [or tried to make] you have sexual contact with him/her against your will by putting verbal pressure on you, e.g., by threatening to end the relationship or calling you a failure?”).

Each coercive strategy was presented separately at the top of a page and was broken down into three victim-perpetration relationships: former or current partner, friend or acquaintance, and stranger. For each combination of coercive strategy and victim-perpetrator relationship, four types of sexual activity were presented: sexual touch, attempted sexual intercourse, completed sexual intercourse, and other sexual activities (e.g., oral sex). Parallel items were presented to measure perpetration (e.g., “Have you ever made [or tried to make] a man/a woman have sexual contact with you against his/her will by threatening to use force or by harming him/her?”), and participants were presented with the gender-appropriate versions (women: male perpetrators and victims; men: female perpetrators and victims). The cross-

classification of coercive strategies (3), victim-perpetrator relationships (3), and sexual acts (4) yielded a total of 36 items each for the victimization and the perpetration part. For each item, participants indicated whether they had experienced/committed the respective behaviors *once or more than once*. A *never* option (“I did not experience any of these/engage in any of these actions”) was also provided for each coercive strategy.¹

Reports of victimization and perpetration were obtained at the T2 data wave for two time windows: since the age of 15, the legal age of consent in Poland, up to 12 months ago, covering the period up to T1, and within the last 12 months, covering the period between T1 and T2. This distinction was adopted to facilitate the recall of experiences during first university year, which was identified in prior studies as particularly risky in terms of committing and experiencing sexually aggressive acts (Kimble, Neacsiu, Flack, & Horner, 2008). Participants who endorsed at least one of the items in the first time window were categorized as victims/perpetrators of sexual aggression since the age of 15 up to T1. Participants who endorsed at least one item in the last 12 months were categorized as victims/perpetrators in the period since T1.

Predictors of Sexual Aggression Victimization and Perpetration

Risky sexual scripts

We used a scenario-based measure to assess participants' risky sexual scripts (Krahé et al., 2007; Krahé & Tomaszewska-Jedrysiak, 2011). The scenario assessed the descriptive components of sexual scripts and was presented in gender-appropriate versions: “*You spend the evening with a man/woman. In the course of the evening, you sleep together for the first time. You are NOT asked to describe one particular situation you have experienced in the*

¹ A demo version of the SAV-S can be found at <http://www.w-lab.de/sav-s.html>. The Polish version is available from the first author on request.

past. Rather, we would like to know what you imagine a situation like this would normally look like for you.” Participants were presented with a list of characteristic features and asked to indicate to what extent each feature applied to the situation described in the scenario. The following features referring to the risk elements for sexual aggression were presented: (1) Length of acquaintanceship before the sexual encounters and features reflecting noncommittal sex (four items; e.g., “How long have the two of you known each other before?”); (2) alcohol and drug use in the situation and level of intoxication of both partners (six items; e.g., “How likely is it that the alcohol is consumed; by you/by the man/woman?”), and (3) ambiguous communication of sexual intentions (four items; e.g., “How likely is it that you first say ‘no’ even though you also want to have sex with him/her?”). Responses to the likelihood items were made on a 5-point scale ranging from 1 (*very unlikely*) to 5 (*very likely*). For the items on length of acquaintanceship, responses ranged from 1 (*not at all*) to 5 (*a few months or longer*) and for the items on alcohol/drug intoxication, the scale ranged from 1 (*not at all*) to 5 (*totally*). The measure showed a good internal consistency of $\alpha = .78$. On this basis, a mean score was computed across the 14 items.

The normative component of sexual scripts was assessed with a separate scale consisting of 12 items referring to the evaluation of the features contained in the script measure (Krahé et al., 2007). Two items addressed the consumption of alcohol in the context of sexual encounters (e.g., “Drinking alcohol when meeting a woman and having sex with her is part of the game”); four items addressed ambiguous communication of sexual intentions (e.g., “It is part of the game for a woman to say ‘no’ at first when a man wants to have sex with her even though she wants it too”); and six items addressed the readiness to engage in casual sexual contacts (e.g., “It is ok for a man to have sex with a woman on the first night out”). Responses were on a scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). A mean score across the 12 items was computed based on a good internal consistency of $\alpha = .86$. To obtain an overall score of risky sexual scripts combining both the descriptive and the

normative components, the mean score averaged across the 14 script items was multiplied by the mean score averaged across the 12 normative items, yielding a theoretical range of 1 - 25.

Risky sexual behavior

To assess risky sexual behavior, we measured the frequency with which participants had engaged in the behaviors referred to in the sexual script measure, using items from Krahe et al. (2007). They were asked about their own and their partner's drinking behavior (two items, e.g., "How often did you drink alcohol in situations where you had sexual intercourse?"), about their use of ambiguous communication of sexual intentions (two items, e.g., "How often did you say 'no' to a sexual offer even though you want it?"), and about their casual sexual experiences (one item: "How long did you know your partner before the first sexual intercourse?"). Additional items asked about the number of sexual partners (steady and casual) in the lifetime (T1) and the last year (T2), and about the age at first sexual intercourse (reverse coded, i.e. lower age means more risky sexual behavior). The items referring to drinking behavior, the use of ambiguous communication strategies, and casual sexual contacts were rated on a scale ranging from 1 (*never*) to 5 (*very often*). Since the questions referring to the age of at first intercourse and the number of sexual partners had different response formats, all seven items included in this score were transformed to z -standardized variables before combining them into an overall score of risky behavior, with a Cronbach's alpha of .60. The formation of an aggregated score was justified by a CFA that showed an acceptable model fit for the one-factor model (CFI = .95; RMSEA = .08, CI 90% [.05, .117]; $\chi^2(40, N = 296) = 30.26, p < .01, SRMR = .042$).

Pornography use

A modified version of the scale developed by Krahe (2011) was used, asking participants whether they had ever seen images or films with sexual content on TV, the Internet, and in magazines (four items: "Have you ever seen (1) sex photos (2) presentations of sexual intercourse, (3) presentations of other sexual acts, for example, oral sex,

masturbation, and (4) films in which the man and the woman engaged in sexual activities that they both wanted.”). Responses were made on a 5-point scale ranging from 1 (*never*) to 5 (*very often*). A mean score of pornography use was computed across the four items based on a good internal consistency of $\alpha = .81$.

Religiosity

Religiosity was measured by two items. One item, developed by the authors, measured the frequency of church-going: “How often do you go to church?”, with responses made on a scale from 1 (*1-2 times per week or more often*) to 5 (*not at all*) (reverse coded). The second item was taken from Mahoney (1980): “How deep is your religious faith?”, with responses ranging from 1 (*not at all deep*) to 5 (*very deep*). A mean religiosity score was created by averaging responses across the two items ($\alpha = .75$).

Sexual self-esteem

Sexual self-esteem was measured by 12 items of the Sexual Self-Esteem Inventory (SSEI) developed by Zeanah and Schwarz (1996). This scale evaluates a person’s affective reactions to sexual thoughts, feelings, and behaviors. For the purposes of our study, items from three subscales were selected: skill and experience (e.g., “I feel pretty good at sex”), control (e.g., “I feel physically vulnerable in a sexual encounter”, reverse coded) and adaptiveness (e.g., “I feel good about the place of sex in my life”). Responses were made on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A mean score averaging across the 12 items was computed ($\alpha = .80$).

Attitudes toward sexual coercion

We used a measure developed by Krahe et al. (2007) based on Goodchilds, Zellman, Johnson, and Giarrusso (1988) to assess participants’ attitudes toward the use of physical force to make a woman engage in unwanted sexual intercourse. The instruction read as follows:

Imagine a man wants to have sexual intercourse with a woman, but the woman says 'no'. Under what circumstances would you find it understandable that the man uses or threatens to use physical force (e.g., hurt her, hold her down) to make her have sex with him?

Participants were presented with 14 justifications for the use of physical force to obtain sex (e.g., “She has slept with him before,” “She allowed him to touch her breasts before,” “She is drunk or stoned,” “She said yes at first but then changed her mind,” “She first got him aroused,” “She led him on,” “He believes she only plays coy and really wants to have sex as well”). Responses were made on a scale ranging from 1 (*absolutely not*) to 5 (*absolutely yes*). A mean score across the 14 items was computed based on a high internal consistency of $\alpha = .96$.

Procedure

Data were collected in paper-and-pencil form at both data waves. The project was approved by the Ethics Committee of the authors' university and by the Bioethics Commission of the University of Zielona Góra. Active consent was obtained from all participants at both T1 and T2. They were informed about the topic of the research, that participation was voluntary and that it could be terminated at any point. At T2, after presenting the questions about sexual aggression perpetration and victimization, all participants received a list of local counselling centers. T1 and T2 data were matched using an anonymized code. A raffle with 150 book store vouchers was offered as an incentive to participate.

Data Analysis

A series of one-way analyses of variance (ANOVAs) were conducted to test gender differences in the predictor variables, corrected for multiple testing. To test the path models presented in Fig. 1, we used structural equation modelling in Mplus 7.4. Path analysis facilitates the simultaneous estimation of several related regressions, including indirect

(mediational) effects (Geiser, 2012; Muthén & Muthén, 1998-2015). We specified single group models and included gender as covariate on all model variables. We used the Bayes estimator because it is appropriate for small sample sizes (Muthén & Asparouhov, 2012). The statistical significance of both direct and indirect paths was determined by means of 95% confidence intervals (CIs), with CIs excluding zero indicating significant effects. The Bayes estimator allowed us to define victimization/perpetration in both the first and the second time window as categorical variables.

RESULTS

Sexual Aggression Victimization and Perpetration Status

For both time windows, we created a dichotomous score of victimization and perpetration status by assigning all participants with at least one “yes” response to a SAV-S item to the victim or perpetrator group, respectively. According to this classification, 24.2% of women and 17.8% of men reported at least one victimization experience *since the age of 15 until a year ago*. The gender difference was nonsignificant, $\chi^2(1, N = 308) = 1.58, p = .21$. The rate of being victimized at least once *in the last year* was 28.6% for women and 25.5% for men. Again, the gender difference was nonsignificant, $\chi^2(1, N = 312) = 0.33, p = .57$. A total of 6.8% of men and 1.9% of women reported at least one act of sexual aggression perpetration in the first time window, 8.7% of men and 7.5% of women reported at least one such act in the second time window. The gender difference was significant for the first time window ($\chi^2(1, N = 315) = 4.96, p < .05$), but not for the second one ($\chi^2(1, N = 316) = 0.12, p = .73$). A detailed overview of the prevalence rates for the different types of sexual activities and different coercive strategies is presented in Tomaszewska and Krahe (in press).

Gender Differences and Correlations of the Predictor Variables

To examine gender differences in the predictor variables, we conducted separate one-way ANOVAs with each predictor variable (risky sexual scripts, risky sexual behavior, pornography use, religiosity, sexual self-esteem, and attitudes toward sexual coercion) as

dependent variables and gender as independent variable to handle missing data on individual measures. To control for multiple testing, the alpha level was set to .008 ($p < .05/6$).

The means and SDs are shown in

Table 2. We found significant gender differences on risky sexual scripts, $F(1, 316) = 55.84, p < .001, \eta^2 = .150$, indicating that men had more risky sexual scripts, and on pornography use, $F(1, 314) = 51.69, p < .001, \eta^2 = .141$, indicating that men were more frequent pornography users. No further gender differences emerged, risky sexual behavior, $F(1, 293) = 0.18, p = .67, \eta^2 = .001$; religiosity, $F(1, 315) = 0.38, p = .54, \eta^2 = .001$; sexual self-esteem, $F(1, 303) = 1.01, p = .32, \eta^2 = .003$, and attitudes toward sexual coercion, $F(1, 316) = 0.01, p = .92, \eta^2 = .000$.

The zero-order correlations between all predictor variables for men and women are shown in Table 3. As expected, risky sexual scripts were significantly correlated with risky sexual behavior in men and women. Pornography use was significantly linked to risky sexual scripts for men and to risky sexual behavior for women. Religiosity was unrelated to most other model variables at the bivariate level, with the exception of a significant negative correlation with risky sexual scripts in women. Sexual self-esteem showed the expected negative correlations with attitudes toward sexual coercion in both genders and with risky sexual scripts in women.

Predicting Sexual Aggression Victimization and Perpetration

The path models in Fig. 1 were tested as single-group models with gender included as a covariate on all model variables. Both models estimated with the Bayes estimators showed a good fit with the data. For the victimization model, the Posterior Predictive P-Value (PPP) was .43, and the confidence interval for the f statistic was symmetric, 95% CI [-24.37, 27.44] (Muthén & Asparouhov, 2012). For the perpetration model, the PPP-Value was .40, and the confidence interval for the f statistic was 95% CI [-22.81, 29.10]. The standardized path

coefficients for the victimization model are displayed in the top half of Fig. 1, the coefficients for the perpetration model are displayed in the bottom half of Fig. 1.

Sexual aggression victimization

As shown in the top half of the Figure 1, risky sexual behavior was directly associated with sexual victimization since the age of 15 until a year ago, but not prospectively with sexual victimization in the last year, providing partial support for our predictions. Sexual aggression victimization since the age of 15 until a year ago was a significant predictor of sexual victimization in the last year. Furthermore, a significant negative path was found from sexual self-esteem to victimization since the age of 15 until a year ago, but not prospectively to sexual victimization in the last year. In line with our expectations, risky sexual scripts assessed at T1 indirectly predicted sexual victimization in the last year via risky sexual behavior and past experiences of victimization ($\beta = .07$, CI 95% [.022, .126]). Also in line with our predictions, sexual self-esteem showed a negative indirect path to sexual aggression victimization in the past year via victimization since the age of 15 until a year ago ($\beta = -.16$, CI 95% [-.272, -.051]). This negative association indicates that lower sexual self-esteem at T1 increased the probability of being sexually victimized within the last year through past experiences of victimization in adolescence.

Both pornography use and religiosity were linked to risky sexual scripts, but not to sexual self-esteem, partially supporting our predictions. No significant paths were found from either pornography use or religiosity to risky sexual behavior. However, as expected, pornography use and religiosity were indirectly linked to risky sexual behavior via risky sexual scripts ($\beta = .06$, CI 95% [.016, .116], $\beta = -.06$, CI 95% [-.112, -.020]), which is the precondition for testing indirect effects of both constructs on sexual aggression victimization. Pornography use indirectly increased the odds of sexual aggression victimization in the last year via more risky sexual scripts, more risky sexual behavior, and the experience of victimization since the age of 15 until a year ago ($\beta = .01$, CI 95% [.002, .023]). By contrast,

religiosity indirectly decreased the odds of victimization in the last year via less risky sexual scripts and behavior and the absence of victimization experiences before T1 ($\beta = -.01$, CI 95% [-.023, -.002]).

Sexual aggression perpetration

As shown in the bottom half of Fig. 1, the associations between risky sexual behavior and sexual aggression perpetration were not significant. Sexual aggression perpetration in the last year was prospectively predicted by sexual aggression perpetration up to T1. Pornography use was directly linked to perpetration since the age of 15 until a year ago, but not to perpetration in the last year. However, pornography use was an indirect predictor of the perpetration of sexual aggression in the last year via sexual aggression perpetration since the age of 15 until T1 ($\beta = .23$, CI 95% [.008, .470]). As predicted, attitudes toward sexual coercion were prospectively linked to the perpetration of sexual aggression within the last year. Because the path from risky sexual behavior to the perpetration of sexual aggression since the age of 15 up to T1 was nonsignificant, no indirect effect emerged from risky sexual behavior to perpetration in the past year, failing to support the predicted path from risky sexual scripts to sexual aggression perpetration via risky sexual behavior.

More frequent pornography use was positively linked to attitudes toward sexual coercion and to risky sexual scripts. Religiosity was significantly associated only with less risky sexual scripts, but not with attitudes less condoning of sexual coercion.

DISCUSSION

This study investigated predictors of sexual aggression victimization and perpetration among university students in Poland, considering men and women from the perspectives of both victims and perpetrators.

Overall, about 24% of women and 17% of men reported at least one experience of sexual aggression victimization since the age of 15 until the T1 data wave. The self-reported rate of sexual aggression victimization in the 12 months between T1 and T2 was about 29%

among women and 26% among men. The respective rates of self-reported perpetration were 7% among men and 2% among women since the age of 15 up to T1 and 9% among men and 8% among women in the 12 months between T1 and T2. The overall rates of victimization did not differ significantly between men and women. Perpetration rates were significantly higher for men than for women since the age of 15 up to the T1 data wave, but did not differ significantly in the 12 months between T1 and T2. As reported in Tomaszewska and Krahe (in press), some gender differences were found at the item level. Significantly more men than women experienced forced sexual intercourse and other sexual acts (excluding sexual touch and attempted/completed intercourse) by a friend/acquaintance and by a stranger. No gender differences emerged at the level of the single items in the perpetration reports. Overall, the two gender groups showed more similarities than differences in the extent to which they reported victimization and perpetration, similar to previous studies (D'Abreu, Krahe, & Bazon, 2013; Hines, Armstrong, Reed, & Cameron, 2012; Krahe et al., 2015).

Rates of self-reported sexual aggression perpetration among college men have been shown to be much lower than self-reported victimization rates by women (Kolivas & Gross, 2007). Studies that considered both women and men as victims of sexual aggression have shown that both gender groups report victimization to a greater extent than perpetration of sexual aggression (Krahe & Berger, 2013). Our findings support these results, indicating that the reporting discrepancy is not a function of gender but of victim vs. perpetrator perspective.

Regarding the proposed central role of sexual scripts for consensual sexual interactions in understanding sexual aggression, we found that participants whose cognitive scripts for consensual sex contained risk elements linked to sexual aggression were more likely to show these in their actual sexual behavior, which increased the probability of being victimized. Although the path from risky sexual scripts assessed at T1 to sexual aggression victimization in the period between T1 and T2 was nonsignificant, risky sexual scripts at T1 predicted sexual victimization in the period between T1 and T2 indirectly via victimization since the

age of 15 until T1. The absence of a direct path is probably due to the strong relationship between sexual victimization reports in the two time windows, which were both collected at the T2 data wave.

Prior research has demonstrated that risky sexual scripts may guide risky sexual behavior (Braithwaite, Coulson, Keddington, & Fincham, 2015) and heighten the probability of experiencing sexual victimization (D'Abreu & Krahe, 2016; Krahe et al., 2007). Our findings were in line with ample evidence that engaging in casual sexual contacts (Testa et al., 2007; Tharp et al., 2013), drinking alcohol in sexual encounters (Krahe et al., 2015), and communicating sexual intentions in an ambiguous way (Kuyper et al., 2013) are linked to a higher vulnerability to sexual aggression victimization in both gender groups. They are also consistent with evidence from Poland that increased sexual activity and other risky behaviors, such as drug use, were associated with higher rates of self-reported sexual aggression victimization (Izdebski, 2012).

With respect to the role of sexual self-esteem as a specific predictor of sexual aggression victimization, lower sexual self-esteem was linked to a higher probability of sexual aggression victimization since age 15 until a year ago and indirectly predicted sexual victimization in the past year via previous victimization experiences. The negative link between sexual self-esteem and sexual aggression victimization is in line with previous studies (e.g., French et al., 2014; Van Bruggen et al., 2006; Zeanah & Schwarz, 1996).

Pornography use indirectly predicted sexual aggression victimization, via risky scripts and risky sexual behavior. More frequent pornography use was related to more risky sexual scripts, which predicted risky sexual behavior, which in turn increased the odds of sexual aggression victimization. This finding is in accordance with prior theorizing and research on the effect of pornography use on sexuality-related attitudes and (risky) sexual behavior (Braun-Courville & Rojas, 2009; Brown & L'Engle, 2009; Wright, 2011) as well as on sexual aggression victimization (Bonino, Ciairano, Rabaglietti, & Cattelino, 2006; D'Abreu &

Krahé, 2016). Men who used pornography more regularly may have internalized the sexuality-related norms conveyed through pornography in their scripts (e.g., men's constant desire for sex and strong sex drive; Dines, 2010), which may create pressure to comply with unwanted sexual activities. Similarly, women may incorporate the contents of pornography (e.g., token resistance) into their sexual scripts and behavior, increasing their vulnerability to sexual aggression victimization.

As religiosity was found to be associated with reduced sexual activity (Rostosky et al., 2004), it was included in our model as a socializing force shaping sexuality-related cognitions and behaviors. Although religiosity did not directly decrease risky sexual behavior, the more religious participants were, the less risky sexual scripts they endorsed and the less risky behavior patterns they reported for consensual sexual interactions, which in turn reduced the probability of sexual aggression victimization.

Whereas the significant role of risky sexual scripts and risky sexual behavior has been largely confirmed for sexual aggression victimization, our data did not confirm the links between these variables and the perpetration of sexual aggression found in other studies (D'Abreu & Krahé, 2014; Tharp et al., 2013). However, our data provided further support for the well-established effect of exposure to pornography on the perpetration of sexual aggression (e.g., Ybarra, Mitchell, Hamburger, Diener-West, & Leaf, 2011; for a review see Owens, Behun, Manning, & Reid, 2012). Pornography use assessed at T1 predicted sexual aggression perpetration in the subsequent 12-month period via its association with sexual aggression perpetration since the age of 15 up to the T1 data wave. Consistent with our predictions and with past research (e.g., Warkentin & Gidycz, 2007), we found a direct prospective link between attitudes toward sexual coercion and sexual aggression perpetration, corroborating the important role of acceptability of coercive actions as the normative basis for sexually aggressive behavior. This link indicates that participants who were more condoning of sexual coercion were more likely to show sexually aggressive behavior in the next 12

months. Furthermore, we found a positive link between pornography use and attitudes toward sexual coercion, consistent with past research (e.g., Krahe, 2011; Malamuth, Hald, & Koss, 2012). The repeated exposure to sexually explicit media that present the use of coercion as an integral part of sexual conduct may lead users to see it as normal and justified (Hald, Seaman, & Linz, 2014).

Our prediction that religiosity would be linked to attitudes less condoning of sexual coercion was not supported. Since religiosity is a multifaceted construct, our measure may have been too broad to capture specific aspects pertaining to normative beliefs about sexual coercion, as suggested by other research. For example, Higginbotham, Ketring, Hibbert, Wright, and Guarino (2007) found that relationship religiosity, defined as “growing spiritually together” and “sharing religious values”, was negatively linked to interpersonal violence committed by males and experienced by females.

In sum, the findings largely support our proposition that cognitive scripts and behavior patterns referring to consensual sexual interactions hold a key to understanding sexual aggression victimization. We found that scripts containing features known to increase the odds of sexual aggression victimization predicted victimization experiences through more risky sexual behavior. Religiosity (as an attenuating factor) and pornography use (as a promoting factor) affected sexual aggression victimization via risky sexual scripts and risky sexual behavior. Additionally, pornography use predicted sexual aggression perpetration. Furthermore, low sexual self-esteem was identified as a specific vulnerability factor for sexual victimization and attitudes toward sexual coercion were established as a specific predictor of the perpetration of sexual aggression.

Implications for Practice

Our findings have implications for sexual education and sexual aggression prevention programs by suggesting to place greater emphasis on addressing young people’s risky sexual scripts and behavior. This may include challenging beliefs that alcohol consumption or

sending out ambiguous messages about one's sexual intentions are typical and positive features of consensual sexual encounters. Furthermore, stressing the role of emotional bonds as important parts of sexual relations may also be an element of sexual aggression prevention (e.g., Abbey et al., 2006). Regarding the use of pornography, media literacy interventions designed to promote a critical evaluation of the portrayal of sexuality and gender relations in sexually explicit media may be effective in reducing the impact of pornography use on sexual scripts by increasing critical viewing skills. Such a critical evaluation would also include a discussion of unrealistic body ideals and standards of sexual performance presented in pornographic media. Finally, interventions could seek to enhance young adults' sexual self-esteem to make them more confident in their sexual relationships and thereby reduce their vulnerability to sexual aggression victimization (Rostosky, Dekhtyar, Cupp, & Anderman, 2008).

Limitations and Further Directions

Several limitations of our study must be noted. First, the analyses were based on a convenience sample of Polish university students and need to be replicated in studies using larger representative or random samples. This would provide a more differentiated analysis of instances of victimization and perpetration differing in severity and also address the problem of the small number of perpetrators in the present sample. Second, the predictors were measured only at the first wave of data collection, which implies that the reverse direction of the paths from the two outcome variables to the predictors could not be examined. Although others have tested the reciprocal relationship between pornography use and its effects and found that pornography predicted attitudes towards women and not the other way around (e.g., Peter & Valkenburg, 2010), future studies should adopt a full cross-lagged design. Third, more fine-grained measures of religiosity and pornography use should be employed in future studies. For example, to address the multifaceted character of religiosity, the extrinsic and intrinsic components of religiosity (e.g., Smith, 2015) or relationship religiosity (Higginbotham et al., 2007) might be considered. Also, the measurement of pornography use

should cover different genres of pornography, which could help to better understand the impact of specific contents, such as the protagonists' use of alcohol or their communication strategies. Finally, other sources of social influence may play an important role with respect to acquiring sexuality-related norms. For example, studies have shown that having friends who endorse the use of force toward women influences the extent to which young adults approve of violence and hostility toward women (e.g., Swartout, 2013).

Despite these limitations, this study is the first to provide evidence on predictors of sexual aggression perpetration and victimization among young adults in Poland. It also contributes to the limited international evidence on predictors of sexual aggression victimization of men and sexual aggression perpetration by women. By focusing on risk factors that are potentially modifiable, the findings may inform interventions aimed at enhancing young people's sexual health and well-being.

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Table 1

Relationship experience and sexuality-related characteristics of the sample

Variable	Men (<i>n</i> = 104)	Women (<i>n</i> = 214)
Steady relationship ever (%) ^a		
T1	75.0	86.4
T2	92.2	97.6
Number of steady sexual partners		
<i>M (SD)</i> ^b	1.62 (1.09)	1.54 (0.96)
T1	1.98 (1.60)	1.62 (0.87)
T2		
Number of casual sexual partners		
<i>M (SD)</i> ^b		
T1	2.10 (2.57)	0.77 (1.11)
T2	2.27 (2.73)	1.17 (1.78)
Age at 1 st coital experience		
<i>M (SD)</i> ^b	17.3 (1.62)	17.6 (1.41)

Figures in bold denote significant gender differences

^a Tested via chi-square tests

^b Tested via *t*-tests

Table 2

Mean scores of the predictors of victimization and perpetration at T1

Variable	<i>N</i> items	Range	Men <i>M</i> (<i>SD</i>) (<i>n</i> = 104)	Women <i>M</i> (<i>SD</i>) (<i>n</i> = 214)
Risky sexual scripts ^a	26	1-25	6.57 (2.86)	4.45 (2.10)
Risky sexual behavior ^b	7	-	0.00 (0.61)	-0.03 (0.52)
Pornography use	4	1-5	3.54 (0.78)	2.90 (0.71)
Religiosity	2	1-5	2.58 (1.16)	2.66 (1.06)
Sexual self-esteem	12	1-5	3.97 (0.55)	3.90 (0.57)
Attitudes toward sexual coercion	14	1-5	1.59 (0.82)	1.60 (0.77)

One-way ANOVAs; corrected alpha level $p < .05/6$; figures in bold denote significant gender differences

^a Mean scores of the descriptive ($n = 14$) and normative ($n = 12$) components multiplied

^b z -standardized $M = 0$, $SD = 1$

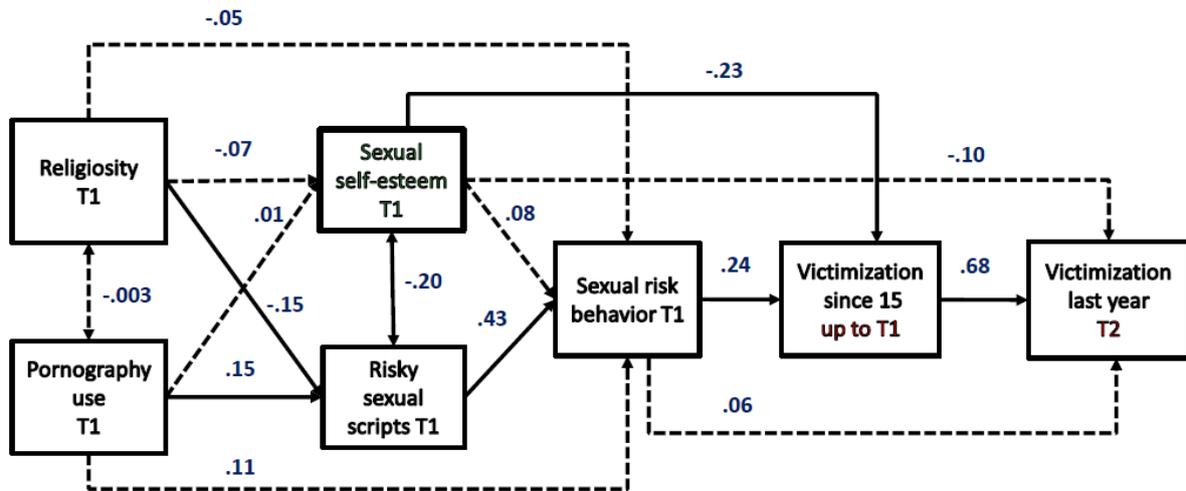
Table 3

Zero-order correlations of the predictor variables

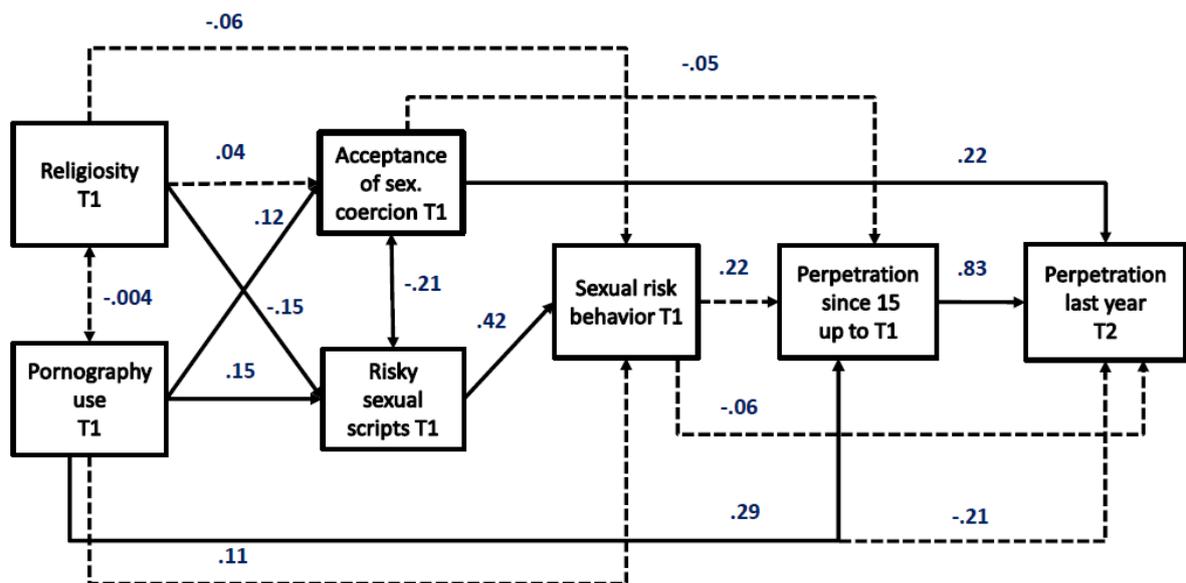
Measure	1	2	3	4	5	6
1. Risky sexual scripts	-	.46**	.31**	-.001	-.14	.24*
2. Risky sexual behavior	.38**	-	.07	-.10	.05	.26**
3. Pornography use	.03	.22**	-	.08	-.06	.08
4. Religiosity	-.27**	-.14	-.05	-	-.13	.07
5. Sexual self-esteem	-.20**	-.01	.04	-.03	-	-.34**
6. Attitudes toward sexual coercion	.20**	.17*	.13	.02	-.14*	-

Above the diagonal: correlations for men; below the diagonal: correlations for women; ** $p < .01$; * $p < .05$

Victimization Model



Perpetration Model



Note. Solid lines are significant at $p < .05$ (CI 95%). Model fit victimization: Bayesian Posterior Predictive Checking (f statistic) CI 95% [-24.37, 27.44], Posterior Predictive P-Value = .43. Model fit perpetration: Bayesian Posterior Predictive Checking (f statistic) CI 95% [-22.81, 29.10], Posterior Predictive P-Value = .40. Single group models with control for gender ($N = 318$, males $n = 104$, females $n = 214$).

Figure 1. Standardized path coefficients for the prediction of sexual aggression victimization (top) and sexual aggression perpetration (bottom).