

# A Longitudinal Study of Risk Factors for Repeated Sexual Coercion and Assault in U.S. College Men

Heidi M. Zinzow · Martie Thompson

Received: 6 September 2012 / Revised: 31 January 2013 / Accepted: 9 December 2013 / Published online: 25 February 2014  
© Springer Science+Business Media New York 2014

**Abstract** The purpose of the current study was to understand the prevalence, severity, and predictors of repeated sexual coercion and assault (SCA) in a non-criminal sample. Participants were 795 college men who were surveyed at the end of each of their 4 years in college. Participants completed self-report inventories once per year for 4 years. Measures assessed demographics, adverse childhood experiences, offense characteristics, antisocial personality characteristics, attitudes towards women and forced sex, perceived social norms, sexual behavior, and substance use. Results indicated that, among the 238 participants who reported at least once incident of SCA, 68 % engaged in repeated SCA, with repeat offenders engaging in aggressive acts of higher severity that began at an earlier age. A multinomial logistic regression model compared single and repeat offenders to non-perpetrators. Both single and repeat offenders endorsed more risky behaviors and sexually aggressive beliefs than non-perpetrators. Single offenders were higher on childhood adversity than non-perpetrators and repeat offenders were higher on antisocial personality traits than non-perpetrators. A second multivariate model compared single offenders to repeat offenders. Repeat offenders scored higher than single offenders on risky behaviors, sexually aggressive beliefs, and antisocial traits. Findings highlight the high prevalence of repeated SCA in young adults, the need for interventions that decrease rape supportive attitudes and risky substance use, and the importance of expanding models of sexual recidivism to include multiple risk factors.

**Keywords** Sexual aggression · Sexual assault · Perpetration · Recidivism · Attitudes · Personality

## Introduction

Sexual coercion or assault (SCA) can be defined as unwanted sexual contact, sexual coercion, attempted rape, or completed rape. The prevalence of male perpetration of SCA is high in college samples, ranging from 10 to 29 % (Abbey & McAuslan, 2004; Hines & Saudino, 2003; White & Smith, 2004). Although rates of lifetime perpetration may be even higher in community samples (24–64 %), most sexual assaults occur in young adulthood (Abbey, Parkhill, BeShears, Clinton-Sherrod, & Zawacki, 2006; Senn, Desmarais, Verberg, & Wood, 2000). Sexual victimization of women, including sexual coercion, has been associated with a variety of physical and psychological consequences for its victims. These negative consequences include posttraumatic stress disorder, depression, substance use disorders, and poor self-rated health (e.g., Golding, 1999; Resick, 1993; Tjaden & Thoennes, 2006). Rates of men's self-reported perpetration are lower than women's reports of victimization (Kolivas & Gross, 2007). It is likely that the presence of repeat offenders is responsible for a large portion of victimization incidents and can partially account for these reporting gaps. Theorists suggest that offenders follow different trajectories, with short-term, opportunistic offenders differing from chronic, persistent offenders (Seto & Barbaree, 1997). Understanding the prevalence and correlates of repeat offending, or recidivism, is crucial to informing prevention efforts.

In an aggregated sample of 4,274 individuals who had been convicted of sexual offenses, 14 % were convicted of a new charge within 5 years and 27 % within 20 years (Hanson, Morton, & Harris, 2003). A meta-analysis of 82 studies found that the average sex offense recidivism rate was 14 %, as defined by arrest,

---

H. M. Zinzow (✉)  
Department of Psychology, Clemson University, 418 Brackett  
Hall, Clemson, SC 29634, USA  
e-mail: hzinzow@clemson.edu

M. Thompson  
Department of Public Health Sciences, Clemson University,  
Clemson, SC, USA

reconviction, and reincarceration rates (Hanson & Morton-Bourgon, 2005). The samples included offenders from institutions (50 %), the community (e.g., private clinics, 21 %), or both (27 %), with over one-third recruited from sexual offender treatment programs. These figures likely represent significant underestimates of actual recidivism, given underreporting of sexual crimes as well as the restricted definition of recidivism. For example, Hanson et al. (2003) estimated the probability of detection by law enforcement to be 15 % per offense. Therefore, Hanson et al. suggested that actual recidivism rates are in the range of 35–55 %. Research is clearly needed from samples where first offenses have not been detected or reported to the criminal justice system in order to better estimate the recidivism rate.

Examining predictors of sexual reoffending can be guided by extant literature on predictors of SCA in general. Several different models have been proposed to explain sexually coercive and assaultive behavior. In the ecological model of SCA, individual developmental factors and family experiences interact with broader social factors, such as peer approval of sexual violence, to influence behavior (Malamuth, Sockloskie, Koss, & Tanaka, 1991). Based on this theory, the confluence model of SCA identified two pathways that can either independently or synergistically predict coercion and assault: one that involves early childhood adversity (family violence and child abuse) and impersonal sex/promiscuity and a second that involves hostile attitudes towards women (Malamuth, Linz, Heavey, Barnes, & Acker, 1995). Similarly, social cognitive theory has been applied to SCA and posits that individuals develop a set of attitudes and beliefs (e.g., hostility towards women) based on adverse life experiences and social interactions (Hanson & Harris, 2000). In support of the first pathway of the confluence model, studies of college populations have identified adverse childhood experiences (Koss & Dinero, 1988; Ouimette & Riggs, 1998), interparental violence (Malamuth et al., 1991), high levels of sexual needs (Mann & Hollin, 2007), and multiple, impersonal sexual partners (Malamuth et al., 1995) as associated with SCA. Studies of recidivism have found mixed support for the significance of adverse childhood experiences (Craissati & Beech, 2005; Craissati, Webb, & Keen, 2008; Hanson & Bussière, 1998), but have noted a significant association between multiple sexual partners and reoffending in college students (Abbey & McAuslan, 2004). With respect to the second pathway of the confluence model and social cognitive theories, studies have also identified the following significant predictors of sexual aggression and recidivism: rape supportive beliefs, hostility towards women, and perceived norms such as peer pressure for sex and peer approval of forced sex (Abbey & McAuslan, 2004; Abbey, McAuslan, & Ross, 1998; Beech, Friendship, Erikson, & Hanson, 2002; Malamuth et al., 1995; Thornton, 2002).

More recently, researchers have expanded the confluence model to include antisocial personality traits and alcohol use (Abbey, Jacques-Tiura, & LeBreton, 2011; Malamuth, 2003). Researchers propose that physical and sexual abuse of a child not

only models aggressive behavior, but also leads to the development of antisocial personality traits such as arrogance, deceitfulness, emotional detachment, impulsivity, and sexual preoccupation (Knight & Sims-Knight, 2003). Malamuth argued that antisocial traits exert a distal effect on sexual aggression because they encourage hostile masculinity. Consistent with this model, antisocial personality characteristics, including lack of empathy, impulsivity, a manipulative approach to relationships, and pervasive anger, have been associated with SCA in college samples, as well as recidivism in incarcerated samples (Beech et al., 2002; Berkowitz, 1992; Hanson & Harris, 2000; Ouimette & Riggs, 1998). Genetic studies suggest that these antisocial tendencies are heritable, although interactions with the environment affect their expression (Johansson et al., 2008; Mason & Frick, 1994). Of particular relevance to understanding repeat offenders are theoretical assumptions that social and attitudinal factors interact with antisocial personality traits to predict the chronicity and severity of aggression (Hall & Hirschman, 1991).

Finally, alcohol use may contribute to SCA through beliefs about its effects on sexual behavior, stereotypes about drinking women, and its effects on cognitive and motor skills (Abbey, Zawacki, Buck, Clinton, & McAuslan, 2001). Empirical findings support the link between alcohol use and SCA in college samples (Abbey, 2002; Giancola, 2002), as well as between alcohol use and recidivism in both college and incarcerated samples (Abbey & McAuslan, 2004; Looman & Abracen, 2011).

Despite the amount of research on SCA among college students, most of the research on repeat offending has been limited to small samples of convicted sex offenders. In addition to the variables that have been examined in general studies of SCA, these studies often include earlier offense characteristics as predictors. One meta-analysis of 61 studies identified the following demographic variables and offense characteristics to be associated with sexual offense recidivism in samples that primarily included convicted sex offenders: low socioeconomic status, minority race, prior criminal offenses, began offending at an early age, victimized strangers, and committed rape (Hanson & Bussière, 1998). In other words, repeat offenders appear to experience more socioeconomic stressors and to exhibit a pattern of early, severe offending.

In sum, prior studies of repeated SCA have been limited by small sample sizes and a focus on convicted sex offenders. Therefore, it is difficult to determine whether findings would generalize to the larger population of offenders that has not been detected by the criminal justice system. Furthermore, while prior studies focus on acts that result in criminal convictions, such as forcible rape, other forms of sexual coercion have significant negative psychosocial effects for victims (Testa, VanZile-Tamsen, Livingston, & Koss, 2004) and should also be evaluated. As a result, little is understood about differences in types of SCA between single and repeat offenders, as well as how severity level

may change from adolescence through young adulthood. In addition, few studies have included the multiple risk factors identified in the literature within one multivariate model in order to determine which model of SCA offers the best explanation for repeat offending. Finally, studies have failed to compare non-perpetrators, single offenders, and repeat offenders within one sample. Therefore, it has been difficult to determine whether the risk factors are specific to recidivism or are merely predictive of SCA in general. The purposes of the current study were (1) to estimate the prevalence of sexual reoffending in a sample of college men who represent a high risk group for SCA, but have not necessarily been detected by the criminal justice system; and (2) to apply multivariate techniques to determine how childhood experiences, attitudes, norms, personality characteristics, risky behavior, and offense characteristics differentiate single sexual offenders from repeat offenders.

## Method

### Participants and Procedure

A sample of 795 male undergraduates was recruited via email, newspaper announcements, and flyers from a population of 1,472 men enrolled as 1st-year, full-time students at a large southeastern university. Participants were invited to complete a confidential 20–30 min self-report survey on men's attitudes and behaviors regarding relationships with women, including sex, gender roles, and unwanted sexual advances. Wave 1 data were collected over a 1-week period in March–April 2008. In March–April 2009, 2010, and 2011, the 795 men who participated in Wave 1 were contacted via email to participate in follow-up surveys. For all waves of data collection, participants first completed written informed consent. Eighty-two percent of the original 795 participants completed the Wave 2 survey, 75 % completed the Wave 3 survey, and 72 % completed the Wave 4 survey. 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. Participants were paid \$20 for their participation at Waves 1 and 2, and \$25 at Waves 3 and 4.

The average age of participants was 18.56 years at Wave 1 ( $SD = 0.51$ ) and 90 % were White. Attrition analyses for all four time points indicated that participants with higher impulsivity, greater drug use, and greater alcohol use were less likely to complete the Wave 3 survey,  $F(1, 794) = 9.90, p < .01$ ;  $F(1, 794) = 20.51, p < .001$ ;  $F(1, 794) = 10.23, p < .01$ , respectively. Participants with more adverse childhood experiences were less likely to complete the Wave 4 survey,  $F(1, 794) = 7.01, p < .01$ . Participants with a higher number of sexual partners were less

likely to have completed follow-up surveys at each wave: Wave 2:  $F(1, 794) = 3.94, p < .05$ ; Wave 3:  $F(1, 794) = 14.96, p < .001$ ; Wave 4:  $F(1, 794) = 10.89, p < .001$ .

## Measures

### *Sexual Coercion and Assault*

The revised Sexual Experiences Survey (SES) (Koss et al., 2007) was used to assess SCA. 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 & Gidycz, 1985; Koss, Gidycz, & Wisniewski, 1987; Koss & Oros, 1982). The scale uses behaviorally specific questions to assess if a participant perpetrated behaviors that constitute unwanted sexual contact against a woman, sexual coercion, attempted rape, and completed incapacitated or forcible rape. Unwanted sexual contact was assessed with five items that asked if the study participant fondled, kissed, or removed clothes without consent via threats, verbal pressure, criticism, incapacitation (“taking advantage when she was too drunk or out of it to stop what was happening”), or physical force. Sexual coercion was assessed with 12 items that asked if the participant engaged in attempted or completed oral, vaginal, or anal penetration without consent via threats, verbal pressure, or criticism. Attempted rape was assessed with nine items that asked if the participant attempted oral, vaginal, or anal penetration without consent via incapacitation, physical threats, or force. Completed rape was assessed with nine items that asked if the participant engaged in oral, vaginal, or anal penetration without consent via incapacitation, physical threats, or force. The use of behaviorally specific questions helps combat the potential for underreporting SCA. The ordinal scoring option recommended by the SES Collaborative was used to classify participants' first offense according to the most severe type of SCA as follows: (1) unwanted sexual contact, (2) coercion, (3) attempted rape, and (4) completed rape.

At each wave of data collection, participants responded to the SES for two time periods. During Wave 1, participants responded to the SES for the time before entry to college and for the time since entering college. For the three subsequent waves, participants responded for the summer prior to that academic year and for the time period that included that academic year. For the purposes of the current study, if a participant endorsed SCA at more than one of these eight time points, he was classified as a reoffender.

### *Predictors*

All variables were based on Wave 1 data to maintain their status as predictors of offenses at later time points, and offense characteristics are based on assessments from all relevant time points.

### Offense Characteristics

We measured the following characteristics of first offenses: offense before college, offense severity, victimized a stranger, and substance involvement. Participants were coded as having committed their first offense before college based on their responses to the SES during this timeframe. Severity of first offense was based on the highest severity level endorsed on the severity scale from the SES, as described above (unwanted sexual contact = 13 %, coercion = 46 %, attempted rape = 10 %, rape = 31 %). Whether the victim of the first offense was a stranger was determined by a close-ended question that asked whether the woman was a stranger, non-romantic acquaintance, casual/first date, romantic acquaintance or partner, or relative/family member (10 % endorsed “stranger”). Substance use on the first offense was assessed by two items that asked whether the victim or participant had been using alcohol or drugs just prior to the incident (68 % responded positively to at least one item). We also examined all offenses committed by a participant to create the following variables: highest severity of any offense, victimized a stranger during any offense, and substance use during any offense.

### Demographics

Demographic questions assessed age and race. Race was coded “0” for “White” and “1” for “Minority” (Black, Hispanic, or Other).

### Childhood Adversity

Inter-parental conflict was assessed with the seven-item conflict subscale of the Children’s Perception of Interparental Conflict Scale (CPICS) (Grych, Seid, & Fincham, 1992). A four-point response format was used, with higher mean scores reflecting higher levels of inter-parental conflict in family of origin ( $M = 1.77$ ;  $SD = 0.57$ ;  $\alpha = .86$ ; e.g., “When my parents had an argument, they said mean things to each other”). Adverse child experiences was measured with the sum of five yes/no items from the Adverse Child Experiences study (e.g., lived with someone who was a problem drinker or alcoholic) (Dube, Williamson, Thompson, Felitti, & Anda, 2004),  $M = 0.46$ ;  $SD = 0.90$ ;  $\alpha = .62$ . Child sexual abuse was measured by two behaviorally specific questions assessing whether the participant had engaged in sexual activities with someone 5 years older before the age of 18, or whether physical force was used by a perpetrator less than 5 years older before age 18 (11 % endorsed one of these items).

### Attitudes and Beliefs

Rape supportive attitudes were measured with the 19-item Rape Supportive Beliefs Scale (Lonsway & Fitzgerald, 1995). Items were answered on a 1–5 point response format, with higher

mean scores indicating higher levels of rape supportive attitudes ( $M = 2.24$ ;  $SD = 0.62$ ;  $\alpha = .89$ ; e.g., “When women talk and act sexy, they are inviting rape”). Hostility toward women was measured using an eight-item scale adapted by Koss and Gaines (1993) from the Hostility Toward Women Scale (Check, 1984). Items were answered using a 1–5 point response format, with higher scores reflecting higher levels of hostility toward women ( $M = 23.60$ ;  $SD = 6.07$ ;  $\alpha = .90$ ; e.g., “When it comes down to it, a lot of women are deceitful”).

### Social Norms

A mean of 12 items adapted from two scales were used to assess peer attitudes towards coercive sex and perceived social norms. All items were assessed on a 1–4 scale, with higher mean scores indicating greater perceived approval of forced sex ( $M = 1.51$ ;  $SD = 0.40$ ;  $\alpha = .80$ ). Peer approval of forced sex was assessed with six items (e.g., “Do your friends approve of getting a woman drunk or high to have sex?”, Abbey & McAuslan, 2004). Lack of perceived negative sanctions toward sexual aggression was assessed with three items (e.g., “Bad things happen to people who are sexually aggressive to girls”) (Foshee, Linder, MacDougall, & Bangdiwala, 2001).

### Personality Traits

Personality traits conducive towards SCA were measured as five separate constructs: low levels of empathy, conning and superficial charm, pervasive anger, impulsivity, and sexual compulsivity. Empathy was measured with the mean of four items on a 1–5 response format from the Perspective Taking Scale of the Interpersonal Reactivity Index, with higher scores reflecting lower empathy ( $M = 1.45$ ,  $SD = 0.68$ ;  $\alpha = .77$ ; e.g., “When I’m upset at someone, I usually try to ‘put myself in his shoes’ for a while” (Davis, 1980). Conning and superficial charm was assessed with the mean of six items from the Multidimensional Assessment of Sex and Aggression (Knight, Prentky, & Cerce, 1994). Items were answered on a scale of 1–5, with higher mean scores reflecting more superficial charm ( $M = 3.13$ ;  $SD = 0.92$ ;  $\alpha = .75$ ; e.g., “I can easily charm someone to do almost anything for me”). Pervasive anger was measured with eight items on a 1–5 response format from the Pervasive Anger subscale of the Multidimensional Assessment of Sex and Aggression, with higher mean scores reflecting greater pervasive anger personality characteristics ( $M = 2.41$ ;  $SD = 0.68$ ;  $\alpha = .87$ ; e.g., “I lose my temper easily” (Knight et al., 1994). Impulsivity was assessed with the 19-item Impulsivity Questionnaire (Eysenck, Pearson, Easting, & Allsopp, 1985). Items were answered using a yes/no (scored as 1 and 0 respectively) response format and higher mean scores indicated greater impulsivity ( $M = 0.34$ ;  $SD = 0.21$ ;  $\alpha = .79$ ; e.g., “Do you need to use a lot of self-control to keep out of trouble?”). Sexual compulsivity was assessed with the 10-item

Sexual Compulsivity Scale (Kalichman & Rompa, 2001). Items were answered on a 1–4-point response format, with higher mean 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”).

### Risky Behavior

We assessed the following risky behaviors: high-risk drinking, drug use, and number of sexual partners. High-risk drinking was assessed with the mean of five standardized items from the College Alcohol Survey that measured quantity and frequency of alcohol use in the past 30 days. Items included: the number of occasions during which alcohol was consumed in the past 30 days, the average number of drinks consumed per occasion, how many occasions one drank to get drunk in the past 30 days, the largest number of drinks consumed in a 24-h period in the past 30 days, and if one had consumed five or more drinks in a row in a 2-h period in the past 2 weeks. The items are recommended by NIAAA to assess drinking amount and patterns (Dawson & Room, 2000; absolute range = 0–7.2;  $M = 3.29$ ,  $SD = 1.95$ ;  $\alpha = .92$ ). Drug use was measured with two items assessing past marijuana or other illegal drug use (1 = yes, 0 = no; 68 % endorsed one of these items). For number of sexual partners, participants were asked how many people they had had vaginal or anal sex with since the age of 14 ( $M = 3.61$ ,  $SD = 3.97$ ).

## Results

### Prevalence of Sexual Coercion/Assault and Offense Severity Levels

We first examined the prevalence of SCA and repeated SCA, as well as prevalence of incident severity levels at each measured timeframe. Of the entire sample ( $N = 795$ ), 30 % committed an act of sexual coercion or assault ( $n = 238$ ). Of those who had committed at least one act of SA, 68 % recidivated during the four-year timeframe ( $n = 162$ ). Of repeat offenders, 42 % offended at two time points, 22 % offended at three time points, 14 % offended at four time points, and 23 % offended at five or more time points. A large portion of single (33 %) and repeat offenders (55 %) had committed an offense before college. For repeat offenders, rates of offending remained fairly stable over time (38–59 % at each time point). Single offenders engaged in higher rates of offending during the academic year (12–21 %) as compared to the summer (4–12 %) (see Table 1).

Over half of repeat offenders committed a second offense of similar severity (56 %), 26 % committed a higher severity repeat offense, and 18 % committed offenses of lower severity.

**Table 1** Percent of single and repeat offenders that engaged in different forms of sexual aggression during each timeframe

	Any offense % (n)	Unwanted sexual contact (%)	Coercion (%)	Attempted rape (%)	Rape (%)
Before academic year 1					
Single offenders (n = 76)	33 (25)	8	26	4	7
Repeat offenders (n = 162)	55 (89)	9	43	17	22
Academic year 1 (n = 238)					
Single offenders (n = 76)	14 (11)	9	3	3	3
Repeat offenders (n = 162)	49 (80)	37	22	16	21
Summer 1					
Single offenders (n = 57)	12 (7)	5	10	0	2
Repeat offenders (n = 138)	47 (65)	10	36	36	17
Academic year 2					
Single offenders (n = 57)	18 (10)	7	4	5	3
Repeat offenders (n = 138)	59 (81)	43	17	14	22
Summer 2					
Single offenders (n = 56)	5 (3)	4	7	4	2
Repeat offenders (n = 136)	48 (66)	7	35	12	13
Academic year 3					
Single offenders (n = 57)	12 (7)	5	11	0	2
Repeat offenders (n = 136)	52 (71)	39	28	14	15
Summer 3					
Single offenders (n = 51)	4 (2)	2	6	0	0
Repeat offenders (n = 121)	38 (46)	7	32	12	12
Academic year 4					
Single offenders (n = 52)	21 (11)	13	11	6	6
Repeat offenders (n = 120)	46 (55)	32	31	17	16

Non-mutually exclusive classification of severity level is reported. A participant may have employed different tactics at one time point, and each is represented in the table

Results of correlation analyses relating repeated SCA to offense characteristics from any offense indicated that perpetrators who engaged in repeated SCA were more likely than perpetrators of single incidents to have victimized a stranger,  $r(236) = .14$ ,  $p < .05$ , engaged in a substance-involved assault,  $r(236) = .23$ ,

$p < .01$ , and perpetrated rape,  $r(236) = .34$ ,  $p < .01$ . Single offenders were more likely than repeat offenders to report unwanted sexual contact,  $r(236) = .35$ ,  $p < .01$ , or coercion,  $r(236) = .15$ ,  $p < .05$ , as their highest severity level offense. Committing a rape before college was positively associated with repeat offending,  $r(236) = .21$ ,  $p < .01$ , as well as committing rape as the highest severity level offense during one of the other measured timeframes,  $r(236) = .17$ ,  $p < .01$ . Among repeat offenders, participants who committed rape as a first offense were more likely to commit rape as a repeated offense,  $r(160) = .42$ ,  $p < .01$ , and participants who engaged in coercion on the first offense were more likely to engage in coercion as the highest severity level of a repeated offense,  $r(160) = .44$ ,  $p < .01$ .

### Predictors of Single and Repeat Offending

We conducted principal components analysis with variables assessing theoretical constructs of interest (i.e., non-demographic variables) using the entire sample. Direct oblimin rotation was used, factors with eigenvalues greater than 1 were retained, and factor loadings greater than .3 were interpreted. These analyses identified four factors. The first factor represented risky behavior and included alcohol use, drug use, and multiple sexual partners. The second factor represented sexually aggressive beliefs and attitudes and included sexual compulsivity, rape myth acceptance, hostility towards women, rape supportive social norms, and conning/superficial charm. The third factor represented low antisocial personality traits, with negative loadings for: conning/superficial charm, pervasive anger, impulsivity, and low empathy. The fourth factor represented childhood adversity and included adverse childhood experiences, inter-parental conflict, and child sexual abuse (Table 2).

Factor scores for each factor were created using the regression method, which created a composite score for each individual on a particular factor based on responses to all items (Tabachnick & Fidell, 1996). Due to negative loadings on Factor 3, the composite score was reversed for ease of interpretation. These factor scores were used as predictors in multinomial logistic regression analyses, along with age and race, to predict whether participants were categorized as a non-sexual offender, single offender, or repeat offender ( $N = 795$ ). In comparison to non-offenders, single and repeat offenders had significantly higher scores on risky behavior (AOR = 1.67,  $p < .01$ ; AOR = 3.06,  $p < .001$ , respectively) and sexually aggressive beliefs/norms (AOR = 1.59,  $p < .01$ ; AOR = 2.82,  $p < .001$ , respectively). The odds ratios for these factors were larger for the repeat offender group. Single offenders were higher than non-offenders on childhood adversity (AOR = 1.50,  $p < .01$ ) and repeat offenders were higher than non-offenders on antisocial traits (AOR = 1.39,  $p < .001$ ). Age and race did not differentiate between groups (Table 3).

A second multivariate logistic regression compared repeat offenders to single offenders ( $n = 238$ ). Predictors included

**Table 2** Factor loadings for predictors

Variable	Factor 1	Factor 2	Factor 3	Factor 4
Risky drinking	<b>.85</b>	-.02	-.04	-.11
Drug use	<b>.82</b>	-.11	-.03	.00
Number of sexual partners	<b>.63</b>	-.04	-.10	.02
Sexual compulsivity	-.09	<b>.56</b>	-.08	.14
Rape myth acceptance	-.12	<b>.88</b>	.07	-.19
Hostility towards women	-.02	<b>.81</b>	-.05	-.05
Rape supportive social norms	.36	<b>.47</b>	.04	.11
Conning/superficial charm	.23	<b>.36</b>	<b>-.32</b>	.01
Pervasive anger	.04	.17	<b>-.70</b>	.12
Impulsivity	.16	.09	<b>-.61</b>	.10
Low empathy	-.01	-.12	<b>-.72</b>	-.09
Adverse childhood experiences	.06	-.07	.11	<b>.82</b>
Inter-parental conflict	-.15	-.04	-.19	<b>.77</b>
Child sexual abuse	.28	.18	.20	<b>.32</b>

Factor loadings above .3 are indicated in bold

significant variables from the first analysis, as well as first offense characteristics. While controlling for other factors, repeat offenders were more likely than single offenders to score higher on risky behavior (AOR = 1.92,  $p < .01$ ), sexually aggressive beliefs/norms (AOR = 1.74,  $p < .01$ ), and antisocial traits (AOR = 1.45,  $p < .05$ ), and less likely to report childhood adversity (AOR = 0.63,  $p < .01$ ). Odds ratios were similar in magnitude for each of these significant factors. No first offense characteristics were significant (Table 4).

Correlational analyses were examined to explicate the non-significant status of offense characteristics in the multivariate model. These analyses indicated that unwanted sexual contact on the first offense was positively associated with single offender status and rape on the first offense was positively associated with repeat offender status. Committing rape was also associated with substance involved offenses and risky behavior. Committing an offense before college was positively related to repeat offender status, risky behavior, sexually aggressive beliefs, and childhood adversity. Substance involvement on the first offense was positively related to risky behavior (Table 5).

### Discussion

Of the 238 participants (30 % of total sample) who committed SCA within this study's reporting period, the majority (68 %) reoffended within the course of their college careers. This rate was significantly higher than prior estimates of sexual recidivism (i.e., 14–27 %, Hanson & Morton-Bourgon, 2005; Hanson et al., 2003). The higher rates identified in this study were likely due to the fact that we employed broader definitions of sexual aggression that included unwanted sexual contact and sexual coercion, measured SCA at several time

**Table 3** Predictors of single and repeated sexual coercion and assault ( $N = 795$ )

Predictors	Single offender		Repeat offender	
	AOR	95 % CI	AOR	95 % CI
Age	0.76	0.44–1.31	0.92	0.57–1.48
Minority race	0.69	0.26–1.86	0.95	0.42–2.15
Factor 1: Risky behavior	1.67**	1.22–2.28	3.06***	2.31–4.05
Factor 2: Sexually aggressive beliefs/norms	1.59**	1.18–2.14	2.82***	2.15–3.72
Factor 3: Antisocial traits	1.10	0.83–1.47	1.39***	1.08–1.78
Factor 4: Childhood adversity	1.50**	1.15–1.97	1.05	0.80–1.38

The reference group was non-sexual offenders

AOR adjusted odds ratio

\*\*  $p < .01$ ; \*\*\*  $p < .001$

**Table 4** Predictors of repeat offending among participants who engaged in sexual coercion and assault ( $N = 238$ )

Predictors	AOR	95 % CI
Severity of first offense		
Unwanted sexual contact	1.00	–
Coercion	1.56	0.60–4.06
Attempted rape	2.03	0.56–7.40
Rape	2.74	0.97–7.70
First offense before college	1.66	0.84–3.28
Victimized stranger (first offense)	3.08	0.83–11.40
Substance-involved assault (first offense)	0.76	0.35–1.66
Factor 1: Risky behavior	1.92**	1.27–2.90
Factor 2: Sexually aggressive beliefs/norms	1.74**	1.22–2.49
Factor 3: Antisocial traits	1.45*	1.03–2.05
Factor 4: Childhood adversity	0.63**	0.46–0.86

AOR adjusted odds ratio

\*  $p < .05$ ; \*\*  $p < .01$

points, and did not rely on law enforcement detection to identify offenders. Furthermore, convicted offenders may have reduced rates of reoffending due to interventions from the criminal justice process. Even so, it is likely that these values represent underestimates due to reporting biases and the fact that we did not follow participants beyond young adulthood. In addition, several of the risk factors associated with recidivism were also associated with attrition, which could have contributed to underestimates of reoffending. In sum, the prevalence of sexual recidivism in this study underscores the high risk of SCA during college as well as the likelihood that young adult sexual offenders will commit another offense, especially if they remain undetected. Although total number of prior offenses is a predictor of future recidivism (Hanson & Bussière, 1998), further research is needed to follow young adults through later

adulthood to determine if the pattern of repeat offending continues at similar rates over time.

Our findings suggest that a large portion of young adult offenders began engaging in SCA prior to age 18 although engaging in an early offense did not differentiate between single and repeat offenders in the multivariate model. Interestingly, rates of offending were higher during the academic year for single offenders, suggesting that the college environment may be an important contextual factor in facilitating SCA among this group of offenders. In contrast, repeat offenders reoffended at similar rates over time, with approximately one-third increasing the severity level of their offense over time, over one-half committing a rape at some point in their lives, and the majority committing three or more offenses during the reporting period. This, in combination with results from the multivariate models, suggests that single and repeat offenders may follow different trajectories.

In our study, there were both similarities and differences in the risk factors for single versus repeated instances of SA. The similarities suggest that repeated SCA can partly be understood within existing models for SCA in general. Consistent with social cognitive theories and the confluence model (Hanson & Harris, 2000; Malamuth et al., 1995), rape supportive beliefs, peer norms, and risky behavior (e.g., multiple sexual partners) were predictive of both single and repeat sexual offending. Our findings furthermore supported theories relating substance use to SCA (Abbey et al., 2001), because our risky behavior factor, which included risky alcohol and drug use, was predictive of both single and repeat offending. These relationships were particularly strong for the repeat offender group.

The confluence model also identified childhood adversity as a risk factor for sexual offending, and this factor was only significant in classifying single offenders in our study. However, childhood adversity was positively related to both repeat offending and antisocial personality traits at the univariate level. The non-significance of childhood adversity in predicting repeat offending in the first multivariate model suggests that the impact of childhood adversity on repeat offending may have been mediated by antisocial traits. As described in Knight and Sims-Knight's (2003) model, childhood adversity could both model aggressive behavior and lead to the development of antisocial personality traits, thereby increasing the likelihood of sexual offending. Our findings indicated that the main differentiating factor between single and repeat offenders was the presence of antisocial traits. Consistent with Hall and Hirschman (1991), it appears that risk factors for SCA in general, in combination with antisocial traits, lead to increased likelihood of repeat offending. Further longitudinal research is necessary to determine whether antisocial traits develop in response to childhood adversity or whether they are pre-existing personality traits that merely interact with adverse childhood experiences. In contrast to prior research on the confluence model when applied to SCA in general (Abbey et al., 2011), we did not find that the effect of antisocial traits was fully mediated by hostile attitudes towards women;

**Table 5** Correlations among study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Single offense	–													
2. Multiple offenses	–	–												
3. Age	–.04	.02	–											
4. Minority race	.03	.05	.07	–										
5. Unwanted sexual contact	.15*	–.15*	–.15*	–.05	–									
6. Coercion	.06	–.06	.01	.08	–.36**	–								
7. Attempted rape	–.01	.01	.11	.04	–.13*	–.30**	–							
8. Rape	–.17*	.17*	.03	–.08	–.26**	–.62**	–.22**	–						
9. Offense before college	–.21**	.21**	.03	.04	–.16*	.05	–.06	.10	–					
10. Victimized stranger first	–.06	.06	–.04	.00	.09	–.03	–.06	.01	–.02	–				
11. Substance-involved assault	–.09	.09	.07	–.22**	.07	–.35**	.14*	.23**	.04	.20**	–			
12. Factor 1: Risky behavior	.05	.44**	.05	–.03	–.09	–.15*	–.03	.24**	.25**	.11	.32**	–		
13. Factor 2: Sexually aggressive beliefs/norms	.04	.42**	.00	.06	–.07	–.09	.03	.13	.25**	.00	.05	.26**	–	
14. Factor 3: Antisocial traits	.01	.22**	.03	.06	–.08	–.05	.00	.10	.04	–.11	.02	.11	.07	–
15. Factor 4: Childhood adversity	.12**	.15**	.00	.15**	–.05	–.09	.03	.11	.18**	.10	.03	.26**	.24**	–.16*

*N* = 795 for age, race, and factor scores. *N* = 238 for offense characteristics, which were based on first offense

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

rather, both constructs exerted significant main effects on repeat offending. In sum, our analyses suggest that a more comprehensive model of sexual recidivism should be employed in future studies, including both risk factors for SCA in general and antisocial personality traits.

Similar to the literature on convicted sex offenders, younger age at first offense and greater severity of early offenses predicted higher severity of later offenses as well as increased likelihood of repeat offending at the univariate level. Victimizing a stranger and substance-involved offenses were also associated with repeat offending when considering assault characteristics from any offense. However, first assault characteristics did not add incremental predictive utility in differentiating single from repeat offenders beyond the inclusion of risky behavior, sexually aggressive beliefs, antisocial personality, and childhood adversity variables. This is likely due to the fact that assault characteristics were correlates of these broader factors and that first assault characteristics did not provide as much information about the general pattern of offending over time. Therefore, assessing multiple characteristics from both first and subsequent offenses, as well as attitudinal and behavioral risk factors, may provide important data to help identify individuals at risk for perpetrating future assaults.

Although this study had many strengths, such as use of a longitudinal design, behaviorally specific measures of SCA, and a sample recruited from non-criminal population, several limitations should be noted. First, we relied on a college sample that was racially and ethnically homogenous. Therefore, findings may not generalize to the larger population and we were limited in our ability to detect a relationship between age, race, and SCA. Similarly, a floor or ceiling effect for some variables (i.e., substance-involved assault, victimizing a stranger) may have limited our ability to detect relationships between assault characteristics and repeated SCA. Second, other potential predictors of recidivism were not assessed in this study, including history of nonsexual criminal behavior and whether the victim of SCA was a child. Third, we classified individuals who committed an assault both before and during Wave 1 as repeat offenders, which limits causal interpretations for predictor variables assessed at Wave 1. However, 81 % of repeat offenders committed an offense after Wave 1, suggesting that the predictors remain prospective for the majority of the sample. Finally, we relied on self-report methodology, which could lead to recall bias and underreporting of SCA.

The findings from the current study suggested that potential repeat offenders are an important population to target for early intervention, given their risk for engaging in multiple repeat and



high severity assaults. Interventions could address a number of modifiable risk factors and thereby reduce sexual reoffending. In particular, interventions could focus on challenging rape supportive beliefs and improving perspective taking skills, perhaps using peer influence as a mechanism for achieving these goals. In addition, risky drinking is an important area for future intervention, given the high prevalence of risky drinking and alcohol-involved sexual assault on college campuses (Abbey, 2002). University-sponsored interventions may be especially important in reducing the number of single offenders who offend at higher rates during the academic year and are primarily influenced by peer norms and behaviors.

Our results also indicated that more efficient assessments of recidivism risk could be developed by concentrating on sexually aggressive beliefs, risky behavior, and antisocial personality traits. Finally, the high rates of sexual recidivism highlight the need for interventions to ensure that offenders are detected, including providing public education on the definition of sexual assault and the need to report sexual offenses. Currently, only 2 % of sexual assaults among college women are reported to the police (Fisher, Daigle, Cullen, & Turner, 2003). In order to increase reporting rates, it may be necessary for community agencies, law enforcement, and campus organizations to make changes to reduce stigma and improve the confidentiality and safety of victims.

## References

- Abbey, A. (2002). Alcohol-related sexual assault: A common problem among college students. *Journal of Studies on Alcohol* (Suppl. 14), 118–128.
- Abbey, A., Jacques-Tiura, A. J., & LeBreton, J. M. (2011). Risk factors for sexual aggression in young men: An expansion of the confluence model. *Aggressive Behavior, 37*, 450–464.
- Abbey, A., & McAuslan, P. (2004). A longitudinal examination of male college students' perpetration of sexual assault. *Journal of Consulting and Clinical Psychology, 72*, 747–756.
- Abbey, A., McAuslan, P., & Ross, L. T. (1998). Sexual assault perpetration by college men: The role of alcohol, misperception of sexual intent, and sexual beliefs and experiences. *Journal of Social and Clinical Psychology, 17*, 167–195.
- Abbey, A., Parkhill, M. R., BeShears, R., Clinton-Sherrod, A. M., & Zawacki, T. (2006). Cross-sectional predictors of sexual assault perpetration in a community sample of single African American and Caucasian men. *Aggressive Behavior, 32*, 54–67.
- Abbey, A., Zawacki, T., Buck, P. O., Clinton, A. M., & McAuslan, P. (2001). Alcohol and sexual assault. *Alcohol Health and Research World, 25*, 43–51.
- Beech, A., Friendship, C., Erikson, M., & Hanson, R. K. (2002). The relationship between static and dynamic risk factors and reconviction in a sample of U.K. child abusers. *Sexual Abuse: A Journal of Research and Treatment, 14*, 155–167.
- Berkowitz, A. (1992). College men as perpetrators of acquaintance rape and sexual assault: A review of recent research. *Journal of American College Health, 40*, 175–181.
- Check, J. V. (1984). *The Hostility Toward Women Scale*. Unpublished doctoral dissertation, University of Manitoba, Winnipeg, MB.
- Craissati, J., & Beech, A. (2005). Risk prediction and failure in a complete urban sample of sex offenders. *Journal of Forensic Psychiatry and Psychology, 16*, 24–40.
- Craissati, J., Webb, L., & Keen, S. (2008). The relationship between developmental variables, personality disorder, and risk in sex offenders. *Sexual Abuse: A Journal of Research and Treatment, 20*, 119–138.
- Davis, M. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology, 10*, 85.
- Dawson, D. A., & Room, R. (2000). Towards agreement on ways to measure and report drinking patterns and alcohol-related problems in adult general population surveys: The Skarpö conference overview. *Journal of Substance Abuse, 12*, 1–21.
- Dube, S. R., Williamson, D. F., Thompson, T., Felitti, V. J., & Anda, R. F. (2004). Assessing the reliability of retrospective reports of adverse childhood experiences among adult HMO members attending a primary care clinic. *Child Abuse and Neglect, 28*, 729–737.
- Eysenck, S. B. G., Pearson, P. R., Easting, G., & Allsopp, J. F. (1985). Age norms for implusiveness, venturesomeness, and empathy in adults. *Personality and Individual Differences, 6*, 613–619.
- Fisher, B. S., Daigle, L. E., Cullen, F. T., & Turner, M. G. (2003). Reporting sexual victimization to the police and others. *Criminal Justice and Behavior, 30*, 6–38.
- Foshee, V. A., Linder, F., MacDougall, J. E., & Bangdiwala, S. (2001). Gender differences in the longitudinal predictors of adolescent dating violence. *Preventive Medicine, 32*, 128–141.
- Giancola, P. R. (2002). Alcohol-related aggression in men and women: The influence of dispositional aggressivity. *Journal of Studies on Alcohol and Drugs, 63*, 696–708.
- Golding, J. M. (1999). Intimate partner violence as a risk factor for mental disorders: A meta-analysis. *Journal of Family Violence, 14*, 99–132.
- Grych, J. H., Seid, M., & Fincham, F. D. (1992). Assessing marital conflict from the child's perspective: The Children's Perception of Interparental Conflict Scale. *Child Development, 63*, 558–572.
- Hall, G. C. N., & Hirschman, R. (1991). Toward a theory of sexual aggression: A quadripartite model. *Journal of Consulting and Clinical Psychology, 59*, 662–669.
- Hanson, R. K., & Bussière, M. T. (1998). Predicting relapse: A meta-analysis of sexual offender recidivism studies. *Journal of Consulting and Clinical Psychology, 66*, 348–362.
- Hanson, R. K., & Harris, A. (2000). Where should we intervene? *Criminal Justice and Behavior, 27*, 6–35.
- Hanson, R. K., Morton, K. E., & Harris, A. J. R. (2003). Sexual offender recidivism risk. *Annals of the New York Academy of Sciences, 989*, 154–166.
- Hanson, R. K., & Morton-Bourgon, K. E. (2005). The characteristics of persistent sexual offenders: A meta-analysis of recidivism studies. *Journal of Consulting and Clinical Psychology, 73*, 1154–1163.
- Hines, D. A., & Saudino, K. J. (2003). Gender differences in psychological, physical, and sexual aggression among college students using the Revised Conflict Tactics Scales. *Violence and Victims, 18*, 197–217.
- Johansson, A., Santtila, P., Harlaar, N., von der Pahlen, B., Witting, K., Ålgars, M., et al. (2008). Genetic effects on male sexual coercion. *Aggressive Behavior, 34*, 190–202.
- Kalichman, S. C., & Rompa, D. (2001). The Sexual Compulsivity Scale: Further development and use with HIV-positive persons. *Journal of Personality Assessment, 76*, 379–395.
- Knight, R. A., Prentky, R. A., & Cerce, D. D. (1994). The development, reliability, and validity of an Inventory for the Multidimensional Assessment of Sex and Aggression. *Criminal Justice and Behavior, 21*, 72–94.
- Knight, R. A., & Sims-Knight, J. E. (2003). The developmental antecedents of sexual coercion against women: Testing alternative hypotheses with structural equation modeling. *Annals of the New York Academy of Sciences, 989*, 72–85.

- Kolivas, E. D., & Gross, A. M. (2007). Assessing sexual aggression: Addressing the gap between rape victimization and perpetration prevalence rates. *Aggression and Violent Behavior, 12*, 315–328.
- Koss, M. P., Abbey, A., Campbell, R., Cook, S., Norris, J., Testa, M., et al. (2007). Revising the SES: A collaborative process to improve assessment of sexual aggression and victimization. *Psychology of Women Quarterly, 31*, 357–370.
- Koss, M. P., & Dinero, T. E. (1988). Predictors of sexual aggression among a national sample of male college students. *Annals of the New York Academy of Sciences, 528*, 133–147.
- Koss, M. P., & Gaines, J. A. (1993). The prediction of sexual aggression by alcohol use, athletic participation, and fraternity affiliation. *Journal of Interpersonal Violence, 8*, 94–108.
- Koss, M. P., & Gidycz, C. A. (1985). Sexual Experiences Survey: Reliability and validity. *Journal of Consulting and Clinical Psychology, 53*, 422–423.
- Koss, M. P., Gidycz, C. A., & Wisniewski, N. (1987). The scope of rape: Incidence and prevalence of sexual aggression and victimization in a national sample of higher education students. *Journal of Consulting and Clinical Psychology, 55*, 162–170.
- Koss, M. P., & Oros, C. J. (1982). Sexual experiences survey: A research instrument investigating sexual aggression and victimization. *Journal of Consulting and Clinical Psychology, 50*, 455–457.
- Lonsway, K. A., & Fitzgerald, L. F. (1995). Attitudinal antecedents of rape myth acceptance: A theoretical and empirical reexamination. *Journal of Personality and Social Psychology, 68*, 704–711.
- Looman, J., & Abracen, J. (2011). Substance abuse among high-risk sexual offenders: Do measures of lifetime history of substance abuse add to the prediction of recidivism over actuarial risk assessment instruments? *Journal of Interpersonal Violence, 26*, 683–700.
- Malamuth, N. M. (2003). Criminal and noncriminal sexual aggressors. *Annals of the New York Academy of Sciences, 989*, 33–58.
- Malamuth, N. M., Linz, D., Heavey, C. L., Barnes, G., & Acker, M. (1995). Using the confluence model of sexual aggression to predict men's conflict with women: A 10-year follow-up study. *Journal of Personality and Social Psychology, 69*, 353–369.
- Malamuth, N. M., Sockloskie, R. J., Koss, M. P., & Tanaka, J. S. (1991). Characteristics of aggressors against women: Testing a model using a national sample of college students. *Journal of Consulting and Clinical Psychology, 59*, 670–681.
- Mann, R. E., & Hollin, C. R. (2007). Sexual offenders' explanations for their offending. *Journal of Sexual Aggression, 13*, 3–9.
- Mason, D. A., & Frick, P. J. (1994). The heritability of antisocial behavior: A meta-analysis of twin and adoption studies. *Journal of Psychopathology and Behavioral Assessment, 16*, 301–323.
- Ouimette, P. C., & Riggs, D. (1998). Testing a mediational model of sexually aggressive behavior in nonincarcerated perpetrators. *Violence and Victims, 13*, 117–130.
- Resick, P. A. (1993). The psychological impact of rape. *Journal of Interpersonal Violence, 8*, 223–255.
- Senn, C. Y., Desmarais, S., Verberg, N., & Wood, E. (2000). Predicting coercive sexual behavior across the lifespan in a random sample of Canadian men. *Journal of Social and Personal Relationships, 17*, 95–113.
- Seto, M. C., & Barbaree, H. E. (1997). Sexual aggression as antisocial behavior: A developmental model. In D. M. Stoff, J. Breiling, & J. D. Maser (Eds.), *Handbook of antisocial behavior* (pp. 524–533). Hoboken, NJ: Wiley.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). New York: Harper Collins College Publishers.
- Testa, M., VanZile-Tamsen, C., Livingston, J. A., & Koss, M. P. (2004). Assessing women's experiences of sexual aggression using the Sexual Experiences Survey: Evidence for validity and implications for research. *Psychology of Women Quarterly, 28*, 256–265.
- Thornton, D. (2002). Constructing and testing a framework for dynamic risk assessment. *Sexual Abuse: A Journal of Research and Treatment, 14*, 139–153.
- Tjaden, P., & Thoennes, N. (2006). *Extent, nature, and consequences of rape victimization: Findings from the National Violence Against Women Survey*. Washington, DC: National Institute of Justice and the Centers for Disease Control and Prevention.
- White, J. W., & Smith, P. H. (2004). Sexual assault perpetration and re-perpetration from adolescence to young adulthood. *Criminal Justice and Behavior, 31*, 182–202.