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## A Prospective Mediation Model of Sexual Aggression Among College Men

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### Abstract

Guided by the Theory of Planned Behavior (TPB), the authors examined prospective associations of attitudes, norms, and control with sexual aggression (SA) perpetration 1 year later among male college students. Data were collected from 652 males via confidential, self-report surveys at the end of their 1st and 2nd years in college. Results indicated that attitudes conducive to SA and perceived norms supportive of SA were associated with a higher likelihood of engaging in SA 1 year later, and mediated the associations of some established risk factors for SA. The findings identify potentially changeable risk factors for perpetrating SA and can thus contribute to the foundation on which to build theoretical and empirically based prevention programs.

### Keywords

sexual aggression; college men; path analysis; Theory of Planned Behavior

Relatively high rates of sexual aggression (SA) perpetration are self-reported by male college students and thus they are a high risk group for targeted prevention services. A national survey of college students found that 25% of men reported perpetrating some form of SA (4% completed rape, 3% attempted rape, 7% sexual coercion, and 10% unwanted sexual contact) since the age of 14 (Koss, Gidycz, & Wisniewski, 1987). A longitudinal survey with college men found that 14% reported perpetrating SA in the previous year (Abbey & McAuslan, 2004). Another longitudinal study with college men found that approximately 9% had committed acts that included the general legal elements of rape, 2% had attempted rape, 8% had engaged in verbal coercion, and 12% had initiated unwanted sexual contact at some time during their college years (White & Smith, 2004). Although not all of these acts, particularly sexual coercion, constitute crimes, women report that they experience coerced sexual acts as having negative lasting impacts on their psychological well-being (Testa, Van-Zile-Tamsen, Livingston, Koss, 2004).

Research has revealed a variety of risk factors for perpetrating SA. These include, but are not limited to, peer pressure to have sex (Jewkes et al., 2006), being in a fraternity (Boeringer, Shehan, & Akers, 1991; Cook, 1995) or on a varsity athletic team (Koss & Gaines, 2003), frequent use of pornography (Malamuth, Addison, & Koss, 2000), heavy alcohol use (Abbey, 2002; Giancola, 2002; Koss & Dinero, 1989; Mohler-Kuo, Dowdall,

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### Declaration of Conflicting Interests

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Koss, & Wechsler, 2004; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994), experiencing a high number of adverse childhood experiences (Anda et al., 2006), being exposed to interparental violence (Arriaga & Foshee, 2004; Lewis & Fremouw, 2000; O'Leary & Arias, 1988), attitudes such as rape-supportive beliefs (Abbey, McAuslan, & Ross, 1998; Malamuth, Linz, Heavey, Barnes, & Acker, 1995; White & Humphrey, 1997), perceived norms such as the extent to which one believes that his peer group disapproves of SA (Burt, 1980; Check & Malamuth, 1983; Foshee, Linder, MacDougall, & Bangdiwala, 2001; Hall & Barongan, 1997; Riggs & O'Leary, 1989), high levels of sexual needs (Mann & Hollin, 2007), and poor impulse control (Ouimette, 1997; Ouimette & Riggs, 1998).

Although research has elucidated a variety of risk factors for SA, a consistent gap in the literature on the prevention of SA has been a lack of theoretical grounding. In this study, we test the potential of the Theory of Planned Behavior (TPB) to integrate several risk factors into one model that could then be used to contribute to a high priority public health goal, which is increased development of theoretical and empirically based prevention programs. One reason we choose the TPB as a potential theoretical framework is its prior application to explaining and preventing other health behaviors, such as risky sexual behaviors (Boyd & Wandersman, 1991; Fishbein & Middlestadt, 1989) and problem drinking (Schlegel, D'Avernas, & Zanna, 1992). TPB has increased understanding of how best to prevent these behaviors. However, to our knowledge, the TPB has not yet been tested for its predictive power with SA.

The TPB includes three key constructs, attitudes, perceived norms, and perceived control, that are hypothesized to predict behavioral intentions or behavior (Fishbein, 1967). According to the TPB, changing attitudes about a behavior is a prerequisite to change that behavior. In support of this, research indicates that rape supportive beliefs are associated with an increased likelihood of SA perpetration (Abbey et al., 1998; Koss et al., 1985; Malamuth et al., 1995; White & Humphrey, 1997). The TPB also would predict that changing an individual's perceived norms related to SA perpetration would be a precursor to changing the behavior itself (Montano, Kasprzyk, & Taplin, 1997). Perceptions that one's peer group disapproves of SA are related to a lower likelihood of committing SA (Burt, 1980; Check & Malamuth, 1983; Foshee et al., 2001; Riggs & O'Leary, 1989). Accordingly, researchers have conceptualized sexual aggression as a result of cultural influences that tolerate or even promote sexual aggressive behavior (Hall & Barongan, 1997). Also according to TPB, changes in behaviors that are largely personal choices are strongly influenced by perceived control over those behaviors. TPB would predict that to avoid or reduce SA, men must perceive that they have control over their sexual behavior. In support of this, one study found that sexual impulse control was worse among men who had perpetrated completed or attempted rape compared to men who had not (Ouimette, 1997).

At least two studies have applied the TPB to other forms of violence perpetration. A study that tested the capacity of TPB to predict men's cessation of intimate partner violence (Tolman, Edleson, & Fendrich, 1996) found that batterers' attitudes toward abusive behavior, perceptions of norms about violence, and the degree to which they believed they had control over their abusive behaviors explained 25% of the variance in subsequent abusive behavior. Of the TPB variables, perceived control was the single most important. In another sample of men enrolled in batterer treatment groups, TPB variables accounted for 27% of the variance in violent behavior. Although all three TPB constructs predicted violence at the bivariate level, only perceived control was significant in the multivariate model that controlled for the other TPB variables (Kernsmith, 2005).

The purpose of the current study was to test a prospective model of hypothesized relationships among established SA risk factors, TPB variables, and SA perpetration 1 year

later. Meditational hypotheses were based on assumptions that the TPB variables could account for some of the established associations of SA risk factors with perpetration of sexual aggression. Hypotheses about which established risk factors were mediated by which TPB constructs were based on existing literature reviewed previously. However, given that the TPB has not been applied to SA before, the extant literature was limited and we thus also hypothesized meditational pathways based on deductions from the principles of TPB. We hypothesized that perceiving peer pressure to have sex would increase SA perpetration by raising rape-supportive attitudes perceived norms supportive of coercive efforts to obtain sex, and reducing motivation to constrain sexual impulses (Jewkes et al., 2006). We hypothesized that being in a fraternity or on a varsity athletic team would increase SA perpetration due to group norms that tolerate or even promote sexual aggressive behavior (Hall & Barongan, 1997; Malamuth, Sockloskie, Koss, & Tanaka, 1991; Martin & Hummer, 1989). We hypothesized that viewing pornography would increase SA perpetration by promoting perceptions that coercive sexual behaviors were more normative than they are (Vega & Malamuth, 2007). We hypothesized that heavy alcohol use would increase SA perpetration because men who drink heavily would be more susceptible to peer influences on sexual behavior norms and also that alcohol use would provide a rationale for them to perceive less personal control over sexual impulses (Wechsler et al., 1994). We hypothesized that negative experiences in childhood and exposure to interparental conflict would lead to increased perceptions that coercive behaviors are both normative and not personally controllable and that these perceptions would in turn increase the risk for SA (Foshee et al., 2001; White & Smith, 2004). Existing research in the trauma field has shown that adverse childhood experiences are associated with diminished perceptions of perceived control over sexual impulses (Brewin & Holmes, 2003; Green et al., 2005) as well as perceptions that abusive behaviors are normative (Bensley et al., 2004). Furthermore, low control has been found to be a mediating mechanism by which witnessing interparental aggression leads to SA among a sample of college men (Ouimette & Riggs, 1998). Thus, to summarize, the TPB was hypothesized to provide a theoretical framework for predicting SA and to explain associations between established risk factors and SA 1 year later.

## Method

### Sample and Procedures

Study data are from a prospective study of college men. The sample was recruited from a population of 1,472 men who enrolled as 1st-year, full-time students at a large southeastern university in August 2007. Recruitment began with an electronic mail message to each male student at the university who was ending his 1st year in college (March-April, 2008), posting an announcement in the student newspaper, and distributing flyers around campus. All methods of communication invited the students to come to the student health center anytime between 9:00 a.m. and 4:00 p.m. during the upcoming week to complete a confidential, 20 to 30 min self-report survey on men's attitudes and behaviors regarding relationships with women. The students were informed that they would be paid US\$20.00 for their participation and would be contacted again to complete another survey at the end of their 2nd year in March-April, 2009.

Wave 1 data were collected over a 1-week period in March-April 2008. Data collection ended once the target sample size of 800 was achieved. Thus we cannot provide a participation rate because potential respondents were turned away after the target sample size was achieved. However, the sample size is approximately half of the total population from which it was drawn. Five individuals were excluded from the study because they were not 18 years of age at the time of data collection. In March-April 2009, the eligible 795 males who completed Wave 1 surveys were contacted via email to complete the Wave 2

survey. Eighty-two percent of the participants completed the Wave 2 survey, resulting in a sample size for this study of 652.

Study procedures were similar for data collection at Wave 1 and Wave 2. At Wave 1, when men arrived at the health center, their names were checked off a master list of names of full-time, 1st-year male students. At Wave 2, participants were provided with a survey that had a confidential, unique code that linked their Wave 2 survey to their Wave 1 survey. At any given hour, there were approximately 20 men taking the survey. Prior to completing surveys, men provided written informed consent. Local IRB approval from the university and a Certificate of Confidentiality from the National Institutes of Health were obtained prior to data collection. No personal identifiers were included on the surveys. After completing the surveys, participants deposited their surveys (without consent forms attached) into a locked box. Then they received payment for their participation and were provided a referral sheet of counseling resources.

The participants were on average 18.56 years at Wave 1 ( $SD = 0.51$ ) and on average 19.59 years ( $SD = .51$ ) at Wave 2. The sample was representative of the population of 1st-year male students in terms of race. Data provided from the Office of Institutional Research indicate that 88% of the 1st-year men who enrolled in August 2007 were white, 7% were black, and 4% other. Reflecting a similar race distribution, our sample was 89% ( $n = 711$ ) white, 7% ( $n = 57$ ) black, and 3% ( $n = 27$ ) other. Retention at Wave 2 was unrelated to Wave 1 demographic or perpetration status.

## Measures

**Sexual aggression**—The revised Sexual Experiences Survey (SES; Koss et al., 2007) was used to assess SA at baseline and one year follow-up. The SES is the most widely used measure of perpetration among college students. Internal consistency reliability for the previous version has been found to be good, and validity studies have shown that responses to the instrument are highly correlated with subsequent responses obtained in face-to-face interviews (Koss et al., 1987; Koss & Gidycz, 1985; Koss & Oros, 1982). The scale uses behaviorally specific questions to assess if, and how many times (0-3+), a woman experienced completed rape, attempted rape, sexual coercion (intercourse subsequent to verbal pressure or misuse of authority), and unwanted sexual contact. The use of behaviorally specific questions helps combat the potential for underreporting SA.

We used a scoring method that accounted for both the severity and frequency of SA. Severity was assessed according to the instructions of the scale authors (Koss et al., 2007, 2008) with higher scores reflecting more severe forms of SA (i.e., in order of unwanted sexual contact, attempted or completed coercion, attempted rape, and completed rape). Frequency assessment followed the procedures of Malamuth and his colleagues (1991). The possible range of scores was 0 (nonperpetrators) to 15 (perpetrators of three incidents of completed rape). Scoring entailed assigning frequency scores within each type of unwanted sexual experience. For example, perpetrators of one incident of unwanted sexual contact were given scores of 1, perpetrators of two incidents of unwanted sexual contact were given scores of 2, and perpetrators of three or more incidents of unwanted sexual contact were given scores of 3. Perpetrators of one incident of attempted coercion were given scores of 4, perpetrators of two incidents of attempted sexual coercion were given scores of 5, and so on, with perpetrators of three or more incidents of completed rape being assigned scores of 15. For perpetrators, the range of scores in our sample was 1 to 12 at Wave 1 ( $M = 6.28$ ;  $SD = 3.68$ ) and 4 to 11 ( $M = 7.34$ ;  $SD = 2.76$ ) at Wave 2. Because the Wave 1 and Wave 2 SA variables were skewed, with most participants reporting no SA, the variables were specified as censored to account its nonnormal distribution (Muthen & Muthen, 1998–2009). The reporting time frame for SA was since the beginning of the academic year (i.e., August 2007

to March-April, 2008 at Wave 1; August 2008 to March-April, 2009 at Wave 2), which spanned approximately 8 months at each Wave.

**TPB mediators**—Attitudes conducive to SA were assessed with the 19-item Rape Supportive Beliefs Scale (Lonsway & Fitzgerald, 1995). Items were answered using a 5-point (1–5) response format; higher mean scores indicated higher levels of rape supportive attitudes ( $M = 2.24$ ;  $SD = 0.62$ ;  $\alpha = .90$ ; e.g., “When women talk and act sexy, they are inviting rape”). Perceived norms were assessed with 6 items that measured peer approval of forced sex (Abbey & McAuslan, 2004) answered using a 4-point (1–4) response format, with higher mean scores indicating greater perceptions that their peers would approve of various strategies to obtain sex with a woman ( $M = 1.28$ ;  $SD = 0.40$ ;  $\alpha = .78$ ; e.g., “Do your friends approve of getting a woman drunk or high to have sex?”). Perceived control was assessed with the 10-item Sexual Compulsivity Scale (Kalichman & Rompa, 2001). Items are answered on a 4-point (1–4) response format, with higher scores indicating greater endorsement of statements related to sexually compulsive behaviors, sexual preoccupations, and sexually intrusive thoughts ( $M = 1.43$ ;  $SD = 0.40$ ;  $\alpha = .83$ ; e.g., “I have to struggle to control my sexual thoughts and behaviors”).

**Established SA risk factors**—Consistent with the College Alcohol Survey (Wechsler & Nelson, 2002), heavy drinking assessed consumption of 5 or more drinks in a 2-hr period within the past 2 weeks (0 = *not at all*; 1 = *at least once*; 47%). Peer pressure for sex was assessed with the mean of 3 items answered on a scale of 1 to 4 (Kanin, 1985), with higher mean scores indicating greater perceptions of peer pressure to have sex with women ( $M = 1.67$ ;  $SD = 0.69$ ;  $\alpha = .76$ ; e.g., “How much pressure do you feel from your friends to tell stories about sexual experiences?”). Fraternity membership assessed if a respondent belonged to a Greek fraternity (0 = *no*; 1 = *yes*; 24%). Varsity sports participation assessed if a respondent was on a varsity athletic team (0 = *no*; 1 = *yes*; 5%). Pornography exposure assessed how many hours a week a respondent looked at sexually explicit material in magazines or on the internet. Responses ranged from none (27%), less than 1 hr (45%), 1 to 2 hr (18%), 3 to 4 hr (7%), and more than 4 hr (3%). Interparental conflict was assessed with the 7-item conflict subscale of the Children’s Perception of Interparental Conflict Scale (CPICS; Grych, Seid, & Finchman, 1992). A 4-point response format was used, with higher mean scores reflecting higher levels of interparental conflict in family of origin ( $M = 1.78$ ;  $SD = 0.57$ ;  $\alpha = .86$ ; e.g., “When my parents had an argument they said mean things to each other”). Adverse child experiences were measured with the sum of 5 yes/no (scored as 1 and 0 respectively) items from the Adverse Child Experiences study (e.g., lived with someone who was a problem drinker or alcoholic; Dube et al., 2004;  $M = 0.43$ ;  $SD = 0.87$ ).

## Results

### Descriptive Statistics for SA

During the 8-month reporting period at Wave 1, a total of 11% ( $n = 87$ ) of the sample reported perpetrating unwanted sex acts. Based on the ordinal scoring, men were classified according to the most severe type of SA they had perpetrated; 2.3% ( $n = 18$ ) of respondents reported perpetrating unwanted sexual contact, 3.3% ( $n = 26$ ) reported sexual coercion, 1.2% ( $n = 9$ ) had engaged in attempted rape, and 4.3% ( $n = 34$ ) reported committing completed rape. The majority had perpetrated these acts with a romantic acquaintance or partner (48%), followed by a nonromantic acquaintance (25%), a casual or first date (15%), a stranger (11%), and a relative or family member (1%). Approximately one third of the men (36%) had victimized another student from the same university and 21% of the incidents occurred on campus.

At Wave 2, 4.9% ( $n = 32$ ) reported sexual coercion, 1.8% ( $n = 12$ ) reported attempted rape, and 4.9% ( $n = 32$ ) reported perpetrating completed rape during the previous 8 months (i.e., during their second academic year). Among males reporting perpetration at Wave 2, the majority had engaged in these acts with a romantic acquaintance or partner (45%), followed by a nonromantic acquaintance (30%), a casual or first date (17%), and a stranger (8%). More than one half (55%) had victimized another student from the same university and 22% of the incidents occurred on campus.

### Path Analysis

MPLUS (version 5.21; Muthen & Muthen, 1998–2009) was used to examine if the TPB variables mediated prospective associations of established risk factors with SA. Weighted least squares were used to examine the overall fit of the model to the data. Several criteria were used to test the overall fit:  $\chi^2/df$  ratio, with ratios less than 3 indicative of good fit (Carmines & McIver, 1981); the Comparative Fit Index (CFI) with values greater than .95 indicative of good fit (Hu & Bentler, 1999); and the Root Mean Square Error of Approximation (RMSEA) with values less than .06 indicative of better fit (McDonald & Ho, 2002). SA at Wave 2 was specified as the outcome variable. We used the full information maximum likelihood (FIML) technique to enable us to make use of data from all 652 participants, regardless of whether they had some missing data. All measures had less than 5 missing cases except for parental conflict, which had missing data for 37 cases. The FIML technique assumes that data are missing at random, and has been demonstrated to provide robust estimates even when this assumption is violated (Cole & Martin, 2005; Little & Rubin, 1989; Muthen, Kaplan, & Hollis, 1987; Schafer, 1997).

We first tested a model shown in Figure 1 that hypothesized direct paths from all three TPB variables and all seven risk factor variables assessed at Wave 1 to Wave 2 SA. SA at Wave 1 and TPB variables at Wave 2 were controlled for in the model. The TPB variables were specified as correlated. Direct paths also were specified from the seven risk variables assessed at Wave 1 to the relevant TPB variables also assessed at Wave 1. Specifically, direct paths were specified from peer pressure to have sex to all three TPB variables, from fraternity and varsity sports team memberships to Norms, from pornography to Norms, from heavy drinking to Norms and Control, from adverse child experiences to Norms and Control, and from interparental conflict to Norms and Control. We then trimmed the model by deleting paths from the risk factor variables to the TPB variables and SA that were not significant, which included paths from all seven established risk factor variables to Wave 2 SA; paths from parent conflict to Norms and Control and paths from adverse child experiences and heavy drinking to Control.

The final model is shown in Figure 2. Model fit statistics suggest acceptable fit:  $\chi^2 (45, N = 645) = 311.93, p < .001$ ; CFI = 0.95; RMSEA = 0.096). The model accounted for 36% of the variance in SA at Wave 2. Standardized parameter estimates for the final model are presented in Figure 2. Controlling for Wave 1 SA, Attitudes ( $z = 2.36$ ) and Norms ( $z = 9.11$ ), but not Control ( $z = 0.11$ ), were significantly associated with increased levels of SA at Wave 2. Greater peer pressure to have sex was significantly associated with higher rape-supportive attitudes ( $z = 5.03$ ), and both heavy drinking ( $z = 3.73$ ) and adverse childhood experiences ( $z = 2.91$ ) were significantly associated with higher levels of SA conducive norms.

We tested the indirect effects of peer pressure, heavy drinking, and adverse child experiences on levels of SA 1 year later to determine if rape-supportive beliefs and peer approval of forced sex mediated the links between them. Indirect effects were tested only if there was a statistically significant association between the risk factor and the TPB variable and between the relevant TPB variable and Wave 2 SA, controlling for Wave 1 SA. Control (i.e., sexual compulsivity) was not tested as a potential mediator because it was not

significantly associated with Wave 2 SA. The INDIRECT command in MPLUS was used to test for mediation, which entails a cross-product approach (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Significant indirect effects indicated that Attitudes ( $z = 2.09, p < .05$ ) mediated the prospective associations between peer pressure to have sex with Wave 2 SA. Significant indirect effects also indicated that Norms mediated the prospective associations of heavy drinking ( $z = 3.46, p < .001$ ) and negative childhood experiences ( $z = 2.84, p < .01$ ) with Wave 2 SA.

## Discussion

SA incidence data found in this study are similar to those reported in comparable studies with male college students. Data from our study indicated that 11.5% had perpetrated some form of SA during their 1st year in college, and 14.1% did so during their 2nd year in college. Other studies have found similar rates, with 11% to 14% of respondents reporting some form of SA over the preceding year (Abbey & McAuslan, 2004; Monson & Langhinrichsen-Rohling, 2002; White & Smith, 2004). The consistency in rates between our study and other relevant studies on SA perpetration suggests that the present sample was comparable in rates of perpetration to other studies that were conducted at universities with higher levels of diversity than the present study.

Using the TPB as a framework for elucidating testable hypotheses about how Attitudes, Norms, and Control functioned to predict SA revealed that attitudes, operationalized as rape supportive beliefs, and perceived norms, operationalized as peer approval of forced sex, were prospectively associated with SA. Furthermore, Attitudes and Norms mediated prospective links between SA and three of its established risk factors. Specifically, we found that peer pressure to have sex was associated prospectively with increased rape-supportive attitudes and these in turn were associated with more severe and frequent SA. Furthermore, we found that heavy drinking and adverse childhood experiences were prospectively associated with perceptions that one's peers would approve of forced sex, which in turn were associated with more severe and frequent SA.

The results of the present study are consistent with prior reports of the capacity of the Attitude and Perceived Norms constructs of TPB to predict men's cessation of intimate violence. Previous reports that Perceived Control also predicted level of violence were not supported. The difference may be attributed to methodological discrepancies, as the prior studies pertained to partner violence and not SA specifically, focused on adult males, and did not include other established risk factors in their predictive models. However, the difference may also be due to the particular importance attitudes and norms play in regulating sexual behavior among college men.

Interventions with male college students indicate that it is possible to affect attitudes supportive of SA. For example, findings from intervention studies suggest that rape-supportive attitudes were reduced following participation in SA prevention programs (Lonsway & Kothari, 2000; Stephens & George, 2009). However, it should be noted that although prevention programs for college males suggest that it is possible to change rape-supportive attitudes (Bachar & Koss, 2001), findings do not indicate that these attitude changes lead to reductions in SA behavior itself (Foubert, Newberry, & Tatum, 2007; Gidycz, Orchowski, & Edwards, in press).

Our data also suggest that targeting norms is important to preventing SA among male college students. The importance of norms among college students has been well elucidated in the alcohol field (Testa, Kearns-Bodkin, & Livingston, 2009), and norms have been found to be the best predictor of drinking behavior among 1st-year college students (Neighbors,

Lee, Lewis, Fossos, & Larimer, 2007). Although a norms-based approach is typically targeted at individuals at-risk for engaging in a particular maladaptive behavior such as SA, one promising approach for preventing SA is to target bystanders (American College Health Association, 2007). Bystander interventions are based on the premise that all persons share a responsibility for preventing negative behaviors. Instead of targeting potential victims and perpetrators, bystander interventions target all members of a community who have the capacity to intervene in situations where the behaviors or its precursors are occurring. Bystander interventions typically are based on the premise that a norms shift is required so that bystanders will feel pressure to do or say something rather than to do or say nothing (Berkowitz, 2003). Although bystander interventions typically have a norms component, they have not focused on the types of norms this study identified as being a mediator of important risk factors and SA perpetration among college men. Rather, the focus has been on such norms as willingness to intervene (Fabiano, Perkins, Berkowitz, Linkenbach, Stark, 2003) and bystander efficacy and attitudes (Banyard, Moynihan, & Plante, 2007). Our findings indicate that targeting norms regarding peer approval of forced sex could reduce the risk for SA perpetration and can offer a theoretically and empirically based approach to continuing to evolve and improve bystander program models. The study had some limitations that should be noted. First, although our prospective design represents a strong methodological advantage over cross-sectional data, increasing our understanding of development during the college years requires the use of multiwave longitudinal data. Although two waves are clearly better than one, three or more can allow for examining trajectories of SA behavior and for predicting changes in trajectories as a function of other variables (Schulenberg, 2006). Second, the study was limited by its inclusion of male students from only one university, but as discussed, rates of SA in our sample were similar to rates in comparable studies with college men. Third, our study was limited in its capacity to measure all elements of the TPB. For example, we did not include a measure of intention to perpetrate SA. Most of the work that has utilized the TPB incorporates this construct as a predecessor of actual behavior, or even in lieu of actual behavior. The intention construct, in our opinion, is more important to include when research is cross-sectional and it is not possible to predict prospectively if the actual behavior occurred. Our assessment of SA behavior 1 year later offsets, to some extent, the omission of the intention construct as we were able to predict prospectively if the behavior did indeed occur. Relatedly, our measures of the TPB constructs may not have been the most optimal. For example, to assess Perceived control, we used a measure of sexual compulsivity that asked participants about their control over their sexual thoughts and behaviors generally and not over coercive sexual behaviors specifically.

Despite these limitations, the study adds to the extant knowledge base by elucidating the important roles played by attitudes and perceived norms in increasing the risk for SA among male college students. SA is prevalent on college campuses and more effective interventions are needed to help universities combat this public health problem. Our study suggests that the TPB could be applied to prevention programs, both those targeted at high risk groups such as heavy drinkers and universal approaches that may utilize a bystander model. Prevention programs, including bystander intervention programs, should incorporate strategies to alter attitudes and norms.

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## Biographies

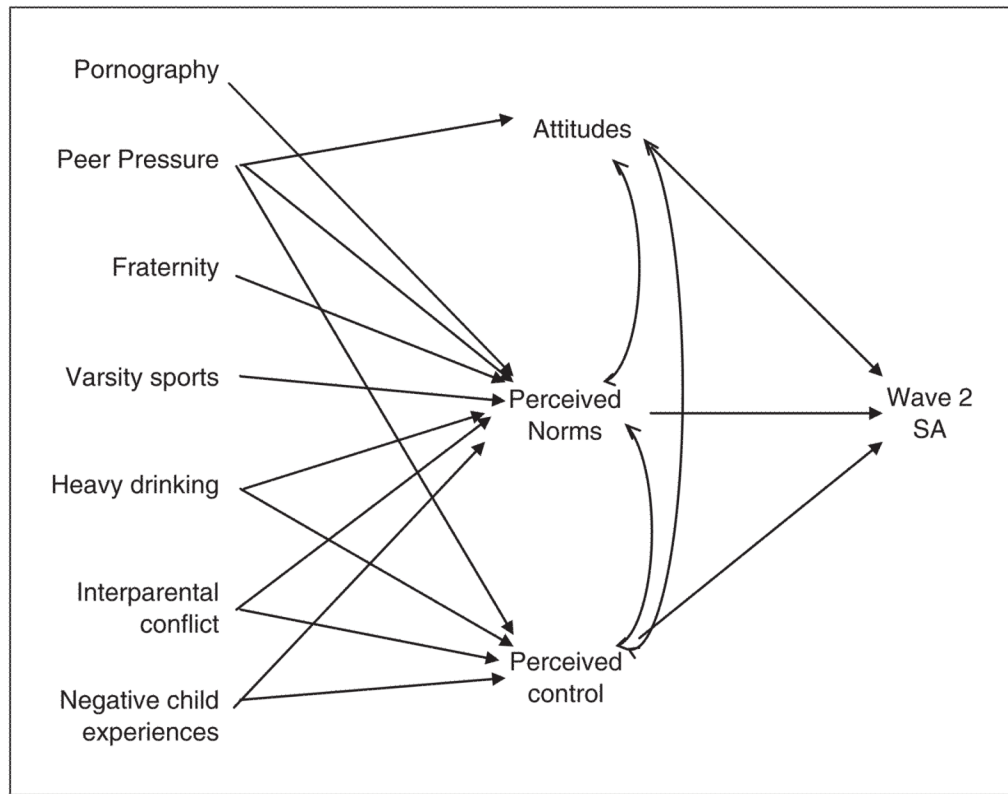
**Martie P. Thompson**, PhD, is a research professor in the Department of Public Health Sciences and Center Director at the Center for Research and Collaborative Activities at Clemson University. She holds a PhD in community psychology and her research has focused on risk factors and consequences of violent victimization as well as risk factors for suicidal behaviors.

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**Jennifer Goree**, MEd, is a health educator with the Redfern Student Health Center at Clemson University.

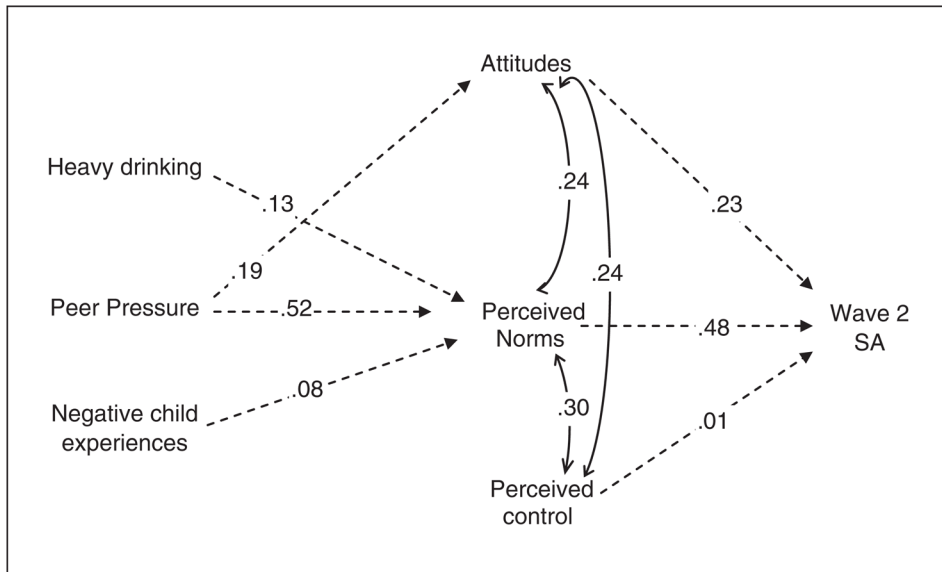
**John Rice**, BS, is a law student at University of Tennessee. He completed his undergraduate degree in sociology at Clemson University.



**Figure 1.**

Hypothesized model

Note: Wave 1 SA and Wave 2 Attitudes, Norms, and Control were controlled for (not shown in Figure). Direct paths from Wave 1 risk factor variables to Wave 2 SA were specified (not shown in Figure).



**Figure 2.** Final model showing standardized parameter estimates  
 Note: Dashed lines indicate mediating mechanisms; Wave 1 SA and Wave 2 Attitudes, Norms, and Control (not shown in Figure) were controlled for.