Women's Vulnerability to Sexual Assault from Adolescence to Young Adulthood

By: John A. Humphrey and Jacquelyn W. White

Abstract:
Purpose: To study the vulnerability to sexual assault among undergraduate women.
Methods: The respondents were demographically representative of undergraduate women in state-supported universities in the United States. Participants ($N = 1569$) were surveyed using the Sexual Experiences Survey at the beginning and end of their 1st year and at the end of each of the next 3 years of their undergraduate career. Survival analysis was used to determine the risk of initial victimization during specific time intervals from the age of 14 years through the collegiate years as a function of prior victimization. Odds analyses were used to analyze the main and interactive effects of victimization at prior time periods on the probability of victimization at subsequent time periods.
Results: Victimization before the age of 14 years almost doubled the risk of later adolescent victimization (1.8). Furthermore, for those with and without childhood victimization, the risk of an initial sexual assault after the age of 14 years occurred most often in late adolescence, and declined each year thereafter (aged 18–22 years). Sexual victimization among university women was highest for those who had been first assaulted in early adolescence (4.6 times nonvictims). Detailed analyses revealed that the more severe the adolescent experience the greater the risk of collegiate revictimization. Adolescent victims of rape or attempted rape, in particular, were 4.4 times more likely to be as seriously assaulted during their 1st year of college.
Conclusion: A linear path model is suggested. Childhood victimization increased the risk of adolescent victimization, which in turn significantly affected the likelihood of revictimization among college women.

Article:
Sexual victimization, particularly of adolescents and young adults, is endemic in U.S. culture. In a national probability sample of 4008 adult women, it was found that one in eight women reported being the victim of rape sometime in their lifetimes, resulting in 12.1 million victims (1). The U.S. Department of Justice estimates that the number of sexual assaults occurring each year is well over 700,000 (2).

Adolescents and young adults are disproportionately victims of sexual assault. The most recent findings of the National Crime Victimization Survey indicate that half of all sexual assault victims are aged 12–24 years (2). The National Victims Center has reported that most rapes occur before the age of 24 years, with 54% occurring between ages 11 years and 24 years, and an additional 29% before the age of 11 years (1). Similarly, Koss et al. (3), in the only national

survey of sexual and physical assault among college and university students, found that 27.5% of undergraduate women reported a physically coercive sexual experience (rape or attempted rape); 11.9% were verbally coerced into sexual intercourse; and 14.4% were verbally intimidated into other forms of unwanted sexual contact.

Sexually assaultive acts typically involve an offender acquainted with the victim. Approximately, three of every four female victims were sexually assaulted by a friend, acquaintance, intimate partner or family members (1, 2, 4). However, little is known about the risk factors for sexual victimization from childhood through the early adult years. We report here on the results of a 5-year longitudinal study of sexual assault among undergraduate students, a population at exceedingly high risk for acquaintance victimization (5). We focused on patterns of vulnerability to victimization from childhood through 4 years of undergraduate education. Two central questions are addressed in the present analysis: First, how do experiences with childhood victimization (e.g., witnessing domestic violence, or being victimized by sexual or physical violence at the hands of a family member) affect the probability of sexual victimization in adolescence? Second, how do childhood and adolescent experiences with sexual victimization affect the probability of coercive sexual encounters during the undergraduate years?

METHODS
Two incoming undergraduate classes of a medium sized state-supported university in the southeastern region of the United States were invited to participate in a 5-year longitudinal study of social experiences. The university is located in a semi-urban environment within the 80th largest city in the nation.

Sample
A profile of students attending this institution indicated that their socioeconomic background and demographic characteristics were representative of students attending state-supported universities nationwide (6). Approximately 25.4% of the sample of women was African-American, 70.9% Caucasian, and 3.8% other ethnic groups. Approximately 83% of the 1990 class ($n = 825$) and 84% of the 1991 class ($n = 744$) provided useable surveys. Average age of the women was 18.3 years, and 92.8% were never married. Only women aged 18–20 years at the beginning of the study were included.

Procedure
Before the initial Sexual Experiences Survey (SES) was administered, its purpose and methods were explained and a consent form was signed by each participant. For the purpose of follow-up, students also completed contact sheets that requested the name, address, and telephone number of a person who would be most likely to know the whereabouts of the student during the next year, who could be contacted if we had difficulty locating the student. Each survey instrument and corresponding contact sheet were assigned a randomly determined code number, and handed in separately. This ensured confidentiality and still permitted the matching of surveys across time. Only code numbers appeared on survey instruments and answer sheets. Lists of codes and corresponding names were kept in a locked safe to protect the identity of participants; access was limited to the co-investigators and the data manager. To further ensure confidentiality of the data, and to bolster students' confidence in our commitment to protecting confidentiality, we obtained

a federal Certificate of Confidentiality from the National Institute of Mental Health. This study obtained approval from the university's Institutional Review Board.

Toward the end of each spring semester, participants were contacted and asked to complete a follow-up survey. All students who participated in the follow-up survey received $15 upon completion of the survey.

Validity of the data

An interview protocol administered to a random sample of participants following the first survey administration determined reliability of responses on the survey and assessed for converging evidence. Substantial research has provided sound evidence establishing a relationship between self-reported sexual victimization and theoretically relevant measures in women (7). Koss et al. (8) have noted an alpha of .72 for the SES based on 5411 responses by women workers. Furthermore, Koss and Gidycz (9) have reported a Pearson correlation of .73 ($p < .001$) between level of victimization as assessed by the SES and level of victimization based on reports to an interviewer. Among the women the SES identified as rape victims, only 2 (3%) changed their responses when interviewed.

In addition, questions about unwanted, coercive sexual experiences were asked in behaviorally specific terms; judgmental labeling was avoided (e.g., terms such as "assault" and "rape" did not appear in the behavioral descriptions). (The questionnaire is available from the author.)

To address further potential recall bias we took several additional precautions. Memory recall depends on three things: content, how well encoded the information to be recalled is, and the circumstances surrounding the retriever (i.e., the cognitive environment of the rememberer) (10). Therefore, we used instructions and a progression of items that would create a cognitive environment facilitative of memory recall, a clearly defined and limited time frame was specified on each survey, and close-ended questions, which turned the memory task into a cued recall task, which is known to produce better recall (10).

Definitions

Childhood victimization: Childhood victimization referred to any form of a sexual act perpetrated by an adult or any coercive sexual act perpetrated by a similarly aged peer, on the respondent *before age 14*, whether or not actual contact occurred. A respondent was categorized as a childhood victim if any kind of sexual act (contact or noncontact) was perpetrated by an adult, regardless of the inducement strategy used or if a similarly aged peer used a coercive tactic.

Adolescent victimization: During the first survey, respondents were asked to indicate how many times *since age 14* they had experienced each of the several sexual behaviors described on the SES (3). Responses were used to place respondents into one of six categories of sexual experience based on the most extreme experience: "None," "consensual only," "unwanted contact," "verbal coercion," "attempted rape," or "rape." For all analyses, only women who had no sexual experiences or only consensual experiences were categorized as "nonvictims."

Undergraduate victimization: On each follow-up survey, the respondents were asked to indicate the number of times they experienced coercive sexual contacts in the past year. Again the SES (3) was used, but women were asked to indicate how many times during the past year they had each sexual experience. Categorization as nonvictim or victim was the same as described above.

RESULTS
Three sets of analyses were performed. First, the percentages of women experiencing childhood sexual victimization and childhood family violence were calculated. In addition, the percentage of women experiencing no sexual victimization, as well as each type of sexual victimization during adolescence and during each year of college was determined. Chi-square analysis was used to determine the possible relationship between childhood and adolescent victimization. Second, survival analyses were conducted to determine the risk of first collegiate victimization as a function of childhood victimization, family violence, and adolescent victimization. Third, the odds of collegiate victimization were computed given the main and interactive effects of childhood and adolescent victimization.

Frequency of childhood victimization: Initial analyses indicated no significant differences as a function of cohort or race in the frequency of the victimization experiences investigated; therefore, all analyses reported were collapsed across the two classes of students and race. For the 1404 women who initially completed all the questions about childhood victimization, 36.03% reported that they had some form of childhood sexual experience; 16.6% reported sexual contact with a similarly aged peer or relative that was noncoercive in nature; 5.12% reported some form of coercive sexual experience that involved a similarly aged peer or relative (3.0% involved exposure and/or fondling; 2.2% involved attempted and/or completed sexual intercourse); and 14.3% experienced some sexual contact with an adult (9.1% experienced exposure and/or fondling by an adult; and 5.2% experienced attempted and/or completed sexual intercourse by an adult).

Frequency of sexual victimization during adolescence and across the 4 collegiate years:
Based on responses to the SES the incidence of each form of sexual assault was determined for earlier adolescence and each collegiate year. A woman was classified according to the most severe experience she reported. Table 1 reports the percentage of women falling into each of six mutually exclusive categories, as well as the prevalence rates for victimization by the end of the 4th year. Evidence of a decline in victimization across time is clear. The annual incidence of victimization peaked during adolescence (49.5%) and declined during the subsequent 4 years of college: 31.3%, 26.6%, 25.5%, and 24.0%, respectively. However, by the end of the 4th year of college 69.8% of the women had reported at least one victimization experience.

Table 1. Percentage Reporting Sexual Victimization Experiences

	Ever Victimized	Unwanted Contact	Verbal Coercion	Attempted Rape	Rape	N
As an adolescent	49.5	14.0	15.1	7.4	13.0	1571
Collegiate year 1[a]	31.3	9.6	11.5	3.8	6.4	1398
Collegiate year 2[a]	26.8	7.8	11.8	2.4	4.8	1178
Collegiate year 3[a]	25.7	6.9	11.4	2.4	5.0	955
Collegiate year 4[a]	24.2	7.2	11.8	1.3	3.9	747
Total[b]	69.8	15.7	21.1	11.8	21.2	747

[a] Percentage occurrence for a 1-year period.
[b] Cumulative experiences, adolescence through fourth collegiate year.

For the purpose of a Chi-square analysis, childhood victimization was dichotomized as "none" (60.4%) or "some" (family violence and/or childhood sexual abuse, 39.6%), and adolescent victimization was trichotomized as " none" (51%), " moderate" (unwanted or verbal coercion, 29%), or "severe" (attempted and completed rape, 20%). The Chi-square analysis [χ^2 (2) = 73.45, $p < .00001$] indicated that victims of childhood assault were significantly more likely to experience either moderate or severe adolescent victimization than nonvictims.

Survival analyses: The sample was dichotomized into "victim" or "nonvictim" for each nonoverlapping time period [childhood (before the age of 14 years), adolescence (14–18 years), each year of college]. In the analyses, censored data were defined as both cases lost prior to the final assessment phase and cases of no victimization by the end of the study. Because the sample sizes for those with and without a prior history of victimization were disparate, standardized rates were obtained using the direct method described by Lee (11) before comparisons were made. The probability of victimization during each specified time interval, a hazard function, was estimated. Since there was no *a priori* knowledge of what these survival functions should look like, nonparametric methods of estimating them were used.

The initial hazard analysis showed that adolescence (ages 14–18 years) was associated with the greatest risk of first victimization [cumulative survival probability (csp) = .40], with the risk of first victimization declining substantially thereafter (respective csp's = .25, .12, .05, and .01). A subsequent survival analysis that examined hazard functions for groups defined by the interaction of prior history of childhood victimization and adolescent victimization, revealed that in the absence of adolescent victimization, childhood experiences with sexual abuse did not elevate the risk of assault during the 1st year of college or subsequently relative to women with no childhood or adolescent experiences ($p < .12$). Therefore, in a subsequent survival analysis, women were coded into one of three categories: no adolescent victimization, no childhood victimization plus adolescent victimization, or childhood victimization plus adolescent victimization. All three hazard functions were significantly different from each other ($p < .005$). Furthermore, at each age, there was no overlap of functions within one standard error. In addition, within each hazard function, there was no overlap within one standard error from one age to the next. In general, the risk of being victimized during college is greatest during the 1st year and declines thereafter for women in all three groups, with the risk remaining highest for women with childhood and adolescent victimization experiences and next highest for women with only adolescent victimization experiences.

Odds analyses: Nominal logistical analyses, which provided both the Wald Chi-square statistic and an odds ratio for each component in the model, were performed. The initial model examined the main and interactive effects of childhood and adolescent victimization on 1st-year college victimization. Similar analyses were performed to examine the relationship between specific types of adolescent victimization on specific subsequent forms of victimization. Table 2summarizes these odds analyses for the 1st year of college.

Table 2. Odds of Collegiate Victimization Given Adolescent Victimization by Type of Adolescent Victimization

Type	Odds[a]	Odds[b]
Overall	4.6	6.8
Unwanted contact	2.6	1.6
Verbal coercion	3.8	2.1
Attempted/completed rape	4.4	13.7

[a] Odds of any type of victimization during first year.
[b] Odds of attempted/completed rape during second year.

Analysis revealed that adolescent victimization more than quadrupled (4.6) the likelihood of collegiate sexual victimization [Wald χ^2 (1) = 69.4, $p < .0001$], whereas childhood victimization had no significant effect [Wald χ^2 (1) = .16, $p < .60$]. Furthermore, childhood victimization in interaction with adolescent victimization did not increase the risk of collegiate victimization beyond that accounted for by adolescent victimization experiences. When these analyses were repeated when examining the risk of attempted and completed rape specifically, the results were even more dramatic. An adolescent experience that meets the legal definition of rape or attempted rape increased by a factor of 13.7 the likelihood of being a victim of rape or attempted rape again during the 1st year of college [Wald χ^2 (1) = 56.4, $p < .0001$]. Adding childhood sexual victimization to the model did not alter the chances of being victimized again during the 1st year of college.

Subanalyses examined the relationship between the type of initial adolescent victimization (unwanted contact, verbal coercion, or attempted/completed rape). Results revealed an increase in the odds of 1st-year collegiate victimization as a function of type of adolescent experience. A young woman who experienced only unwanted contact during adolescence was 2.6 times more likely to be revictimized during the 1st year of college, whereas when the worst experience was verbal coercion, the odds of revictimization increased to 3.8; similarly, when the worst adolescent experience was an attempted or completed rape, the risk of further victimization increased to 4.4.

Odds were also computed for subsequent collegiate victimization as a function of childhood, adolescent, and 1st-year collegiate victimization. The full model found significant effects for childhood [Wald χ^2 (1) = 4.8, $p < .03$], adolescent [Wald χ^2 (1) = 16.8, $p < .0001$], and 1st-year victimization [Wald χ^2 (1) = 38.1, $p < .0001$]. None of the interactions was significant. The corresponding odds ratios for subsequent collegiate revictimization were 1.6, 2.0, and 3.0, respectively.

Because of the possibility that victimization prior to entry into the study might be related to likelihood of attrition from the study, we determined that there were no significant differences in attrition rates of students with and without prior history of victimization (either childhood or adolescent) among the research participants who attrited from the study at different points in time [χ^2 (4) = 3.68]. There were also no significant differences among the various groups of students in the proportion of who had been victimized during both childhood and adolescence [χ^2 (4) = 3.67]. These similar patterns of victimization among those who participated in the study for different lengths of time suggested that the obtained patterns of revictimization were not due to confounds related to attrition. These results also suggest that victimization experiences did not differentially affect likelihood of withdrawing from the university.

DISCUSSION
The present analysis of the vulnerability of young women to sexual assault was limited to undergraduate students who entered the study immediately following high school graduation, approximately 90% of whom were residents of one state in the southeastern region of the United States. The findings of our longitudinal investigation of sexual assault of college women nonetheless show a clear pattern of victimization. The highest risk for first victimization occurs in adolescence and consistently declines over time. Childhood sexual victimization appears to elevate the risk of victimization for adolescents.

The results suggest a simple linear path model. Childhood victimization predicts adolescent victimization, which in turn predicts 1st-year collegiate victimization. First-year victimization in turn predicts further victimization in subsequent collegiate years. This pattern occurs in spite of a lower incidence of sexual assault at each subsequent year of college. Given that the risk of first victimization (after age 13) occurred during adolescence, the results point to the importance of attending to adolescent experiences. Furthermore, given that childhood victimization increases the risk of adolescent victimization, the results also point to the importance of childhood experiences.

College women who have been sexually assaulted in adolescence are much more likely to be the victim of some form of sexual coercion during their college years. If the adolescent victimization took the form of an attempted or completed rape, the risk of a further attempted or completed rape experience is exceedingly high.

Victims of sexual assault perpetrated by their acquaintances are not likely to report their victimization to the police. It is far more probable that these victims will seek medical attention for physical symptoms related to their assault experiences. Training of primary care physicians, their assistants, and nursing personnel must include techniques for assessing the possibility of sexual victimization as an underlying precipitant of psychosomatic symptomatology. Sexual coercion experienced early in life, if left undetected, may well provide the foundation for a pattern of repeated victimizations with increasingly deleterious physical and psychological consequences.

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