



HHS Public Access

Author manuscript

Psychol Sex. Author manuscript; available in PMC 2020 January 01.

Published in final edited form as:

Psychol Sex. 2019 ; 10(1): 56–68. doi:10.1080/19419899.2018.1552184.

Health and Academic Consequences of Sexual Victimization Experiences among Students in a University Setting

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Abstract

The current study examines the association between multiple interpersonal violence victimization types experienced in a university setting and the consequences for each type. Students at a mid-Atlantic university ($n = 3977$) completed a survey in 2015 assessing attitudes, experiences, consequences of (physical, behavioural, academic, mental), and university resources and reporting procedures for sexual assault, harassment, and intimate partner violence. Effect on mental health was the most cited consequence for all victimization types. Sexual harassment was reported by the largest number of students but with smaller percentages of students reporting consequences, while the opposite was true for sexual assault and multiple forms of abuse (smaller numbers experiencing; larger percentages reporting consequences). In the adjusted models, being in an abusive/controlling relationship and sexual harassment were significantly associated with physical health consequences ($ps < .001$). Sexual harassment was the only predictor of substance use ($p < .001$). Being an undergraduate and experiencing an abusive/controlling relationship, sexual harassment, or assault were associated with sexual risk behaviour (all $ps < .05$). These findings point to a need for holistic approaches to helping students heal from interpersonal victimization—

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Declaration of Interest

The authors have no conflicts of interest to report.

approaches that include mental health services, attention to increased substance use and sexual risk, and monitoring academic performance.

Keywords

interpersonal violence; sexual assault; sexual harassment; mental health; sexual risk behaviour; substance use

Introduction

Interpersonal victimization can take many forms, including stalking, abusive or controlling relationships, sexual harassment, and sexual assault. Interpersonal victimization on university campuses is an ongoing concern, especially given that many recent national sexual misconduct surveys have reported continued high rates of unwanted sexual experiences among female college students (Black et al., 2011; Fisher, Cullen, & Turner, 2000; Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007; Koss, Gidycz, & Wisniewski, 1987).

Stalking is any unwanted communication, presence, or contact from an individual (Cantor et al., 2015). This includes watching or following someone either in person or through devices or software in a way that elicits fear for personal safety (Cantor et al., 2015). The 2015 Association of American Universities (AAU) survey of 27 universities found that 4.2% of students reported experiencing stalking since first enrolling at a college or university, with 6.7% of female undergraduates identifying as stalking victims (Cantor et al., 2015).

Research in the United States and Canada has found a high prevalence of abuse from dating partners among university students. One of the first studies to look at this issue found that one in five students had experienced at least one incident of physical abuse from a partner (Makepeace, 1981). Another study found that two-thirds of students reported at least one incidence of violence victimization from a romantic partner (Laner & Thompson, 2010). The 2015 AAU survey found that since enrolling in college, 9.8% of the student population who had been in a relationship reported experiencing intimate partner violence (Cantor et al., 2015).

Sexual harassment is any unwanted sexual advance, a request for sexual favours, or other electronic communication or verbal conduct of a sexual nature that creates a hostile or offensive environment for students (Cantor et al., 2015). The 2015 AAU survey found that 47.7% of students reported they were victims of sexual harassment, with 61.9% of female undergraduates reporting such experiences (Cantor et al., 2015). Another similar study from the University of Michigan found that 23% of students reported experiencing some form of sexual harassment, with 35% prevalence among female undergraduate students and about 24% among female graduate students (University of Michigan, 2015).

Sexual assault is defined as any sexual contact with another person's body without the person's consent, including sexual penetration and sexual touching (Cantor et al., 2015). Overall, 11.7% of student participants in the 2015 AAU survey reported experiencing

nonconsensual penetration or sexual touching by force or incapacitation since enrollment (Cantor et al., 2015). Additionally, a systematic review of studies focusing on large, representative samples of undergraduate females in the United States found that 20-25% are sexually assaulted—defined in this review as sexual penetration or sexual touching obtained by force or incapacitation—while in college (Muehlenhard, Peterson, Humphreys, & Jozkowski, 2017).

These various forms of interpersonal victimization are linked to several negative health consequences, including physical, behavioural, mental, and academic difficulties. Stalking victims have reported various physical health consequences as a result of their victimization. For instance, a three-wave national study of women that took place over two years found that almost 30% of stalking victims reported digestive disturbances, about 25% reported appetite and weight fluctuations, and about 55% reported excessive tiredness or weakness (Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997). Other studies of women experiencing interpersonal victimization have demonstrated an association between victimization and loss of sleep and appetite (Johnson & Kercher, 2009; Walker, Shannon, & Logan, 2011). Multiple studies have found that women who have a history of sexual or physical assault report higher rates of alcohol and illicit drug use than do non-victims (Epstein, Saunders, Kilpatrick, & Resnick, 1998; Mullen, Martin, Anderson, Romans, & Herbison, 1996; Welsnack, Vogeltanz, Klassen, & Harris, 1997). One study of female university students found that experiencing a single or multiple incidents of sexual assault, multiple incidents of physical assault, and both physical and sexual assault was associated with a greater likelihood of involvement in substance use and risky sexual behaviours (e.g., having sex without a condom, sexual activity with numerous partners, etc.);¹ Davis, Combs-Lane, & Jackson, 2002). Interpersonal victimization has also been shown to have severe psychological impacts, including anxiety disorders, depression, post-traumatic stress disorder, and somatic symptoms (Coker et al., 2002; Golding, 1999; Johnson & Kercher, 2009; Whitson & El-Sheikh, 2003). Additionally, one study that reviewed data from 74 case files of service users of a campus-based relationship and sexual violence program found that students who experienced both physical/verbal and sexual violence had significant reductions in their grade point average. Students who experienced sexual victimization were more likely to drop out than students who experienced physical/verbal victimization (Mengo & Black, 2016).

There is clearly a relationship between interpersonal violence victimization and poor health symptoms. To date, research on interpersonal violence among university students addressing health consequences focuses on only one type of victimization. The current study contributes to the literature on the health and academic consequences of interpersonal victimization in that it aims to examine the association between multiple types of victimization experienced specifically in a university setting and the consequences of each victimization type. Specifically, we sought to answer the following questions: 1) What are

¹Research demonstrates that substance use and sexual risk behaviours are common predecessors and justifiable coping mechanisms for interpersonal victimization, resulting in a reciprocal relationship (see Brener, Collins, Kann, Warren, & Williams, 1995; Brender, McMahon, Warren, & Douglas, 1999; Combs-Lane & Smith, 2002; Gidycz, Orchowski, King, & Rich, 2008; Kilpatrick et al., 1997; Reed, Amaro, Motsumoto, & Kaysen, 2009).

the physical and mental health and academic consequences of interpersonal victimization for university students, and do the consequences vary by victimization type? 2) Do multiple types of victimization lead to multiple consequences for university students, even when accounting for sociodemographic characteristics? Obtaining a clearer understanding of the consequences of various forms of interpersonal violence on university campuses is important for improving both the health and well-being of all students, as well as for student retention. Specifically, we designed this research to help us understand the experiences of those who have been victimized while attending university and the related consequences. Our ultimate goal was to provide the university administration with recommendations to introduce new and expand current policies so as to make them sufficiently responsive to victims and work towards better campus-based prevention interventions.

Method

Population

Students invited to participate in the study were full-time undergraduates ($n = 6987$) and graduates ($n = 5786$) ages 18 and older at a mid-Atlantic university in the U.S. Part-time and distance learning students were excluded.

Using a census design, all full-time students ($n = 12,773$) were invited to participate in an online survey via an emailed link, which remained open from May to June 2015. Of the students invited to participate, 40% ($n = 5091$) started the survey, with approximately 78% of those completing it. The overall response rate for the completed survey was 31.1% ($n = 3977$).

The survey, administered using Qualtrics software, included questions on personal and university community attitudes towards sexual assault, sexual assault and harassment experiences, intimate partner violence, and knowledge about available student resources and reporting procedures. Students who completed the survey were invited to participate in a raffle for \$10, \$25, and \$50 gift cards. The university Institutional Review Board approved all study procedures.

Measures²

Victimization.—Participants were asked whether they experienced several forms of victimization.

Stalking. Stalking during university enrollment was measured using one item: ‘Have you ever been stalked, followed, or received repeated unwanted messages, text, emails, etc. from someone that made you uncomfortable?’

Abusive/controlling relationship. Experience with an abusive and/or controlling relationship during university enrollment was measured using the item: ‘Have you been in a

²Unless where otherwise specified, all measures (including single item measures) were used previously in similar campus sexual assault studies (e.g., Massachusetts Institute of Technology, 2014).

relationship that was controlling or abusive (physically, sexually, psychologically, emotionally, or financially)?'

Sexual assault.: Sexual assault was measured through one item asking whether the participant had been sexually assaulted while at the university.

Sexual harassment.: Harassment was measured using 7 items asking whether respondents had experienced the following while in a class, laboratory, work, or social setting at the university: someone made inappropriate comments about the respondent's body, appearance, or attractiveness; someone said crude sexual things or tried to talk about sexual matters when the respondent did not want to; emailed/texted/instant messaged offensive jokes, stories, or pictures; told the respondent about sexual experiences when he/she did not want to hear them; repeatedly asked for dates; requested sexual favors; or other verbal conduct of a sexual nature. Scale scores ranged from 0-7, with each point indicating an additional type of sexual harassment experience (higher scores indicate the experience of multiple forms of harassment). The Cronbach's alpha estimate of internal consistency reliability for this measure was 0.764.

Consequences of victimization.—Participants were asked about any experiences with physical, behavioural, academic, and/or mental health consequences as a result of their victimization.

Physical consequences.: This construct was measured with two items asking whether victimization caused the respondent to experience a change in eating habits and/or change in interest in intimacy or sex. These items were answered on a 5-point Likert scale ranging from 'not at all' to 'extremely.' Responses showed a skewed distribution and were dichotomized such that those who answered 'moderately,' 'quite a bit,' or 'extremely' were coded as experiencing physical consequences, while those who responded 'not at all' or 'a little bit' were coded as not experiencing physical consequences. The two dichotomized items were combined into one physical consequence variable to *have event* if there was a consequence in either item and *no event* if no consequence was reported in both items.

Behavioural consequences.: This construct was measured with two items asking whether victimization caused the respondent to experience initiation or an increase in drug/alcohol use and/or high risk sexual activities ("Please indicate how much the following have impacted your life because of, since, or related to any of the unwanted experiences you may have described earlier in the survey: starting to smoke, drink alcohol, use illicit drugs and/or misuse prescription drugs when you never have before and/or increased smoking, alcohol intake, and/or drug usage; engaged in more high risk sexual activities than previously.'). These items were answered on a 5-point Likert scale ranging from 'not at all' to 'extremely.' Responses were dichotomized such that those who answered 'moderately,' 'quite a bit,' or 'extremely' were coded as experiencing behavioural consequences, while those who responded 'not at all' or 'a little bit' were coded as not experiencing behavioural consequences. The two dichotomized variables were analyzed separately as substance use and sexual risk.

Academic consequences: Effects on academic performance due to victimization included three items ('had to drop a class,' 'was unable to do work or complete assignments,' and 'grades dropped') where respondents indicated how much a scenario impacted their performance using a 5-point Likert scale ranging from 'not at all' to 'extremely'. The Cronbach's alpha estimate for this measure was 0.863. Responses were dichotomized such that those who answered 'moderately,' 'quite a bit,' or 'extremely' were coded as experiencing academic consequences, while those who responded 'not at all' or 'a little bit' were coded as not experiencing academic consequences. The three dichotomized items were combined into one academic consequence variable to *have event* if there was a consequence in at least one item and *no event* if no consequence was present in all three items.

Effects on mental health: Mental health was measured using an adapted version of the Brief Post-Traumatic Stress Disorder (PTSD) 12-item measure (Fullerton & Ursano, 2009). Respondents were asked to report whether they had experienced each item as a result of a traumatic experience while they were enrolled at the university. Sample items included, 'felt less happy or pleased about things that once caused you to be happy or pleased,' and 'felt easily startled.' Items were answered on a 6-point Likert scale ranging from 'never' to 'all the time.' Scores on the scale were calculated as a sum of the response to each item. Scores greater than or equal to 11 met the criteria for clinically significant PTSD symptoms. The Cronbach's alpha estimate for this measure was 0.945. This is consistent with a previous test of the measure's reliability, where the reported alpha was 0.92 (Fullerton et al., 2000).

Statistical Analyses

First, sample characteristics were described, and the prevalence of different health problems among the students was estimated. A cross-tabulation between a victimization experience and a consequence or outcome of victimization was produced to study the bivariate associations. A bivariate logistic regression model was fit to examine the relationship between a victimization experience and a consequence (physical, behavioural, mental, and academic consequences). A simultaneous multivariate logistic regression model was also fit to estimate adjusted odds ratios and 95% confidence intervals (CI) and examine the relationship between different victimization experiences and a consequence while controlling for demographic variables, including age, gender, student status (graduate versus undergraduate), and race/ethnicity. Participants who identified as a non-binary gender were not included in logistic regression modeling due to small frequencies resulting in very unreliable parameter estimates. The variable *multiple types of abuse* was not included in multivariate modeling, as this would be correlated with other individual victimization variables already in the model. For effects on mental health, the PTSD scale score was dichotomized, and a logistic regression analysis was used. All analyses were conducted using SAS 9.4 with two-sided alpha of 0.05.

Results

Sample Demographics

Table 1 displays the demographic breakdown of the 3,977 respondents who completed the survey. A majority of respondents were women (60.5%), graduate students (52.5%), and Caucasian (59.7%).

Prevalence of Consequences Due to Victimization

A more detailed description of prevalence is published elsewhere (removed for review). Table 2 shows cross-tabulations for type of victimization experience by consequence to the victim (physical, behavioural, mental, and academic). Students were able to select multiple types of consequences. For all types of victimization, effects on mental health was cited as the most common consequence as compared to all other types. Although far more students ($n = 3,234$) reported experiencing sexual harassment than any other type of victimization, smaller percentages reported any of the health consequences. Conversely, although sexual assault and multiple forms of abuse (more than one type of victimization experience) were reported by the smallest numbers of students ($n = 133$ and 218 , respectively), larger percentages of those students reported health consequences. Among those who experienced sexual assault ($n = 133$), approximately 25% reported an inability to eat, eating much less than usual, eating much more than normal, bingeing and purging, or other substantive changes in eating habits or appetite at least a moderate amount of time. Also among those who experienced sexual assault, approximately 20% reported a loss of interest in intimacy or sex.

Table 3 shows the bivariate and multivariate logistic regression results by type of consequence. In the bivariate analyses, victimization type was significantly associated with physical consequences ($p < .01$), behavioural consequences (sexual risk; $p < .001$), effects on mental health ($p < .001$), and academic consequences ($p < .05$), except for victimization at university only, which was not significantly related to any consequence ($p > .05$ in all cases). For behavioural consequences (substance use), victimization types were significant, except for an abusive/controlling relationship and victimization at university only. For academic consequences, race was also a significant predictor. African American and Asian students had higher odds of experiencing academic consequences compared to Caucasian students (odds ratio, OR = 2.23, $p = .013$ and OR = 1.82, $p = .010$, respectively). However, we do not know for sure whether these consequences are a result of the victimization without testing for moderation (which was beyond the scope of this analysis).

A multivariate logistic regression model was fit for each consequence to study multiple predictors simultaneously. Table 3 shows predictors of different types of victimization consequences. After controlling for the demographic variables, significant predictors of *physical health consequences* included being in an abusive or controlling relationship (adjusted OR, adjOR = 3.24, 95% confidence interval, CI = 1.98-5.30, $p < .001$) and sexual harassment (adjOR = 1.25, 95% CI = 1.11-1.40, $p < .001$). A person in an abusive/controlling relationship had about three times higher odds of experiencing a physical health consequence than one who was not in an abusive relationship. Sexual harassment was also a

significant predictor of *substance use* after controlling for other variables (adjOR = 1.36, 95% CI = 1.19-1.55, $p < .001$), but this was the only significant victimization type to predict this consequence. For *sexual risk behavioural consequences*, being an undergraduate student (adjOR = 0.56, 95% CI = 0.33-0.96, $p = .034$) and experiencing an abusive or controlling relationship (adjOR = 1.84, 95% CI = 1.02-3.30, $p < .041$), sexual harassment (adjOR = 1.22, 95% CI = 1.06-1.41, $p < .007$), or sexual assault (adjOR = 1.93, 95% CI = 1.14-3.27, $p < .014$) were all significant predictors after controlling for demographics. *Effects on mental health* were significantly predicted by experiencing an abusive/controlling relationship (adjOR = 3.55, 95% CI = 1.98-6.38, $p < .001$), sexual harassment (adjOR = 1.37, 95% CI = 1.23-1.53, $p < .001$), or sexual assault (adjOR = 2.21, 95% CI = 1.39-3.50, $p < .001$). Significant predictors of *academic consequences* included race/ethnicity, specifically for African American (adjOR = 3.29, 95% CI = 1.50-7.23, $p = .003$) and Asian students (adjOR = 2.23, 95% CI = 1.36-3.66, $p = .002$), and experiencing an abusive/controlling relationship (adjOR = 3.24, 95% CI = 1.94-5.40, $p < .001$), sexual harassment (adjOR = 1.20, 95% CI = 1.06-1.36, $p = .003$), and sexual assault (adjOR = 1.94, 95% CI = 1.22-3.08, $p = .005$). Based on size of the adjusted OR, being an African American and being in an abusive relationship were the two strongest predictors of academic consequences. Experiencing victimization at the university only (not prior to enrollment) was not a significant predictor of any negative consequences.

Discussion

Results show that even when controlling for demographic characteristics, abusive/controlling relationships predict all types of consequences for student victims—physical, behavioural (sexual risk), mental, and academic. The same is true for students who are sexually harassed with the added behavioural consequence of substance use; experiencing sexual harassment is predictive of all potential negative consequences, regardless of demographic characteristics. Experience of sexual assault is predictive of behavioural (sexual risk), mental, and academic consequences, but not physical consequences. Being an African American student was one of the strongest predictors of academic consequences, perhaps because such students are less likely to seek out support services on a predominately Caucasian campus (D'Augelli & Hershberger, 1993). However, tests of moderation were beyond the objectives of this study, so we do not know for sure whether these students experience worse outcomes as a result of the victimization. Compared to victimization experiences both prior to university enrollment and while at the university, victimization at the university only was not significantly associated with negative outcomes. This suggests that other factors, such as severity of victimization or the quality of support services received, could be more influential in determining negative outcomes for students than whether they experienced victimization prior to and/or at the university. Perhaps universities would be better positioned to support students by tailoring services based on the types and severity of victimization. For example, a student wanting to leave a long-term abusive relationship would likely require different types of support (e.g., long term therapy, perhaps financial resources or temporary housing, legal assistance) than someone who experiences a single incident of sexual harassment (e.g., short term therapy, advice on reporting procedures). Tailoring services must also be done in a way that is closely attentive to what

the students themselves are comfortable with while also being mindful of how consequences of such a traumatic experience can manifest themselves later. For instance, follow up contact with students who report for services initially may be a way to ward off consequences that could appear many months in the future.

These results also show that multiple types of interpersonal victimization can lead to multiple negative consequences for students, which is consistent with prior research in university (Amar & Gennaro, 2005; Brener, McMahon, Warren, & Douglas, 1999; Saewyc et al., 2009) and non-university settings (Sabri et al., 2016). While most campus resources are focused on disclosure of a sexual assault or dating violence victimization experience (Sabina & Ho, 2014), students experience other types of victimization with consequences that are just as serious, and any student who reports one kind of victimization should be asked if they agree to being assessed for other types. Those who have experienced multiple forms of victimization can be conceptualized as experiencing cumulative trauma, which is associated with particularly profound consequences (as is supported by our data), and which may need more intensive mental and physical health interventions.

A review (Sabina & Ho, 2014) found that physical and mental health services connected to victimization on campus were the most utilized, but it is not clear whether victims need these services the most or whether they are the services most readily available. In fact, while one study (Nasta et al., 2005) found that almost 100% of students responded in the affirmative when asked whether they would use services, in reality few college victims actually utilize services available on campus. Sabina and Ho (2014) suggest this lack of utilization may be less due to student disinterest and more because services are not appropriate, helpful, and responsive to the actual needs of students. While universities are putting policies into place to make reporting easier and first response assistance more readily available under Title IX legislation, the current data suggest students may need a more holistic approach to healing from interpersonal victimization—one that includes attention to future initiation and/or increases in substance use and that monitors declines in academic performance.

There are limitations to this study. Data were collected via a voluntary online survey, potentially creating a participant self-selection bias. However, all university students were provided the opportunity to complete the survey. The cross-sectional design also precludes drawing causal conclusions. Further, we did not consider students' sexual orientation or gender identity in the analyses because cell sizes for minority identities were too small. We also were not able to include further detailed questions on some key variables (primarily due to considerations in the length of the survey), specifically sexual harassment characteristics such as the incident location and the perpetrator's relationship to the victim. Despite efforts to ensure participants were comfortable in disclosing honestly by using an online anonymous survey, data are subject to recall error as well as potential biases, such as social desirability. A future similar study would also focus more on collecting data from the perpetrator side, including tactics of unwanted sexual contact and violence and risk factors for sexual aggression (such as childhood abuse, exposure to domestic violence, hostile attitudes towards women, peer group values, etc.; Knight & Sims-Knight, 2011; White et al., 2015).

The best interventions would also be focused on the perpetrator side, such as through bystander interventions or prevention initiatives (Bannon & Foubert, 2017; Coker et al., 2016; Salazar, Vivolo-Kantor, Hardin, & Berkowitz, 2014; Salazar, Vivolo-Kantor, & McGroarty-Koon, 2017). The bystander model, where members of a community (such as a university campus) are trained to actively intervene in situations where interpersonal violence is occurring, are effective in changing social norms supportive of violence in some cases (Coker et al., 2011; Gidycz, Orchowski, & Berkowitz, 2011; Salazar, Vivolo-Kantor, Hardin, & Berkowitz, 2014).

By better understanding how incidences of interpersonal victimization impact and relate to health outcomes, universities will be better equipped to help victims as well as make relevant campus policy and programmatic changes. Title IX legislation has forced universities to be more responsive to students who have experienced interpersonal violence. It is now time to ensure that those responses are in line with students' true needs and are done in a way that makes the reporting experience as comfortable, attentive, and effective as possible. For instance, if a student seeks out campus resources because of on-going involvement in an abusive relationship, faculty and staff would be wise to assist the student not just with protecting their physical safety and perhaps reporting the abuse, but to also keep an eye on mental, behavioural, and academic consequences as well, should the student wish. It would also be wise to not just provide services for one type of victimization, but any and all types. Furthermore, attention to mental health needs should be increased since a majority of students who were victimized most commonly reported effects on mental health, regardless of the type of victimization. Both the current study and related work (Campbell et al., 2017; Sabri et al., 2018) produced suggestions for improved campus sexual assault policies that our own university has taken into account, including 24/7 access to support, training of staff on trauma-informed services (including sexual trauma counseling), and best practices to address survivors' needs without minimizing mental health consequences. Finally, survivors suggested they should not be asked to repeat their stories over and over, as this can be retraumatizing. Multiple manifestations of trauma from such an experience can lead to long term consequences for a student if the environment they have grown to depend on—their university setting—is not sufficiently responsive in a victim-focused way.

Conclusion

Obtaining a clearer grasp of the full scope of interpersonal victimization on university campuses is important for the health and well-being of all students, as well as for student retention, as it provides a better focus for university-based interventions. Without a focus on the details of interpersonal victimization—the multiple types and the multiple consequences—student services in the university setting cannot be fully responsive to student needs. It is only by fully understanding the student victimization experience that universities can continue to make the campus a safe setting for learning and skill development.

Acknowledgments

Funding

This work was supported by the Johns Hopkins University Provost Office. Bushra Sabri was supported by the Eunice Kennedy Shriver National Institute for Child Health & Human Development (K99HD082350 and

R00HD082350). The funding sources had no involvement in the study design, collection, analysis, interpretation of the data, writing of the report, nor the decision to submit the article for publication.

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Table 1.Sample demographics ($n = 3,977$)

	n (%)
<i>Gender</i>	
Male	1529 (38.4)
Female	2407 (60.5)
Transgender	4 (0.1)
Other	28 (0.7)
Missing	9 (0.2)
<i>Undergraduate</i>	
Freshman	441 (11.1)
Sophomore	370 (9.3)
Junior	422 (10.6)
Senior	448 (11.3)
Missing	200 (5.0)
<i>Graduate</i>	2089 (52.5)
Missing	7 (0.2)
<i>Race</i>	
White/Caucasian	2376 (59.7)
Black/African American	195 (4.9)
American Indian/Alaska Native	3 (0.1)
Asian	1104 (27.8)
Pacific Islander	23 (0.6)
Bi/Multiracial	210 (5.3)
Missing	66 (1.7)
<i>Ethnicity</i>	
Hispanic/Latino	368 (9.2)
Non-Hispanic	3444 (86.6)
Missing	165 (4.1)

Table 2.

Cross-tabulations of victimization experience by types of consequences for the victim.

	Consequences of Victimization, n (%)			
	<i>Physical</i>	<i>Behavioural</i>	<i>Mental</i>	<i>Academic</i>
<i>Victimization Experience</i>				
Stalking (n=296)	57 (19.3)	50 (16.9)	100 (33.8)	47 (15.9)
Abusive/Controlling Relationship (n=147)	48 (32.6)	32 (21.8)	73 (49.7)	41 (27.9)
Sexual Harassment (n=3234)	172 (5.3)	148 (4.6)	346 (10.7)	144 (4.4)
Sexual Assault (n=133)	48 (36.1)	44 (33.1)	95 (71.4)	46 (34.6)
Multiple types of victimization (n=218)	74 (33.9)	58 (26.6)	132 (60.5)	69 (31.6)
Victimization at university only (n=613)	164 (26.7)	141 (23.0)	328 (53.5)	136 (22.2)
Victimization prior to university (n=1010)	93 (9.2)	86 (8.5)	178 (17.6)	74 (7.3)
Victimization at university and prior (n=250)	87 (34.8)	81 (32.4)	166 (66.4)	69 (27.6)

Table 3.

Predictors of consequences of victimization by consequence type based on a univariate/bivariate and multivariate logistic regression models

	<i>OR (p-value)</i>	<i>(95% CI)</i>	<i>AdjOR (p-value)</i>	<i>(95% CI)</i>
Physical Consequences				
Gender, Female (Ref=Male)	1.48 (.096)	(0.93, 2.37)	1.35 (.245)	(0.81, 2.23)
Undergraduate vs graduate (Ref=Graduate)	0.91 (.636)	(0.61, 1.35)	0.75 (.199)	(0.49, 1.16)
Race (Ref=Caucasian)				
African American	0.90 (.795)	(0.39, 2.04)	1.14 (.761)	(0.49, 2.67)
Asian	1.34 (.195)	(0.86, 2.07)	1.46 (.115)	(0.91, 2.34)
Other (including multi-race)	1.36 (.300)	(0.76, 2.41)	1.38 (.292)	(0.76, 2.54)
Victimization Type				
Stalking	1.91 (.001)	(1.29, 2.83)	1.13 (.606)	(0.72, 1.77)
Abusive/Controlling Relationship	3.96 (<.001)	(2.50, 6.29)	3.24 (<.001)	(1.98, 5.30)
Sexual Harassment	1.29 (<.001)	(1.16, 1.43)	1.25 (<.001)	(1.11, 1.40)
Sexual Assault	1.82 (.004)	(1.20, 2.74)	1.30 (.257)	(0.83, 2.04)
Multiple types of abuse [‡]	2.76 (<.001)	(1.90, 4.02)	-	-
Victimization at university only	1.20 (.603)	(0.60, 2.43)	1.03 (.937)	(0.48, 2.21)
Behavioural Consequences—Substance Use				
Gender, Female (Ref=Male)	0.91 (.721)	(0.56, 1.49)	0.86 (.577)	(0.50, 1.46)
Undergraduate vs graduate (Ref=Graduate)	0.96 (.853)	(0.60, 1.52)	0.87 (.595)	(0.53, 1.43)
Race (Ref=Caucasian)				
African American	0.75 (.567)	(0.28, 2.00)	0.89 (.819)	(0.32, 2.45)
Asian	1.08 (.764)	(0.65, 1.80)	1.15 (.605)	(0.67, 1.97)
Other (including multi-race)	1.06 (.865)	(0.54, 2.09)	1.06 (.860)	(0.53, 2.14)
Victimization Type				
Stalking	1.80 (.009)	(1.16, 2.80)	1.26 (.369)	(0.76, 2.06)
Abusive/Controlling Relationship	1.64 (.062)	(0.97, 2.77)	1.20 (.521)	(0.68, 2.13)
Sexual Harassment	1.38 (<.001)	(1.22, 1.57)	1.36 (<.001)	(1.19, 1.55)
Sexual Assault	1.70 (.023)	(1.07, 2.69)	1.44 (.153)	(0.87, 2.36)
Multiple types of abuse [‡]	1.76 (.009)	(1.15, 2.70)	-	-

	<i>OR (p-value)</i>	<i>(95% CI)</i>	<i>AdjOR (p-value)</i>	<i>(95% CI)</i>
Victimization at university only	0.95 (.899)	(0.45, 2.03)	1.36 (.462)	(0.60, 3.08)
Behavioural Consequences—Sexual Risk				
Gender, Female (Ref=Male)	1.37 (.314)	(0.74, 2.51)	1.34 (.382)	(0.69, 2.61)
Undergraduate vs graduate (Ref=Graduate)	0.71 (.173)	(0.43, 1.16)	0.56 (.034)	(0.33, 0.96)
Race (Ref=Caucasian)				
African American	0.84 (.752)	(0.28, 2.47)	1.03 (.954)	(0.34, 3.15)
Asian	1.04 (.886)	(0.58, 1.87)	1.06 (.860)	(0.57, 1.96)
Other (including multi-race)	1.40 (.349)	(0.69, 2.86)	1.36 (.416)	(0.65, 2.85)
Victimization Type				
Stalking	2.29 (.001)	(1.42, 2.70)	1.46 (.166)	(0.85, 2.50)
Abusive/Controlling Relationship	2.55 (.001)	(1.49, 4.38)	1.84 (.041)	(1.02, 3.30)
Sexual Harassment	1.28 (<.001)	(1.12, 1.47)	1.22 (.007)	(1.06, 1.41)
Sexual Assault	2.48 (<.001)	(1.52, 4.04)	1.93 (.014)	(1.14, 3.27)
Multiple types of abuse [‡]	2.98 (<.001)	(1.88, 4.73)	-	-
Victimization at university only	0.88 (.775)	(0.38, 2.05)	1.31 (.560)	(0.53, 3.24)
Mental Health Consequences				
Gender, Female (Ref=Male)	1.31 (.170)	(0.89, 1.93)	1.19 (.418)	(0.78, 1.83)
Undergraduate vs graduate (Ref=Graduate)	1.14 (.479)	(0.80, 1.62)	0.93 (.726)	(0.63, 1.39)
Race (Ref=Caucasian)				
African American	1.39 (.359)	(0.69, 2.81)	2.03 (.071)	(0.94, 4.37)
Asian	1.05 (.804)	(0.71, 1.57)	1.21 (.403)	(0.78, 1.88)
Other (including multi-race)	1.27 (.379)	(0.75, 2.16)	1.31 (.360)	(0.74, 2.31)
Victimization Type				
Stalking	1.91 (<.001)	(1.30, 2.80)	0.99 (.964)	(0.64, 1.54)
Abusive/Controlling Relationship	4.20 (<.001)	(2.44, 7.23)	3.55 (<.001)	(1.98, 6.38)
Sexual Harassment	1.39 (<.001)	(1.26, 1.53)	1.37 (<.001)	(1.23, 1.53)
Sexual Assault	2.78 (<.001)	(1.83, 4.24)	2.21 (<.001)	(1.39, 3.50)
Multiple types of abuse [‡]	3.71 (<.001)	(2.51, 5.49)	-	-
Victimization at university only	1.50 (.168)	(0.84, 2.69)	0.96 (.911)	(0.50, 1.85)
Academic Consequences				

	<i>OR (p-value)</i>	<i>(95% CI)</i>	<i>AdjOR (p-value)</i>	<i>(95% CI)</i>
Gender, Female (Ref=Male)	1.38(.199)	(0.84, 2.27)	1.22 (.466)	(0.71, 2.10)
Undergraduate vs graduate (Ref=Graduate)	1.45(.112)	(0.92, 2.30)	1.40 (.183)	(0.85, 2.31)
Race (Ref=Caucasian)				
African American	2.23 (.033)	(1.07, 4.68)	3.29 (.003)	(1.50, 7.23)
Asian	1.82 (.010)	(1.15, 2.88)	2.23 (.002)	(1.36, 3.66)
Other (including multi-race)	1.34(.365)	(0.71, 2.51)	1.34 (.383)	(0.69, 2.61)
Victimization Type				
Stalking	1.70 (.013)	(1.12, 2.57)	0.99 (.958)	(0.60, 1.61)
Abusive/Controlling Relationship	3.75 (<.001)	(2.35, 6.00)	3.24 (<.001)	(1.94, 5.40)
Sexual Harassment	1.25 (<.001)	(1.12, 1.40)	1.20 (.003)	(1.06, 1.36)
Sexual Assault	2.33 (<.001)	(1.52, 3.55)	1.94 (.005)	(1.22, 3.08)
Multiple types of abuse [‡]	3.32 (<.001)	(2.24, 4.92)	-	-
Victimization at university only	1.07 (.846)	(0.52, 2.22)	1.17 (.690)	(0.53, 2.57)

Boldface indicates statistical significance;

[‡]not included in multivariate model.