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Risk Factors for Sexual Aggression in Young Men: An Expansion of the Confluence Model

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Abstract

There are many explanations for high rates of sexual aggression, with no one theory dominating the field. This study extends past research by evaluating an expanded version of the confluence model with a community sample. One hour audio computer-assisted self-interviews were completed by 470 young single men. Using structural equation analyses, delinquency, hostile masculinity, impersonal sex, and misperception of women's sexual cues were positively and directly associated with the number of sexually aggressive acts committed. There were also indirect effects of childhood victimization, personality traits associated with subclinical levels of psychopathy, and alcohol consumption. These findings demonstrate the usefulness of the confluence model, as well as the importance of broadening this theory to include additional constructs.

Keywords

sexual aggression; perpetration; personality; misperception; alcohol

Beginning with early work by Kanin (1967), researchers have identified male college students who acknowledge using verbal coercion, physical force, and alcohol to obtain sex from female acquaintances against their wishes. This literature grew exponentially after Koss, Gidycz, and Wisniewski (1987) found that 25% of male students in a large nationally representative sample reported that they had forced a woman to engage in some type of sex against her wishes. With expanded measures that include questions about incidents that occurred when victims were too impaired to consent, separate questions about oral sex, and additional examples of verbally coercive tactics, more than a third of male college students report that they have been sexually aggressive (Abbey, McAuslan, Zawacki, Clinton, & Buck, 2001; DeGue & DiLillo, 2004; Kosson, Kelly, & White, 1997; Wheeler, George, & Dahl, 2002; Zawacki, Abbey, Buck, McAuslan, & Clinton-Sherrod, 2003). Most of these incidents occur with girlfriends, casual dates, and friends. Although the vast majority of this research has been conducted with college student samples, a few studies have used small community samples and found comparable rates of self-reported perpetration (Abbey, Parkhill, BeShears, Clinton-Sherrod, & Zawacki, 2006; Calhoun, Bernat, Clum, & Frame, 1997; Davis, Schraufnagel, George, & Norris, 2008; Senn, Desmarais, Verberg, & Wood, 2000).

Concern about these high prevalence rates has generated a plethora of research focused on understanding the causes of sexual aggression in nonincarcerated samples. There are many explanations, with no one theory dominating the field (Gannon, Collie, Ward, & Thakker, 2008). The goal of this paper is to evaluate an integrative model of the etiology of sexual aggression with a community sample of young men. As described in more detail in the following sections, this model builds upon the confluence model (Malamuth, Sockloskie, Koss, & Tanaka, 1991) and includes early experiences with violence and delinquency, personality traits, attitudes, and behavioral tendencies that work together to encourage men's sexual aggression toward women.

The Confluence Model

The confluence model of sexual aggression integrates many risk factors identified in past research into two construct constellations: hostile masculinity and impersonal sexual orientation (Malamuth, 2003; Malamuth, Addison, & Koss, 2000; Malamuth, Linz, Heavey, Barnes, & Acker, 1995; Malamuth et al., 1991). Men with high scores on the hostile masculinity construct distrust women, are easily angered by them, and hold adversarial views about relationships. These beliefs encourage cognitive distortions about women (e.g., women say "no" when they mean "yes,"), which are used to justify the use of force in interpersonal relationships (Murnen, Wright, & Kaluzny, 2002; Ryan, 2004). Numerous studies conducted with college students have found that sexually aggressive men have greater hostility toward women, stronger sexual dominance motives, more traditional attitudes toward gender roles and sexual relationships, and greater acceptance of rape myths (Abbey et al., 2001; DeGue & DiLillo, 2004; Koss & Dinero, 1988; Malamuth et al., 1991; 1995; Wheeler et al., 2002; Zawacki et al., 2003).

Men who score high on the impersonal sex construct view sex as a game to be won, rather than a source of emotional closeness (Malamuth, 2003; Malamuth et al., 1991; 1995). They prefer frequent, casual sexual relationships to long-term, monogamous relationships. In both college and community samples, researchers have found that sexual assault perpetrators have consensual sex at an earlier age, more dating and consensual sexual partners, and more positive attitudes about one night stands and other types of casual sexual relationships as compared to nonperpetrators (Abbey, McAuslan, & Ross, 1998; Abbey et al., 2006; DeGue & DiLillo, 2004; Kanin, 1967; Koss & Dinero, 1988; Malamuth et al., 1991; 1995; Senn et al., 2000).

The confluence model also includes distal childhood and adolescent experiences hypothesized to indirectly contribute to sexual aggression by encouraging hostility toward women and an impersonal orientation to sex. Studies with incarcerated rapists, college students, and community samples find that men who were victims of childhood sexual, physical, or emotional abuse are at greater risk of engaging in sexual aggression as adolescents and adults (Abbey et al., 2006; DeGue & DiLillo, 2004; Koss & Dinero, 1988; Malamuth et al., 1991; 1995; Senn et al., 2000; White & Smith, 2004). Hypothesized mechanisms include modeling the perpetrator's behavior, identifying with the perpetrator to reduce feelings of powerlessness, failing to attach to parents, and developing hostile schemas about sexual relationships (Felson & Lane, 2009; Romano & De Luca, 2001).

Delinquency during adolescence has also been linked to sexual aggression in studies with incarcerated rapists, college students, and community samples (Ageton, 1983; Calhoun et al., 1997; Knight & Sims-Knight, 2003; Zawacki et al., 2003). For some perpetrators, sexual aggression is just one manifestation of their general antisocial and criminal behavior; whereas, others only engage in sexual violence (Moffit, 1993).

Despite the many strengths of the confluence model, it does not include the full range of risk factors that have been associated with perpetration. As described in the following sections, personality traits related to psychopathy, the tendency to misperceive women's friendliness as sexual interest, and alcohol consumption are also important contributors to sexual aggression.

Personality Traits Related to Psychopathy

Psychopathy is a constellation of personality traits and socially deviant behaviors including a narcissistic, grandiose sense of self; lack of empathy, remorse, or concern for others; poor impulse control; manipulative approach to interpersonal relationships, and antisocial behavior (Coid, Yang, Ullrich, Roberts, & Hare, 2009; Hare, 1999; LeBreton, Binning, & Adorno, 2006). Psychopathy is common among incarcerated sexual assault perpetrators (Knight & Guay, 2006; Seto & Lalumiere, 2000). Narcissists are more likely than other men to feel that a woman should be flattered by their attention, feel entitled to have their sexual needs fulfilled, lack the empathy required to see the situation from the woman's perspective, and become punitive when thwarted (Baumeister, Catanese, and Wallace, 2002; Bushman, Bonacci, van Dijk, & Baumeister, 2003).

Less than one percent of the population meets all diagnostic criteria for psychopathy (Coid et al., 2009; Hare, 1999); thus it is unlikely that clinically diagnosed levels are common in college and community samples. However, many individuals manifest heightened levels of some of the characteristics associated with psychopathy and have been described as subclinical or noncriminal psychopaths (LeBreton et al., 2006). Gustafson and Ritzer (1995) found that approximately 10% of college students have a constellation of traits consistent with subclinical psychopathy.

Psychopathy is an important potential addition to the confluence model because it has frequently been related to sexual aggression in incarcerated samples and several researchers have linked traits associated with psychopathy to perpetration in college samples (DeGue & DiLillo, 2004; Kosson et al., 1997; Lisak & Roth, 1988; Ouimette, 1997). Malamuth (2003) argued that psychopathy-related personality traits can be added to the confluence model as a distal factor that indirectly contributes to sexual aggression because they encourage hostile masculinity. In one of the few studies that added psychopathy-related personality traits to the confluence model, Knight and Sims-Knight (2003) used structural equation modeling to analyze data from a sample of 168 adult men who were members of a civic organization. They combined hostile masculinity and psychopathic personality traits into the same construct, and this construct indirectly related to sexual aggression through its links to adolescent delinquency and aggressive sexual fantasies. Given the large literature that has established psychopathy as a distinct constellation of personality traits, it is important to consider psychopathy's independent effects, rather than combining it with hostile masculinity (DeGue, DiLillo, & Scalora, 2010).

Tendency to Misperceive Women's Sexual Intentions

Another potential shortcoming of the confluence model is that it does not include situational factors that help explain the circumstances under which men who are predisposed to behave in a sexually aggressive manner actually do so. One situational factor that increases the likelihood of sexual aggression is whether the man has misperceived the woman's friendliness as a sexual invitation (Abbey et al., 1998; 2001; Farris, Treat, Viken, & McFall, 2008; Shea, 1993). There is a large literature which demonstrates that men are more likely than women to interpret a variety of cues which occur in social settings, such as smiling, making eye contact, and drinking alcohol, as a sign of sexual interest (Abbey, 1982; Haselton, 2003; Lindgren, Parkhill, George, & Hendershot, 2008; Vrij & Kirby, 2002).

Although many misperceptions are quickly resolved, once a potential perpetrator has decided that a woman is sexually attracted to him, this expectation biases his perceptions of the woman's actions, leading him to interpret any friendly cue as a sign of sexual interest. If his sexual advances are later rebuffed, misperception contributes to distorted perceptions of the woman as a sexual tease, who says "no" when she means "yes" and therefore "deserves" to be the target of sexual aggression (Murnen et al., 2002; Ryan, 2004).

Willan and Pollard (2003) asked male college students to respond to a vignette describing a potential date rape to test the hypothesis that misperception of a woman's cues early in a sexual interaction makes some men feel entitled to force sex. As expected, the more strongly these men believed that the target woman's initial willingness to kiss also indicated that she was willing to have sexual intercourse, the more likely they were to state that they would force her to have sexual intercourse if she refused. When male college students are asked to describe dates that did and did not involve forced sex, misperception of the woman's sexual intentions is more commonly reported in sexually aggressive dates (Abbey et al., 2001; Muehlenhard & Linton, 1987). Furthermore, Abbey et al. (1998) found that male college students' frequency of past misperception of sexual intent was positively related to their frequency of perpetrating sexual aggression.

Alcohol Consumption

Alcohol consumption is another situational factor that has frequently been linked to sexual assault perpetration. Since the 1990's, Abbey and colleagues have been refining a theoretical model that delineates alcohol's role in acquaintance sexual assault (Abbey, 1991; Abbey et al., 2004). Sexual aggression researchers' descriptions of the cognitive distortions commonly exhibited by perpetrators are very similar to alcohol researchers' descriptions of the cognitive deficits associated with intoxication, with both sets of researchers emphasizing the decreased ability to notice, evaluate, or care about others' emotions and intentions. Alcohol impairs a variety of higher order cognitive functions including abstract reasoning, set shifting, behavioral inhibition, and judgment (Abroms, Fillmore, Marczynski, 2003; Curtin & Fairchild, 2003). When intoxicated, individuals tend to focus on immediate, superficial, salient cues rather than distal, covert, or embedded cues (Steele & Josephs, 1990). For perpetrators, the salient cues are likely to be their sexual arousal, sense of entitlement, and anger, all of which encourage sexual aggression (Abbey et al., 2004).

Men's reports of frequent and heavy drinking in dating, misperception, and sexual situations have been linked to their self-report of sexual aggression (Abbey et al., 1998; 2001; Parkhill & Abbey, 2008). For example, Zawacki et al. (2003) found that perpetrators who had consumed alcohol during an incident drank more alcohol in the average month, drank more alcohol in sexual situations, and drank more alcohol in situations in which they had misperceived a woman's sexual intentions than did nonperpetrators and sober perpetrators. These findings suggest that alcohol's link to sexual aggression is partially due to heavy drinkers' tendency to drink in a variety of situations, including situations in which sexual aggression is a likely outcome.

Goals of the Study and Hypotheses

The primary goal of this study is to examine the expanded version of the confluence model depicted in Figure 1 with a large sample of young single men identified through stratified random sampling in one metropolitan area. The vast majority of past research has been conducted with incarcerated offenders or college students, thereby limiting the generalizability of the findings. We focused on young, single men because most sexual assaults are committed by young men and marital rape has a different etiology than acquaintance rape (Bureau of Justice Statistics, 2008; Martin, Taft, & Resick, 2007).

As described above, our model broadens the scope of the confluence model by including psychopathy-related personality traits, tendency to misperceive women's sexual cues, and tendency to drink alcohol in sexual situations. Although Malamuth (2003) described how psychopathy-related personality traits could be included as a distal predictor of hostile masculinity, few researchers have followed up on this suggestion. The confluence model also fails to consider situational factors that trigger sexual aggression among men predisposed to commit these acts. Characteristics of one specific assault were not included in our model because the goal was to predict the total number of acts of sexual aggression committed by participants. However, inclusion of participants' tendency to misperceive women's sexual intentions and their typical alcohol consumption in dating and sexual situations adds another level of specificity to the confluence model.

Childhood, adolescent, and personality constructs are included as distal predictors in Figure 1; whereas, hostile masculinity, impersonal orientation to sex, alcohol consumption, and misperception of sexual intent constructs are treated as more proximal predictors of sexual aggression. Malamuth and colleagues (Malamuth 2003; Malamuth et al., 1991; 1995) have argued that distal constructs only contribute to sexual aggression indirectly through their impact on hostile masculinity and impersonal sex. Although this hypothesis has been well supported, there are numerous exceptions in the literature (Abbey et al., 2006; Hall, Teten, DeGarmo, Sue, & Stephens, 2005; Knight & Sims-Knight, 2003; Parkhill & Abbey, 2008). Based on past empirical research and theory, we hypothesized that all of the risk factors would have direct effects on sexual aggression. Furthermore, childhood victimization and personality traits were hypothesized to also have indirect effects on sexual aggression through their links to hostile masculinity. Childhood victimization and adolescent delinquency were hypothesized to have indirect effects on sexual aggression through their links to impersonal orientation to sex. Childhood victimization, adolescent delinquency, and personality traits related to psychopathy were all expected to be directly linked to heavy drinking, which in turn was hypothesized to be linked to impersonal sex and misperception of sexual intent. Hostile masculinity was hypothesized to have a direct link to impersonal sex and both these constructs were hypothesized to have direct links to misperception of sexual intent.

A central thesis of the confluence model is that risk factors work together synergistically, as well as independently (Malamuth, 2003; Malamuth et al., 1995). Malamuth and colleagues argue that risk accumulates in a nonlinear manner such that men with high scores on a large number of distal and proximal risk factors have a disproportionately high likelihood of being sexually aggressive (Malamuth, 2003; Malamuth et al., 1995; 2000). This hypothesis was also examined.

Method

Participants

Findings are based on interviews with 470 single men in the Detroit Metropolitan area. Four additional participants were interviewed but excluded from analyses due to large amounts of missing data and/or strings of identical responses. Participants were required to be between the ages of 18 and 35 ($M = 23.67$; $SD = 4.95$), to be single (i.e., not currently married, engaged, or cohabitating), and to have dated a woman in the past two years. Seventy-three percent of participants self-identified as White, 16% as Black, 5% reported mixed ethnicity, 2% were of Middle Eastern descent, 1% Hispanic, 1% Asian, less than one percent Native American or Alaskan Native, and 1% reported another racial/ethnic background. Ninety-four percent of participants earned a high school diploma or its equivalent; 15% earned a bachelor's degree.

Procedures

Sampling and interviewing were conducted under contract by the Survey Research Center at the University of Michigan. Both universities' institutional review boards approved the study's procedures. Following standard sampling procedures used to efficiently identify stratified random samples of population subgroups, a commercial telephone list that had a high probability of including 18 to 35 year old men living in the Detroit Metropolitan statistical region was purchased to create the desired sampling frame (Groves et al., 2009). This tri-county region of more than four million people spans the socio-economic spectrum and includes a broad range of suburban and semi-rural communities, as well as the city of Detroit.

Potential participants were recruited by telephone for a study of men's dating and sexual experiences. Among eligible participants who met the age and relationship criteria described above, 89% agreed to be interviewed. Professionally trained female and male interviewers conducted in-person interviews at a mutually agreeable location selected for quiet and privacy, most often the participant's home, library, or coffee shop.

Interviewers first reviewed the consent form with participants. It described the content of the interview, noting that they would be asked questions about unwanted sexual activity. The consent form also included the telephone numbers for several local counseling centers if the interview elicited any issues that participants wanted to discuss further. Interviewers were trained to assist any participant who became upset during the interview; however, none exhibited distress. At the end of the interview, participants' current affect was assessed. Using 5-point response scales with options ranging from *not at all* (1) to *very* (5), participants reported very low levels of sadness ($M = 1.33$, $SD = 0.64$), embarrassment ($M = 1.29$, $SD = 0.60$), and anger ($M = 1.16$, $SD = 0.50$).

The interview was completed on a laptop computer. The interviewer orally administered the first few sections, which contained the least sensitive questions (e.g., questions about life satisfaction not included in this paper). The computer was then handed over to participants who completed the audio computer-assisted self-interview independently after completing a few practice items with the interviewer's guidance. Participants wore headphones so that they could hear each question read aloud by a male voice and read along on the computer screen. The purpose of the audio component is to avoid frustrating poor readers who might have difficulty sounding out all the questions themselves. Interviewers sat so that they could not see the computer screen, but were available to answer questions. To assure participants that their responses were completely confidential, they locked the interview when they finished the self-administered portion so that the interviewer was unable to go back and review their responses. Participants then returned the computer to the interviewer, who orally completed a demographics section. Interviews lasted one hour on average. Participants were paid \$50 to compensate them for their time.

Measures

Table 1 provides descriptive information about the measures including the response scale, mean, standard deviation, and Cronbach's coefficient alpha.

Sexual aggression—A modified 16-item version of the Sexual Experiences Survey (Koss et al., 1987) was used that the first author developed for an earlier study (Abbey et al., 2006). Rather than labeling acts as "rape" or "sexual aggression," this measure uses behaviorally-specific language to assess a range of sexual activities (e.g., sexual touching; oral, vaginal, and anal intercourse) that happened since age 14 against the woman's wishes through the use of verbal pressure, physical force, or when the woman was too impaired to

consent (e.g., “How many times have you had sexual intercourse with a woman when she was passed out or too intoxicated to give consent or stop what was happening?”).¹ Participants were asked to think about situations when they were with a woman (a friend, date, coworker, girlfriend, wife, acquaintance, or stranger) or if thinking back to their teen years, with a girl about their age. The original and modified versions of this instrument have demonstrated good internal, test-retest, and criterion validity (Abbey et al., 2006; Bernat, Stolp, Calhoun, & Adams, 1997; Koss & Gidycz, 1985; Lisak & Roth, 1988).

Hostile masculinity—Three scales were used to measure the hostile masculinity construct. Sexual Dominance was assessed with Nelson’s (1979) 8-item measure that has demonstrated strong internal reliability and convergent validity in past research (Abbey et al., 2006; Malamuth et al., 1995; Wheeler et al., 2002). Stereotypic Attitudes about Women that Justify Forced Sex were measured with a subset of Payne, Lonsway, and Fitzgerald’s (1999) and Bumby’s (1996) rape myth acceptance items. This 9-item measure was pilot tested with undergraduates and had good internal reliability. The 8-item Hostility toward Women measure developed for this study was adapted from Buss and Perry’s (1992) general hostility measure. The general measure is phrased in terms of reactions to “people.” In this study the term “women” was used instead.

Impersonal sexual orientation—One attitudinal scale and two behavioral items were used to measure the impersonal sex construct. Positive Attitudes about Casual Sex were assessed with 7 items from Hendrick, Hendrick, and Reich’s (2006) sexual permissiveness scale which has been frequently used in past research and has strong internal and construct validity (Hendrick et al., 2006). Number of consensual sex partners and one-time consensual sexual partners were assessed with open ended questions asking participants the number of women with whom they had consensual sexual intercourse during their lifetime and on only one occasion (e.g., one night stand).

Misperception of women’s sexual intent—Four questions assessed misperception of women’s sexual intent. The first question asked how many times participants had misperceived a woman’s friendliness as a sexual come on. The next three questions asked about the number of times misperception of sexual intent had occurred with acquaintances, friends, and romantic interests. In past research, this construct was measured with just the first item. Although this single item has good criterion validity (Jacques-Tiura, Abbey, Parkhill, & Zawacki, 2007), the additional items were added to aid participants’ recall by specifically referring to different types of relationships.

Childhood victimization—Childhood Physical and Emotional Abuse from Parents was assessed with 9 items from Bremner, Bolus, and Mayer’s (2007) Early Trauma Inventory. Childhood Sexual Abuse was measured with 7 items that asked about sexually abusive experiences that occurred before age 14 with someone who was at least 5 years older (Abbey et al., 2006).

Personality traits related to psychopathy—Three subscales from Williams, Paulhus, and Hare’s (2007) Self-Report Psychopathy III (SRP-III) scale were used to assess personality traits associated with subclinical levels of psychopathy: callous affect/lack of empathy, interpersonal manipulation, and erratic lifestyle/impulsivity. Each subscale has 10 items. This measure was designed to be used with nonclinical populations and has demonstrated good internal consistency and predictive validity in college samples (Williams et al., 2007).

¹Measures are available from the first author.

Narcissism was assessed with modified versions of the 5-item exploitativeness and 6-item entitlement subscales from the Narcissistic Personality Inventory (Raskin & Terry, 1988). These two subscales reflect the dimensions of narcissism that are most relevant to sexual aggression (Baumeister et al., 2002; Lisak & Roth, 1988; Ryan, 2004). The original format requires participants to read two sentences, one of which is phrased narcissistically and one of which is not, and then decide which describes them better. Pilot testing determined that participants had difficulty with this format; thus we revised the questions such that only the narcissistic statement was presented. Additional pilot testing confirmed that participants understood these questions.

Adolescent delinquency—Williams and colleagues' (2007) SRP-III subscale that assesses antisocial and delinquent behavior in adolescence was used to assess delinquency. An item that asked about forced sex was deleted to avoid making participants feel that we were repeating questions; thus 9 of the scale's 10 items were included.

Alcohol use—Three indices of heavy alcohol consumption were included. First, participants were asked about their frequency of drinking five or more drinks in two hours or less within the past year (National Institute on Alcohol Abuse and Alcoholism, 2003). Second, participants reported how often they consumed alcohol on dates and the amount of alcohol they typically consumed on dates. Parallel items assessed alcohol consumption in consensual sexual situations. These items have been used by the first author in several studies (Abbey et al., 1998; 2001; Parkhill & Abbey, 2008; Zawacki et al., 2003). The frequency and quantity items were multiplied to obtain indicators of the total amount of alcohol consumed in dating and in consensual sexual situations.

Results

Preliminary Analyses

Mean substitution was used for the limited amount of missing data (< 0.5%).² The distributions of all measures were examined to insure they were reasonably normal. Standard winsorization procedures were used (Tabachnick & Fidell, 2007) to reduce the skew on variables with skew statistics greater than 2: number of consensual sexual partners (untransformed range: 0-300, winsorized range: 0-51), one-time consensual sexual partners (untransformed range: 0-250, winsorized range: 0-18), misperceptions of sexual intent (untransformed range: 0-29.50, winsorized range: 0-12), alcohol use on dates (untransformed range: 0-28, winsorized range: 0-13) and alcohol use when having sex (untransformed range: 0-30, winsorized range: 0-18).

Preliminary data analyses were conducted to ensure that sex of the interviewer did not influence participants' responses. Analyses of variance with a Bonferonni correction were conducted with interviewers' sex as the independent variable and all the measures included in this paper as dependent variables. No significant differences were found.

²The data analyses were also conducted without mean substitution for missing data to insure that doing so did not substantially alter the findings. No correlation coefficients, means, standard deviations, or total standardized effects changed by more than +/-0.02 units. The fit of the model presented in Figure 1 changed to, $\chi^2(6, N = 470) = 11.80, p = .07, RMSEA = 0.045, NNFI = 0.976, CFI = 0.995$. The fit of the model presented in Figure 2 changed to, $\chi^2(11, N = 470) = 15.95, p = .14, RMSEA = 0.031, NNFI = 0.988, CFI = 0.995$, and 27% of variance in perpetration was explained. Two parameters in Figure 2 changed by more than +/-0.03 units: the correlation between childhood victimization and adolescent delinquency changed from .35 to .41 and the correlation between childhood victimization and personality traits related to psychopathy changed from .22 to .26.

Descriptive Information about Rates of Sexual Aggression

Forty-three percent of the 470 participants reported that they had perpetrated some type of sexual aggression since age 14. Using the mutually exclusive severity categories that are commonly formed with this instrument (Koss et al., 1987), 10.4% indicated that forced contact was the most serious form of sexual aggression they had committed, 22.1% committed verbally coerced sexual intercourse, 3.6% committed attempted rape, and 7.2% committed completed rape, usually when the victim was unable to consent due to extreme impairment. Among perpetrators, the number of sexually aggressive acts ranged from 1 to 53, $M = 6.22$, $SD = 7.23$, $Mdn. = 4.00$.

Following the norm established in past research, a log transformation of the total number of sexually aggressive acts perpetrated was used as the primary outcome measure (Abbey et al., 2006; Malamuth et al., 1991; Wheeler et al., 2002). The shape of the original distribution for this measure (shifted to the left with a long tail) is best normalized by taking the natural logarithm (Tabachnick & Fidell, 2007; original skew statistic: 4.12, skew statistic after log transform: 1.07, range after log transform: 0-3.99; r between original and transformed version = .85, $p < .001$). The 5-level severity indicator described above (none, sexual contact, verbal coercion, attempted rape, completed rape) was strongly positively correlated with the (transformed) number of sexually aggressive acts ($r = .87$, $p < .001$), demonstrating that severity and quantity are highly related.

Bivariate Analyses

As can be seen in Table 2, sexual aggression was significantly and positively correlated with all of the other study variables. Sexual aggression was most strongly correlated with positive attitudes about casual sexual relationships, number of one-night stands, and misperception of women's sexual interest.

Structural Equation Modeling Analyses

The model shown in Figure 1 was tested using LISREL 8.80 (Jöreskog & Sörbom, 2006) as a path model in a structural equation modeling framework. Because indicators of the various constructs were measured using different response scales, items were standardized and then unit-weighted averages computed (Ghiselli, Campbell, & Zedeck, 1981). The covariance matrix was analyzed, and lambda and theta were specified to allow for measurement error (Loehlin, 1998).³

The fit of the model proposed in Figure 1 was good, $\chi^2 (6, N = 470) = 10.20$, $p = .12$, RMSEA = 0.039, NNFI = 0.982, CFI = 0.996, although there were a number of nonsignificant pathways from distal constructs to sexual aggression. The revised model presented in Figure 2 dropped these nonsignificant paths. This model fit the data very well, $\chi^2 (11, N = 470) = 14.64$, $p = 0.20$, RMSEA = 0.027, NNFI = 0.991, CFI = 0.997 and accounted for 26% of the variance in sexual aggression (Browne & Cudeck, 1993).

As can be seen in Figure 2, adolescent delinquency, hostile masculinity, impersonal sex, and misperception of sexual intent had significant, positive direct paths to the number of sexually aggressive acts committed. Hostile masculinity and impersonal sex also indirectly increased frequency of sexual aggression through their relationships to frequency of misperception of women's sexual intent. Adolescent delinquency also indirectly influenced sexual aggression through its links to impersonal sex and heavy alcohol consumption. Childhood victimization indirectly increased sexual aggression through its link to hostile

³Lambda was set as the square root of alpha, and theta was set as the value corresponding to the product of the variance and the quantity one minus alpha. These values are available from the first author.

masculinity. Personality traits related to psychopathy indirectly increased sexual aggression through their link to hostile masculinity and heavy alcohol consumption. Heavy alcohol consumption indirectly increased sexual aggression through its links to impersonal sex and misperception. As can be seen in Table 3, all constructs had significant total effects on sexual aggression.

Exploration of Alternative Models

Demonstrating that a structural equation model fits the data well does not prove that the model represents truth; there may be alternative models with other specified pathways that fit equally well. Furthermore, the presumed temporal ordering from distal to proximal variables cannot be proven with cross-sectional data. To determine if our theoretical model actually fit the data better than other possible models, a number of alternative models were evaluated. In these alternative models, childhood victimization and adolescent delinquency remained exogenous because they specifically referred to time periods prior to the present day. The first of these models reversed the ordering of all the variables between the exogenous variables and sexual aggression, with misperception of sexual intent being most distal, then hostile masculinity and impersonal sex, then alcohol, with personality being most proximal to sexual aggression. The second model put misperception, hostile masculinity, and impersonal sex closest to the exogenous variables, then personality, with alcohol consumption most proximal to sexual aggression. In both the first and second model, direct paths remained significant between sexual aggression and hostile masculinity, impersonal sex, and misperception. In the third version of this model, childhood victimization and adolescent delinquency both directly linked to sexual aggression, which in turn linked to the other variables in the model, which were allowed to intercorrelate. None of these alternative models fit the data well, Model 1: $\chi^2(df = 12, N = 470) = 208.41, p < .001$, RMSEA = .187, NNFI = .556, CFI = .810; Model 2: $\chi^2(df = 17, N = 470) = 251.14, p < .001$, RMSEA = .171, NNFI = .633, CFI = .777; Model 3: $\chi^2(df = 10, N = 470) = 152.13, p < .001$, RMSEA = .174, NNFI = .607, CFI = .860, respectively.

Risk Analysis

The procedures described in Malamuth et al. (1995) were followed to examine the hypothesized synergistic relationship between the different risk factors. For each of the constructs in Figure 1, participants who scored in the top fourth of the distribution were considered high risk. The high risk scores were summed so scores could range from zero to seven. Only three individuals had high scores on all seven constructs, so they were combined with the group that scored high on six risk factors. Using regression analysis, there was a strong, positive linear relationship between participants' number of high risk scores and the number of sexually aggressive acts committed ($\beta = .41, t = 9.85, p < .001$). Twenty-three percent of participants with zero risk factors had committed an act of sexual aggression as compared to 71% of participants with six or seven risk factors. Although there was a sharp increase between 2 (39%) and three (68%) risk factors, the quadratic term was not significant ($\beta = -.09, t = -.77, p > .05$).

Malamuth et al. (2000) conceptualized risk in a more complex manner by examining the interactive effects of hostile masculinity and impersonal sex with pornography use. They created a new variable that was a cross-product of participants' hostile masculinity and impersonal sex scores divided into low, medium, and high risk groups. Participants were also divided into low, medium, and high pornography use groups. They then examined the interaction between pornography use and the combined hostile masculinity-impersonal sex variable and found that individuals with high scores on both had extremely high rates of sexual aggression. We conducted parallel analyses using misperception of sexual intent rather than pornography use. Misperception was selected because of its unique position in

Figure 2, being predicted by both hostile masculinity and impersonal sex and having a direct link to sexual aggression. As can be seen in Figure 3, there was a significant interaction between the combined hostile masculinity-impersonal sex variable and misperception ($\beta = .47, t = 2.54, p < .01$). For participants with low misperception scores, the combined hostile masculinity-impersonal sex score had little impact on rates of sexual aggression. However, for participants with moderate ($\beta = .32, t = 5.19, p < .001$) or high misperception scores ($\beta = .39, t = 4.50, p < .001$), there was a strong, positive relationship between the combined hostile masculinity-impersonal sex score and rates of sexual aggression.

Discussion

In this community sample of young, unmarried men living in a large metropolitan area, 43% reported that since age 14 they forced a woman to engage in some type of unwanted sexual activity. These acts ranged from verbally coerced sexual contact to physically forced sexual intercourse. Some of these men had committed only one act of sexual aggression; whereas others had done so repeatedly. This rate of sexual aggression is within the range of what has been found in other studies with college and community samples (Abbey et al., 2006; Davis et al., 2008; Hall et al., 2005; Senn et al., 2000; Wheeler et al., 2004; Zawacki et al., 2003). These findings highlight the importance of developing more comprehensive theories to explain sexual aggression, which can then be used to guide the development of prevention and treatment programs.

This study fills a gap in the literature by expanding the confluence model of sexual aggression to include other important etiological factors and by evaluating it with a large community sample. Based on theory and past research, personality traits related to subclinical levels of psychopathy, misperception of women's sexual intent, and alcohol consumption were added to the original confluence model (Malamuth et al., 1991; 1995). Overall, the expanded model fit the data well and explained a moderate amount of variance in the number of sexually aggressive acts committed by these young, single men.

Based on past empirical research and theory, we hypothesized that all of the risk factors would have direct effects on sexual aggression. This hypothesis was not fully supported. Delinquency, hostile masculinity, impersonal sex, and misperception of sexual intent had significant direct effects on sexual aggression; however, the other risk factors (childhood victimization, personality traits related to subclinical levels of psychopathy, and alcohol consumption) only had significant indirect effects through their links to hostile masculinity, impersonal sex, and misperception. All seven risk factors had significant total effects on the number of sexually aggressive acts committed; thus they all contributed to the final model.

Childhood physical, sexual, and emotional victimization had indirect effects on sexual aggression through their relationship to hostile masculinity. Male children who experience violence often identify with the perpetrator and learn that violence is an acceptable response to frustration (Romano & De Luca, 2001). An index of psychopathy-related personality traits which included narcissism, callous lack of concern for others' feelings, impulsivity, and interpersonal manipulateness also had indirect effects on sexual aggression through its relationship to hostile masculinity and heavy alcohol consumption. It is easy to imagine how men who believe the world revolves around them, who don't care about others' feelings, who frequently act without thinking about the consequences, and who are proud of their ability to manipulate other people to achieve their goals would respond to women who sexually rebuffed them with verbally and physically coercive tactics.

As hypothesized, many of the risk factors were positively associated with each other, demonstrating the complex interrelationships between these constructs. Adolescent

delinquency was strongly related to personality traits associated with psychopathy. The adolescent delinquency measure is a component of the Self-Report Psychopathy III scale (Williams et al., 2007). It was separated from the personality components in the analyses presented in this paper because of the history of including delinquency as a separate construct in the confluence model. The next strongest link was between psychopathy-related personality traits and hostile masculinity. As previously described, the sense of superiority and entitlement typically found among individuals with high levels of subclinical psychopathic personality traits are likely to produce hostility toward women whom they feel do not sufficiently value them. There was also a relatively strong path between heavy alcohol consumption and impersonal sex. There is a large survey literature linking alcohol consumption and casual sexual relationships (Weinhardt & Carey, 2000). This relationship is partially explained by the acute effects of alcohol on sexual risk taking. It is also partially explained by the effects of individual differences in impulsivity on both alcohol consumption and casual sexual behavior. In this study, impulsivity was a component of subclinical psychopathic personality traits and was indirectly linked to impersonal sex through alcohol consumption and hostile masculinity.

Although the different risk factors were intercorrelated, the simple risk analysis that counted high risk scores demonstrated that rates of sexual aggression climbed with increases in the number of risk factors for which participants had particularly high scores. This finding supports the argument that it is important to consider the co-occurrence of risk and target intervention programs at individuals with high scores on multiple risk factors (Small & Kerns, 1993). Protective factors such as strong community norms that promote equality toward women and nonviolent responses to conflict in relationships may be able to counteract a few personal risk factors. However, they are likely to be overwhelmed when individuals have many traits, beliefs, and experiences that encourage sexual aggression.

Strengths and Limitations

One strength of this study was the use of a large sample of young men obtained through telephone screening in a large metropolitan area. Most past research examining the etiology of sexual aggression has focused on college students or incarcerated offenders. Given the high rates of sexual aggression, it is essential that researchers develop and evaluate theoretical models that apply to the general population. An important direction for future research is to systematically identify risk factors that are the same and those that are unique to incarcerated, college, and community samples. It is also important to replicate this study's findings in other regions of the country and with a variety of cultural groups. For example, in a study with Asian American students, Hall et al. (2005) found that cultural factors can buffer the impact of common risk factors for sexual aggression.

One limitation of the study is that these findings are based on a single, cross-sectional survey. Causal systems unfold temporally with antecedents influencing more proximal explanatory variables, which in turn influence consequences; thus, causality cannot be ascertained from this design (LeBreton, Wu, & Bing, 2009). Confidence in our theoretical model is strengthened by the finding that alternative models which altered the presumed temporal ordering between constructs did not fit the data well. Given that most sexual aggressors commit their first assault in adolescence (Bureau of Justice Statistics, 2008; White & Smith, 2004), longitudinal research is needed that begins early enough for the initial assessment to occur prior to the first sexual assault. We are aware of only one longitudinal study that assessed sexual aggression in a sample of adolescents. Ageton (1983) conducted multiple interviews with a large sample of youth age 11 to 17 in the 1970s. She reported that, "As much as two years prior to the first reported assaults, the offenders were less well integrated and committed to the home, family, and school than were the controls" (p. 137). Although these findings were based on a small group of perpetrators, they suggest

that attachment to family and community support systems are important constructs to integrate into theoretical models (Davis, 2006).

A second limitation was the reliance on self-report measures. For example, participants could only report misperceptions of sexual intent that they “figured out” based on the woman’s response. Sexual aggression and other forms of aggressive behavior are consistently underreported to the authorities, thus self-reports are commonly viewed as preferable to legal records. To enhance self-disclosure, state-of-the-art survey research methods were used, including audio computer-assisted self-interviews. Survey methodologists have demonstrated that participants are more willing to disclose extremely sensitive information in computer-assisted self-interviews as compared to paper and pencil or telephone interviews (Turner et al., 1998). In future research, the inclusion of other forms of measurement, such as proxy experimental measures of willingness to engage in sexual aggression and implicit measures of personality and attitudes would provide useful complementary data (Gross, Bennett, Sloan, Marx, & Juergens, 2001; James & LeBreton, 2010; Norris, Davis, George, Martell, & Heiman, 2002). Although experimental analogs would not allow actual sexual aggression to be measured, they would allow the effects of alcohol consumption, misperception of sexual intent, and other situational factors such as sexual arousal and perceived peer pressure to be evaluated in specific contexts.

Implications and Conclusions

In addition to hostile masculinity and impersonal sex, adolescent delinquency and misperception of sexual intent had direct effects on sexual aggression perpetration in this study. Thus, there is something unique about adolescent delinquency that contributes to the lifetime number of sexually aggressive acts committed by these young men that is not accounted for by its links to childhood victimization, personality traits related to psychopathy, impersonal sex, or heavy alcohol consumption. One explanatory factor not included in this study is engagement in other types of aggressive behavior. Moffitt (1993) distinguished between adolescent-limited and life-course persistent antisocial behavior. Adolescent-limited delinquency occurs only during adolescence and appears to serve as a rite of passage into adulthood. In contrast, life-course persistent delinquency begins in early childhood and continues into adulthood. It would be useful in future research to measure acts of delinquency and other forms of aggressive and criminal behavior in childhood, adolescence, and early adulthood in order to determine if life-course persistent and adolescent-limited delinquency are differentially associated with other risk factors and with sexual aggression. For some sexually aggressive men, their sexual aggression may be just one manifestation of their willingness to commit many types of verbal and physical aggression against many types of targets (e.g., fights on the playground with other boys in childhood; bar fights with other men in adulthood). Others may only engage in sexual aggression against female acquaintances (Casey, Beadnell, & Linhorst, 2009; Malamuth et al., 1995). Research that helps elucidate different trajectories of sexual aggression through the life course would aid in the development of targeted intervention programs.

Men’s misperception of women’s sexual intent is a less widely used construct than the other risk factors included in this study, although it has repeatedly been linked to sexual aggression (Abbey et al., 1998; 2001; Shea, 1993). Men’s affirmative responses to these questions require them to recognize that they had misperceived a woman’s degree of sexual interest in them. Thus men with high scores on this measure know that they frequently misjudge women’s sexual interest, yet continue to make this mistake. This behavior implies a willful disregard of what women want and a single-minded focus on pushing their own sexual agenda. Consequently, it is not surprising that misperception of sexual intent was positively related to both casual attitudes about sex and general hostility toward women. These men do not like women; however, they do appear to enjoy sex with a wide variety of

women. Thus, they are primed to discount signals that might countermand their sexual desires. The interaction between the combined hostile masculinity - impersonal sex variable with misperception of sexual intent demonstrated that men who score high on all three of these variables commit the largest number of sexually aggressive acts. Most misperception research has examined the types of cues that are most likely to be misperceived, not the personality traits and experiences that typify frequent misperceivers (Jacques-Tiura et al., 2007). Research that examines the antecedents of misperception of sexual intent would help explain its unique contribution to sexual aggression.

The extremely high rates of sexual violence identified in this community sample highlight the importance of early primary prevention programs, as well as interventions targeted at high risk youth. Many school districts provide sessions on sexuality in fifth or sixth grade that focus on the physiological changes associated with puberty. It is important to include material about healthy dating and sexual relationships because many children lack appropriate models in their own families. Delinquency prevention programs need to focus on youth's attitudes about women and sexual relationships, as well as peer norms that encourage treating women as sexual commodities. Beliefs that encourage forced sex, such as men's sex drive is uncontrollable, a woman who has led a man on deserves what she gets, once a man has had sex with a woman he is entitled to have sex with her again, and women who have sex with many men don't have the right to say no to any man are still surprisingly common (Murnen et al., 2002; Ryan, 2004). Brief motivational interviewing may be useful with early adolescents to reduce their resistance, yet challenge attitudes that support rape myths. Perpetrators of sexual violence are typically repeat offenders, although not all of their acts would meet legal definitions of criminal sexual conduct. Thus, innovative treatment programs are needed for youth who engage in an initial act of sexual violence perpetration to prevent repeat offenses.

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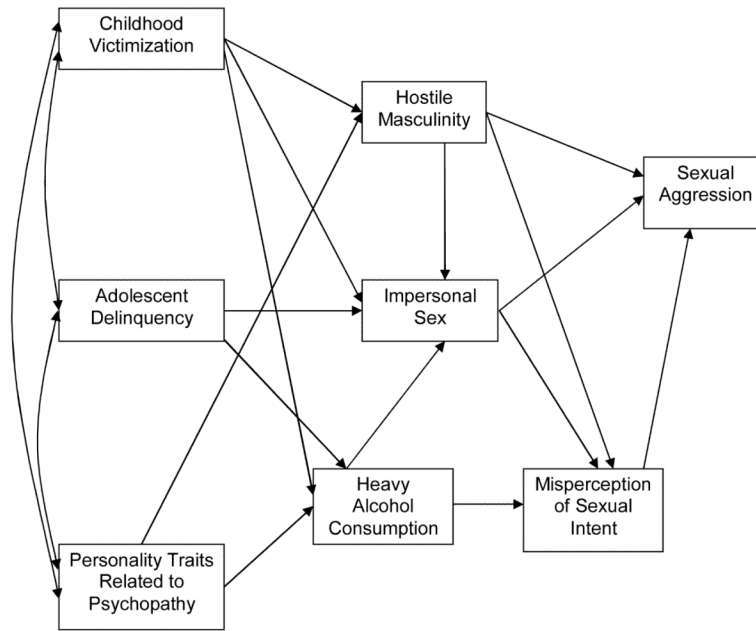


Figure 1. Theoretical model

Note. Childhood Victimization, Adolescent Delinquency, Personality Traits Related to Psychopathy, and Heavy Alcohol Consumption are also hypothesized to have direct effects on Sexual Aggression. Those paths are not depicted in the figure for ease of presentation.

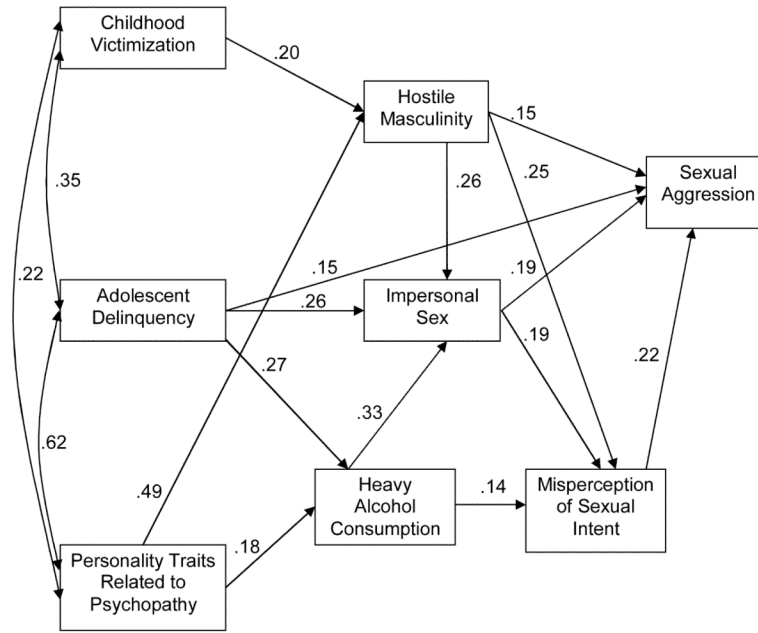


Figure 2. Final model

Note. Standardized loadings shown. All paths displayed are significant at $p < .05$.

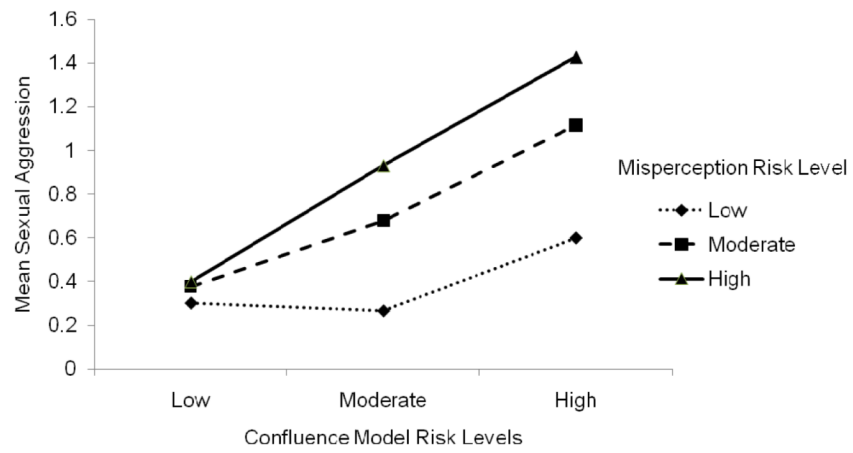


Figure 3. Sexual aggression (natural log transformed) as a function of confluence risk factors by misperception of sexual intent risk factors.

Table 1
Descriptive Information on Measures

Variable	Response Scale	Mean	Std. Dev.	α
<i>Sexual aggression</i>				
Number of sexually aggressive acts ^a	Never (0) – 5 or More Times (5)	2.70	5.67	0.84
<i>Hostile masculinity</i>				
Sexual dominance	Not at All (1) – Very Important (4)	1.82	0.63	0.86
Stereotypes about women	Strongly DA (1) – Strongly A (7)	2.36	1.13	0.85
Hostility toward women	Very unlike Me (1) – Very like Me (5)	2.21	0.88	0.84
<i>Impersonal sexual orientation</i>				
Attitudes about casual sex	Strongly DA (1) – Strongly A (5) ^d	2.79	0.93	0.88
Number of sex partners	Open-Ended	9.49	12.45	NA
Number of one-time partners	Open-Ended	3.19	4.71	NA
<i>Misperception of sexual intent</i>				
Misperception of sexual intent	Open-Ended	2.30	2.09	0.76
<i>Childhood victimization</i>				
Physical and emotional abuse ^b	Never (1) – Very Often (5)	4.12	2.15	0.75
Sexual abuse ^b	Never (0) – 10 or More Times (5)	0.54	1.29	0.84
<i>Adolescent delinquency</i>				
Adolescent delinquency	DA strongly (1) – A Strongly (5)	2.14	0.78	0.80
<i>Psychopathy-related personality traits</i>				
Callous affect/Low empathy	DA strongly (1) – A Strongly (5)	1.76	0.45	0.65
Interpersonal manipulation	DA strongly (1) – A Strongly (5)	2.36	0.61	0.71
Erratic lifestyle/Impulsivity	DA strongly (1) – A Strongly (5)	2.88	0.66	0.73
Narcissism – Exploitative	Not at All (1) – Very Much (5)	2.69	0.89	0.80
Narcissism – Entitlement	Not at All (1) – Very Much (5)	2.81	0.87	0.75
<i>Heavy alcohol consumption</i>				
Frequency of drinking 5 or more	Zero (0) – Every Day (9)	2.45	2.32	NA
Alcohol use on dates ^c	Quantity X Frequency	2.66	3.22	NA
Alcohol use sexual situations ^c	Quantity X Frequency	3.69	4.52	NA

Notes.

^a Responses to each 0-5 item were summed.

^b Responses were recoded 0 (none) or 1 (any) and then summed.

^c Quantity of alcohol use on dates and in sexual situations had response scales of none (0) to 13 or more (7), and Frequency of alcohol use on dates and in sexual situations had response scales of never (0) to nearly every time or every time (5). Frequency and quantity were then multiplied. All other scale scores were computed by summing participants' responses and dividing by the number of items.

^d DA = disagree; A = agree.

Table 2
Intercorrelations of Variables Included in Path Analysis (N = 470)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1 Sexual aggression	--																			
2 Sexual dominance	0.26	--																		
3 Stereotypes about women	0.22	0.42	--																	
4 Hostility toward women	0.22	0.32	0.40	--																
5 Attitudes about casual sex	0.30	0.41	0.25	0.21	--															
6 Number of sex partners	0.26	0.19	0.01	0.03	0.34	--														
7 Number of one-time partners	0.29	0.20	0.05	0.00	0.35	0.81	--													
8 Misperception of sexual intent	0.29	0.23	0.17	0.27	0.26	0.25	0.22	--												
9 Physical and emotional abuse	0.20	0.21	0.19	0.22	0.19	0.14	0.16	0.12	--											
10 Sexual abuse	0.11	0.15	0.14	0.07	0.10	0.26	0.19	0.16	0.12	--										
11 Delinquency	0.27	0.27	0.23	0.13	0.34	0.30	0.32	0.14	0.27	0.18	--									
12 Callous affect/Low empathy	0.20	0.22	0.23	0.21	0.21	-0.04	0.01	0.11	0.12	0.08	0.37	--								
13 Interpersonal manipulation	0.19	0.30	0.33	0.24	0.34	0.08	0.09	0.11	0.13	0.00	0.37	0.47	--							
14 Erratic lifestyle/Impulsivity	0.23	0.23	0.18	0.21	0.41	0.18	0.19	0.20	0.20	0.05	0.56	0.33	0.57	--						
15 Narcissism - Exploitative	0.13	0.28	0.25	0.21	0.27	0.14	0.13	0.11	0.15	0.12	0.28	0.17	0.53	0.40	--					
16 Narcissism - Entitlement	0.15	0.44	0.32	0.31	0.26	0.17	0.16	0.16	0.17	0.14	0.25	0.20	0.34	0.27	0.59	--				
17 Frequency drink 5 or more	0.12	0.16	0.10	0.13	0.26	0.16	0.16	0.17	0.03	0.03	0.24	0.16	0.23	0.33	0.18	0.10	--			
18 Alcohol use on dates	0.19	0.10	0.02	0.05	0.31	0.29	0.25	0.19	0.04	0.10	0.25	0.09	0.18	0.26	0.14	0.08	0.47	--		
19 Alcohol use sexual situations	0.22	0.18	0.10	0.08	0.35	0.25	0.27	0.19	0.09	0.05	0.31	0.03	0.17	0.28	0.14	0.09	0.54	0.56	--	

Notes: Sexual aggression was transformed using the natural logarithm. r 's $\geq .09$ are significant at the $p < .05$ level. r 's $\geq .12$ are significant at the $p < .01$ level.

Table 3
Total Standardized Direct and Indirect Effects of each Construct on Sexual Aggression

Construct	Total Effect
Hostile masculinity	0.27*
Impersonal sex	0.23*
Misperception of sexual intent	0.22*
Childhood victimization	0.05*
Adolescent delinquency	0.24*
Psychopathy-related personality traits	0.15*
Heavy alcohol consumption	0.11*

Note.

* $p < .01$.