Prevalence of Past-Year Sexual Assault Victimization among Undergraduate Students: Exploring Differences by and Intersections of Gender Identity, Sexual Identity, and Race/ Ethnicity

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Abstract

A critical step in developing sexual assault prevention and treatment is identifying groups at high risk for sexual assault. We explored the independent and interaction effects of sexual identity, gender identity, and race/ethnicity on past-year sexual assault among college students. From 2011–2013, 71,421 undergraduate students from 120 U.S. post-secondary education institutions completed cross-sectional surveys. We fit multilevel logistic regression models to examine differences in past-year sexual assault. Compared to cisgender (i.e., non-transgender) men, cisgender women (adjusted odds ratios [AOR]=2.47; 95% confidence interval [CI]: 2.29, 2.68) and transgender people (AOR=3.93; 95% CI: 2.68, 5.76) had higher odds of sexual assault. Among cisgender people, gays/lesbians had higher odds of sexual assault than heterosexuals for men (AOR=3.50; 95% CI: 2.81, 4.35) but not for women (AOR=1.13; 95% CI: 0.87, 1.46). People unsure of their sexual identity had higher odds of sexual assault than heterosexuals, but effects were larger among cisgender men (AOR=2.92; 95% CI: 2.10, 4.08) than cisgender women (AOR=1.68; 95% CI: 1.40, 2.02). Bisexuals had higher odds of sexual assault than heterosexuals with similar magnitude among cisgender men (AOR=3.19; 95% CI: 2.37, 4.27) and women (AOR=2.31; 95% CI: 2.05, 2.60). Among transgender people, Blacks had higher odds of sexual assault than Whites (AOR=8.26; 95% CI: 1.09, 62.82). Predicted probabilities of sexual assault ranged from 2.6% (API cisgender men) to 57.7% (Black transgender people). Epidemiologic research and interventions should consider intersections of gender identity, sexual identity, and race/ethnicity to better tailor sexual assault prevention and treatment for college students.

Keywords

sexual assault; sexual identity; gender identity; race/ethnicity; undergraduate students

Introduction

Sexual assault at higher education institutions in the United States has recently garnered national attention (Brown, Anderson, Svrluga, & Hendrix, June 12, 2015; Taylor, May 19, 2015; White House Task Force to Protect Students From Sexual Assault, 2014). The detrimental physical, emotional, and psychological effects include sexually transmitted infections, unwanted pregnancies, substance use, and post-traumatic stress disorder (Chen et al., 2010; Martin, Macy, & Young, 2011b). Higher education institutions are being urged to implement and improve prevention and treatment for sexual violence (White House Task Force to Protect Students From Sexual Assault, 2014).

A critical first step in improving sexual assault prevention and treatment is identifying the prevalence of sexual assault and populations disproportionately affected by sexual assault (White House Task Force to Protect Students From Sexual Assault, 2014). Studies have

shown that gender, sexual orientation, and race/ethnicity *separately* influence risk for sexual assault among undergraduate students. Cisgender (i.e., not transgender) women are at heightened risk for sexual assault compared to cisgender men (American College Health Association, 2012, 2013, 2014; Cantor et al., 2015; Krebs et al., 2016; Sinozich & Langton, 2014). Transgender people are at higher risk for sexual assault than their cisgender counterparts (Cantor et al., 2015; Coulter et al., 2015; Krebs et al., 2016), and gay/lesbian and bisexual people are at greater risk of sexual assault than heterosexuals (Blosnich & Bossarte, 2012; Blosnich & Horn, 2011; Krebs et al., 2016; Martin, Fisher, Warner, Krebs, & Lindquist, 2011a). Meanwhile, racial/ethnic differences in sexual assault among college students are inconsistent. White women are sometimes more likely than Black (Gross, Winslett, Roberts, & Gohm, 2006; Koss, Gidycz, & Wisniewski, 1987; Mohler-Kuo, Dowdall, Koss, & Wechsler, 2004), Hispanic (Koss et al., 1987), and Asian (Cantor et al., 2015; Koss et al., 1987) women to experience sexual assault—but not always (Cantor et al., 2015; Krebs et al., 2016; Mohler-Kuo et al., 2004). Studies often only sample cisgender women or students from a few post-secondary institutions, thereby creating small and limited samples that preclude researchers from examining how gender identity, sexual identity, and race/ethnicity intersect and modify the risk for sexual assault victimization.

To advance sexual assault prevention and treatment efforts, intersectional approaches can elucidate whether and how specific subpopulations are more vulnerable to sexual assault. Intersectionality posits that myriad systems of stigma and discrimination (e.g., racism, heterosexism, sexism) functioning at multiple levels (e.g., structurally, interpersonally) combine and interact to confer disproportionate risks among populations with marginalized social identities (Crenshaw, 1989, 1991). Commonly, intersectional analyses examine how social identity markers (e.g., race/ethnicity, sexual identity, gender identity) interact to modify risks of certain health outcomes (Bowleg, 2008; Institute of Medicine, 2011). In previous studies (Corliss et al., 2014; Talley, Hughes, Aranda, Birkett, & Marshal, 2014), interactions between race/ethnicity, gender identity, and sexual identity show heightened health risks (e.g., alcohol and cigarette use) among certain subgroups. Yet no studies to date have examined how sexual identity, gender identity, and race/ethnicity taken together may contribute to increased vulnerability for sexual assault among undergraduate students. This is partially because quantitative studies of intersectionality necessitate investigating interactions, which require large sample sizes (Bowleg, 2008). Intersectional approaches can allow researchers to identify heterogeneity in sexual assault prevalence and illuminate predictors of sexual assault for specific subgroups.

We analyzed survey data from undergraduate students collected at 120 post-secondary institutions to explore the intersections of gender identity, sexual identity, and race/ethnicity. First, we investigated and explored the independent effects of sexual identity, gender identity, and race/ethnicity on past-year sexual assault. We hypothesized that LGBT people would be at greater risk for sexual assault than their cisgender, heterosexual counterparts (Blosnich & Bossarte, 2012; Blosnich & Horn, 2011; Cantor et al., 2015; Coulter et al., 2015; Krebs et al., 2016; Martin et al., 2011a). However, we did not have specific *a priori* hypotheses about race/ethnicity because of inconsistent previous findings (Cantor et al., 2015; Gross et al., 2006; Koss et al., 1987; Krebs et al., 2016; Mohler-Kuo et al., 2004). Second, we explored the interaction effects of sexual identity, gender, and race/ethnicity on

sexual assault. We did not have *a priori* hypotheses for interaction effects because these analyses were exploratory in nature.

Methods

Study design

We used cross-sectional survey data from the National College Health Assessment (NCHA) survey administered through the American College Health Association. Schools were included in this dataset if they self-selected into the NCHA data administration (American College Health Association, 2012, 2013, 2014). To ensure the representativeness of samples, only schools that sampled randomly selected students, sampled students in randomly selected classrooms, or sampled all students at their school were included in the final datasets made available to researchers. The current study used data collected in Fall 2011 (44 schools), Fall 2012 (51 schools), and Fall 2013 (57 schools) from 120 unique higher education institutions in the United States. Schools were located in the Northeast (37.5%), South (29.2%), Midwest (17.5%), and West (15.8%). Overall, 30.8% of the schools were Doctorate-granting Universities, 30.8% were Master's Colleges and Universities, 26.7% were Baccalaureate Colleges, 10.0% were Associate's Colleges, and 1.7% were Special Focus Institutions (Center for Postsecondary Research, 2011). Half were public schools.

During a specific time period selected by each school's administration, sampled students completed paper or web surveys depending on the format offered at their institution. Response rates were high for paper surveys (mean response proportions range: 71% to 100% from 2011–2013), but lower for web surveys (mean response proportions range: 16% to 21% from 2011–2013). In total, 88,975 students completed surveys, including 73,791 self-identified undergraduate students included in the current study. Each school's Institutional Review Board (IRB) approved the original study procedures, and the University of Pittsburgh's IRB deemed the current secondary analyses as exempt.

Measures

Past-year sexual assault—Sexual assault was assessed with 3 yes/no items after the initial stem "Within the past 12 months": (1) "were you sexually touched without your consent"; (2) "was sexual penetration attempted (vaginal, anal, oral) without your consent"; and (3) "were you sexually penetrated (vaginal, anal, oral) without your consent." Consistent with previous work (Blosnich & Horn, 2011; Coulter et al., 2015), we combined these three items into a single variable because they were low prevalent events (range: 1.6–5.9%) and internally consistent (Kuder-Richardson coefficient=0.72; Kuder & Richardson, 1937). If participants responded "yes" to any of these items, we classified them as having been sexually assaulted. If they responded "no" to all items, we classified them as having not been sexually assaulted.

Key exposure variables—Sexual identity was assessed with the following question: "What is your sexual orientation?" Participants selected one of the following options: heterosexual; gay/lesbian; bisexual; or unsure. Gender identity was assessed with the following question: "What is your gender?" Participants selected one of the following

options: female; male; or transgender. As done previously (Diemer, Grant, Munn-Chernoff, Patterson, & Duncan, 2015), we refer to participants as cisgender women, cisgender men, and transgender people, respectively. Race/ethnicity was assessed with the following question: "How do you usually describe yourself?" Participants selected one or more of the following options: White; Black; Hispanic or Latino/a; Asian or Pacific Islander; American Indian, Alaskan Native, or Native Hawaiian; Biracial or Multiracial; or other. Due to small cell sizes for some groups, we created 5 categories: White only; Black only; Hispanic or Latino/a only (referred to as Latino hereafter); Asian or Pacific Islander (API) only; and other.

Covariates—Age in years was assessed continuously, but we created the following categories based on sample size and interpretability: 18; 19; 20; 21; 22; 23–24; 25–29; 30–39; and 40 years or more. We also measured year in school (1st, 2nd, 3rd, 4th, or 5th year undergraduate students) and survey year (2011, 2012, or 2013).

Analyses

We conducted analyses in Stata version 14 (College Station, TX), and set statistical significance at 0.05. Among the 73,791 undergraduates who completed surveys, we removed 0.8% of participants who were missing data on any sexual assault items. Of the remaining participants, 0.6% had missing data for gender identity, 1.0% for sexual identity, 0.6% for race/ethnicity, and 0.7% for age. Because total missingness was low (3.2%), we used listwise deletion, creating an analytic sample of 71,421 participants.

We examined the bivariate relationships between independent variables and sexual assault. To examine multivariable associations of sexual assault, we used multilevel logistic regression models with random intercepts, allowing sexual assault to vary by school. In the unconditional model (i.e., no predictor variables), sexual assault varied significantly between schools (variance component [VC]=0.12; standard error [SE]=0.02), justifying the use of multilevel modeling. Controlling for covariates, we fit a model containing the main effects of key exposure variables, followed by a model containing all three-way and two-way interactions between key exposure variables. When using the total sample, however, models examining interactions of gender identity by race/ethnicity did not converge. This occurred because of small cell sizes and multicollinearity (several variance inflation factors were greater than 8.0). To remedy this issue, we fit models separately for cisgender and transgender people.

Among cisgender people, the unconditional model showed that sexual assault varied between schools (VC=0.12; SE=0.02). We tested three-way interactions between sexual identity, gender, and race/ethnicity, which were not significant (p=0.49). We removed them, and our second model included all two-way interactions between key exposure variables. Because the majority of significant interactions were by gender identity, we also fit stratified models containing main effects only for cisgender men and women separately. We estimated the past-year predicted probabilities of sexual assault for key exposure variable subgroups averaged across covariates.

Among transgender people, the unconditional model showed sexual assault did not vary between schools (VC=0.12, SE=0.42), therefore we used standard logistic regression. Since the number of transgender people was small (n=177), we only examined main effects. We estimated the predicted probabilities of sexual assault for each race/ethnicity and sexual-identity subgroup, averaged across the covariates.

Results

Sexual assault among total sample

Table 1 shows the demographic characteristics of the total sample and by gender identity. Table 2 shows the unadjusted prevalence of past-year sexual assault of the total sample and by gender identity. For gender identity, sexual assault was highest among transgender people (20.9%), followed by cisgender women (8.6%), and lowest among cisgender men (3.6%). For sexual identity, sexual assault was highest among bisexuals and people unsure of their sexual identity (15.7% and 12.6%, respectively), followed by gays/lesbians (9.8%), and lowest among heterosexuals (6.4%). For race/ethnicity, past-year sexual assault was greatest among Blacks and people with other race/ethnicity (8.7% and 8.6%, respectively), followed by Whites (7.0%), and lowest among Latinos and APIs (5.4% and 5.3%, respectively).

As shown in Model 1 in Table 3, cisgender women had higher odds of sexual assault than cisgender men (adjusted odds ratio [AOR]=2.46; 95% confidence interval [CI]: 2.27, 2.66), and transgender people had significantly higher odds of sexual assault than both cisgender men (AOR=3.93; 95% CI: 2.68, 5.76) and women (shown by non-overlapping CIs). Gays/lesbians (AOR=1.92; 95% CI: 1.63, 2.26), bisexuals (AOR=2.37; 95% CI: 2.12, 2.65), and people unsure of their sexual identity (AOR=1.95; 95% CI: 1.66, 2.28) had significantly higher odds of sexual assault than heterosexuals. Compared to Whites, APIs (AOR=0.75; 95% CI: 0.66, 0.85) and Latinos (AOR=0.81; 95% CI: 0.72, 0.92) had significantly lower odds of sexual assault, while Blacks (AOR=1.28; 95% CI: 1.13, 1.44) and people with other race/ethnicity (AOR=1.23; 95% CI: 1.13, 1.34) had significantly higher odds of sexual assault. Compared to 18-year-olds, people aged 22 and above had significantly lower odds of past-year sexual assault (AORs range: 0.29–0.65).

Sexual assault among cisgender men and women

Model 2 in Table 3 displays results from models with two-way interactions between gender, sexual identity, and race/ethnicity; Models 3 and 4 display results of stratified models for cisgender men and women, respectively. Gender identity modified some of the effects of sexual identity on past-year sexual assault. There was a significant difference between gays/lesbians and heterosexuals for cisgender men (AOR=3.50; 95% CI: 2.81, 4.35; Model 3), but not for cisgender women (AOR=1.13; 95% CI: 0.87, 1.46; Model 4). The difference in past-year sexual assault between people unsure of their sexual identity and heterosexuals was greater for cisgender men (AOR= 2.92; 95% CI: 2.10, 4.08) than for cisgender women (AOR=1.68; 95% CI: 1.40, 2.02).

Gender identity also modified effects of race/ethnicity on sexual assault, with smaller differences for Whites compared to Latinos, Blacks, and people of other race/ethnicity for

cisgender women versus men. The Black–White AOR was 1.97 (95% CI: 1.49, 2.61) for cisgender men and 1.16 (95% CI: 1.01, 1.34) for cisgender women; we found a similar pattern for people of other race/ethnicity compared to Whites. For cisgender women, Latinos had lower odds of sexual assault than Whites (AOR=0.73; 95% CI: 0.63, 0.84); but for cisgender men, there were no significant differences between Latinos and Whites (AOR=1.21; 95% CI: 0.93, 1.57).

Sexual assault among transgender people

Model 5 in Table 3 displays multivariable associations of sexual assault among transgender people. Compared to White transgender people, Black transgender people had significantly higher odds of sexual assault (AOR=8.26; 95% CI: 1.09, 62.82).

Predicted probabilities of sexual assault

Table 4 shows the predicted probabilities of past-year sexual assault averaged across covariates and stratified by gender identity. Heterosexual, White, and API cisgender men had the lowest predicted probabilities of sexual assault (2.6–2.9%). Predicted probabilities for gay, bisexual, and unsure cisgender men (7.7–9.4%) were similar to predicted probabilities for heterosexual and gay/lesbian cisgender women (7.7–11.8%), and lower than bisexual cisgender women (15.9%). Predicted probabilities were generally higher among transgender versus cisgender people, with the highest being for Black transgender people at 57.7%.

Discussion

Our exploratory results indicated that sexual assault disproportionately affects several sexual-, gender-, and racial/ethnic-minority subgroups. Transgender people had higher odds of sexual assault than cisgender men and women, and Black transgender people had significantly higher odds of sexual assault than White transgender people. Like in previous studies (American College Health Association, 2012, 2013, 2014; Cantor et al., 2015; Krebs et al., 2016; Sinozich & Langton, 2014), cisgender women had higher odds of sexual assault than cisgender men, but gender modified the effects of sexual identity and race/ethnicity on sexual assault. For example, being bisexual, unsure of one's sexual identity, Black, or of other race/ethnicity increased the odds of sexual assault more for cisgender men than for cisgender women. Though these relative differences were greater among cisgender men than women, the absolute differences for these groups were relatively similar.

Our paper utilized an intersectionality framework (Crenshaw, 1989, 1991) to examine how multiple marginalized identities intersect to form and amplify varying risks for sexual assault. An intersectional frame can also be used to understand the causes of sexual assault in these subgroups. The etiology of sexual assault is complex, stemming from factors at multiple levels of the social ecological model (Heise, 1998). Each factor is tied to one's social identities in specific ways, thereby influencing sexual assault risks. For example, discrimination may contribute to de-humanizing specific groups of people and putting them at risk for violence. Transgender people face discrimination interpersonally (e.g., being misgendered) and structurally (e.g., by policies and laws dictating bathroom usage), and

Black people also face interpersonal discrimination (e.g., biased language). The intersections between these oppressions may cultivate unsafe environments for Black transgender people, placing them at substantially greater risk of sexual assault. Additionally, examining perpetrators' characteristics (e.g., relationship with survivor) and motivations can highlight specific intervention targets (e.g., malleable risk factors among specific populations). For example, common motivations for sexual assault include power and anger (Nicholas, 1977), and perhaps perpetrators targeting LGBT people are more likely to engage in "corrective" rape (i.e., trying to "cure" LGBT people through sexual assault; Martin, Kelly, Turquet, & Ross, 2009). Our findings suggest that intersectional approaches in epidemiologic research may elucidate the individual and contextual factors contributing to the elevated sexual assault risks among specific subgroups.

Prevention and treatment implications

Few interventions have been shown to be effective in preventing sexual assault (DeGue et al., 2014). Even fewer sexual assault interventions are tailored for racial/ethnic minority populations (DeGue et al., 2014), and none have been evaluated with LGBT populations (DeGue et al., 2014). Despite cisgender heterosexual women being at high risk for sexual assault, we found that transgender people and cisgender bisexual women have even higher odds of sexual assault. If sexual assault prevention solely focuses on cisgender heterosexual violence (e.g., cisgender man-on-woman violence), it may invalidate LGBT people's assault experiences and be ineffective for LGBT populations. To our knowledge, studies have not examined whether universal sexual assault interventions equally reduce sexual assault across all sexual orientation, gender, and racial/ethnic subgroups. If universal interventions are less effective among minority subgroups, researchers and practitioners can augment existing universal interventions by explicitly addressing homophobia, biphobia, transphobia, and racism, and they can develop new or adapt existing sexual assault interventions for LGBT populations and racial/ethnic minorities. Prevention programs may be more effective when tailored to the cultural beliefs and norms of the target population (Nation et al., 2003; Small, Cooney, & O'connor, 2009). Furthermore, compared to people aged 22 or less, people who are aged 25 or older have lower odds of sexual assault, perhaps because they are atypical undergraduate students and less engaged with campus life, making campus-focused prevention less appropriate for this population.

Because providing trauma-informed care to sexual assault survivors requires understanding survivors' histories and the contexts of their experiences (The National Sexual Assault Coalition Resource Sharing Project and National Sexual Violence Resource Center, 2013), higher education institutions should include staff training on sexuality, gender, and race/ethnicity. Reporting sexual assault to college administrators can be difficult and stigmatizing (Rennison, 2002). Meanwhile, many sexual, gender, and racial/ethnic minorities may feel mistrustful, unwelcomed, invisible, or discriminated against, which makes reporting their experience of sexual assault even more difficult (Boulware, Cooper, Ratner, LaVeist, & Powe, 2003; Frankowski, 2004; Grant et al., 2011). Because many of these minority subgroups are at heightened risk for sexual assault, developing programs that are welcoming and affirming of survivors with marginalized identities is crucial. Staff who treat sexual assault survivors should be aware that sexual assault during college may not be their first or

most profound assault event (Carey, Durney, Shepardson, & Carey, 2015; Martin et al., 2011a). While our study could not assess whether the assaults occurred on campus, sexual assault confers numerous mental, physical, and reproductive health impacts (Chen et al., 2010; Martin et al., 2011b). Therefore, regardless sexual assault location, it is critical for administrators to understand the vulnerability their students experience as they adopt prevention programming on their campuses. A trauma-informed approach to working with LGBT survivors, in particular, is necessary as assault is astoundingly prevalent among LGBT youth (Friedman et al., 2011; Rothman, Exner, & Baughman, 2011). Consequently, treatment of sexual assault among LGBT undergraduates may uncover a history of childhood and adolescent trauma.

Limitations and Strengths

We must consider our results within their limitations. Sexual assault was self-reported, and is often underreported (Rennison, 2002). Because surveys assessed past-year sexual assault, some reports of the sexual assault may have occurred while students were not at college, especially for first-year students. Nevertheless, higher education institutions should still be prepared to provide trauma-informed care because the effects of sexual assault can be long lasting and impact students' health during college (Chen et al., 2010; Martin et al., 2011b). We also combined sexual touching, attempted penetration, and completed penetration, were unable to examine the tactics used during sexual assault (e.g., physical force, incapacitation, no affirmative consent), and had no information about perpetrators. Sexual identity was used to measured sexual orientation, and we may have found different results if we used measures of sexual behavior or attractions (Matthews, Blosnich, Farmer, & Adams, 2013). Additionally, the gender identity question may under-identify transgender people. For example, some people whose current gender identity differs from their sex assigned at birth may identify solely as female or male, but not transgender. This measure did not allow transgender individuals to identify as transgender men or transgender women. Because of small cell sizes and multicollinearity, we could not include transgender people in analyses with interactions and collapsed some race/ethnicity subgroups. Interactions are an imperfect way to test intersectionality, but are among the best quantitative techniques to date (Bowleg, 2008).

In spite of analyzing data from 120 institutions, generalizability may be limited. Selection bias may have occurred because participation rates were low in some schools, and we were unable to adjust for the response rate within each school. We could not adjust for participants who completed surveys at multiple waves, which may result in non-independence among participants; however, we mitigated this bias by controlling for survey year in our models. Additionally, participation rates were less than optimal for web surveys, which is common across web surveys (Cook, Heath, & Thompson, 2000). Moreover, post-hoc analyses (data not shown) revealed that survey administration (web versus paper survey) was not associated with sexual assault in any of our models, and did not substantially affect any of our results, thereby introducing minimal bias.

Despite these limitations, our study has some key strengths. We utilized data from 120 higher education institutions, and included cisgender men and transgender people as well as

cisgender women. We used multilevel models to control for the clustering of students within institutions, which is uncommon in the literature to date. As one of the largest studies to examine sexual assault at higher education institutions, we had enough statistical power to examine intersections by gender, race/ethnicity, and sexual orientation among cisgender people—thereby addressing one of the five major recommendations put forth in the 2011 Institute of Medicine report about LGBT health (Institute of Medicine, 2011).

Conclusions

Sexual assault is a problem disproportionately affecting certain sexual-identity, gender-identity, and race/ethnicity subgroups. Epidemiologic research and interventions should consider intersections of gender identity, sexual identity, and race/ethnicity to better tailor sexual assault prevention and treatment for college students.

Acknowledgments

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Table 1

Characteristics for the Total Sample and Stratified by Gender Identity: 2011–2013

| | Total sample (N=71,421) | | Gender identity | | | | | |
| | | | Cisgender men (n=22,936) | | Cisgender women (n=48,308) | | Transgender people (n=177) | |
	n	(%)	*n*	(%)	*n*	(%)	*n*	(%)
Sexual identity								
Heterosexual	65,245	(91.4)	20,849	(90.9)	44,358	(91.8)	38	(21.5)
Gay/lesbian	1,834	(2.6)	1,046	(4.6)	754	(1.6)	34	(19.2)
Bisexual	2,785	(3.9)	571	(2.5)	2,155	(4.5)	59	(33.3)
Unsure	1,557	(2.2)	470	(2.0)	1,041	(2.2)	46	(26.0)
Race/ethnicity								
White	47,676	(66.8)	15,211	(66.3)	32,366	(67.0)	99	(55.9)
Asian or Pacific Islander	5,496	(7.7)	2,032	(8.9)	3,457	(7.2)	7	(4.0)
Latino	5,954	(8.3)	1,841	(8.0)	4,102	(8.5)	11	(6.2)
Black	3,804	(5.3)	1,016	(4.4)	2,779	(5.8)	9	(5.1)
Other	8,491	(11.9)	2,836	(12.4)	5,604	(11.6)	51	(28.8)
Age (years)								
18	16,790	(23.5)	5,044	(22.0)	11,714	(24.2)	32	(18.1)
19	13,919	(19.5)	4,407	(19.2)	9,479	(19.6)	33	(18.6)
20	12,923	(18.1)	3,987	(17.4)	8,905	(18.4)	31	(17.5)
21	11,722	(16.4)	3,639	(15.9)	8,052	(16.7)	31	(17.5)
22	5,107	(7.2)	1,818	(7.9)	3,276	(6.8)	13	(7.3)
23–24	3,598	(5.0)	1,379	(6.0)	2,208	(4.6)	11	(6.2)
25–29	3,340	(4.7)	1,341	(5.8)	1,988	(4.1)	11	(6.2)
30–39	2,437	(3.4)	864	(3.8)	1,569	(3.2)	4	(2.3)
40	1,585	(2.2)	457	(2.0)	1,117	(2.3)	11	(6.2)
Year in school								
1st	21,076	(29.5)	6,863	(29.9)	14,171	(29.3)	42	(23.7)
2nd	15,958	(22.3)	5,141	(22.4)	10,781	(22.3)	36	(20.3)
3rd	16,618	(23.3)	5,204	(22.7)	11,370	(23.5)	44	(24.9)

	Total sample (N=71,421)		Cisgender men (n=22,936)		Cisgender women (n=48,308)		Transgender people (n=177)	
	n	*(%)*	*n*	*(%)*	*n*	*(%)*	*n*	*(%)*
4th	13,305	(18.6)	4,109	(17.9)	9,157	(19.0)	39	(22.0)
5th	4,464	(6.3)	1,619	(7.1)	2,829	(5.9)	16	(9.0)

Gender identity

Prevalence of Past-Year Sexual Assault: 2011–2013

Table 2

| | Prevalence of Past-Year Sexual Assault for Total Sample (N=71,421) | | Prevalence of Past-Year Sexual Assault by Gender identity | | | | | |
| | | | Cisgender men (n=22,936) | | Cisgender women (n=48,308) | | Transgender people (n=177) | |
	n	(%)	*n*	(%)	*n*	(%)	*n*	(%)
Prevalence	4,999	(7.0)	828	(3.6)	4,134	(8.6)	37	(20.9)
Sexual identity								
Heterosexual	4,188	(6.4)	627	(3.0)	3,557	(8.0)	4	(10.5)
Gay/lesbian	179	(9.8)	106	(10.1)	66	(8.8)	7	(20.6)
Bisexual	436	(15.7)	54	(9.5)	371	(17.2)	11	(18.6)
Unsure	196	(12.6)	41	(8.7)	140	(13.4)	15	(32.6)
Race/ethnicity								
White	3,321	(7.0)	482	(3.2)	2,821	(8.7)	18	(18.2)
Asian or Pacific Islander	291	(5.3)	58	(2.9)	233	(6.7)	0	(0.0)
Latino	322	(5.4)	73	(4.0)	246	(6.0)	3	(27.3)
Black	332	(8.7)	63	(6.2)	264	(9.5)	5	(55.6)
Other	733	(8.6)	152	(5.4)	570	(10.2)	11	(21.6)

Note. Gender identity, sexual identity, and race/ethnicity were significantly associated with past-year sexual assault (all p-values<0.001)

Table 3

Multivariable Logistic Regression Results of Sexual Assault: 2011–2013

	Model 1. Sexual Assault Among Total Sample (N=71,421)		Model 2. Sexual Assault Among Cisgender People (n=71,244)		Model 3. Sexual Assault Among Cisgender Men (n=22,936)		Model 4. Sexual Assault Among Cisgender Women (n=48,308)		Model 5. Sexual Assault Among Transgender People (n=170)	
	AOR (95% CI)	p-value	AOR (95% CI)	p-value	AOR (95% CI)	p-value	AOR (95% CI) p-value		AOR (95% CI)	p-value
Gender identity										
Cisgender men	1.00 (ref)		1.00 (ref)							
Cisgender women	2.47 (2.29, 2.68)	<0.001	3.23 (2.90, 3.60)	<0.001						
Transgender people	3.93 (2.68, 5.76)	<0.001	N/A							
Sexual identity										
Heterosexual	1.00 (ref)		1.00 (ref)		1.00 (ref)		1.00 (ref)		1.00 (ref)	
Gay/lesbian	1.92 (1.63, 2.26)	<0.001	3.60 (2.77, 4.69)	<0.001	3.50 (2.81, 4.35)	<0.001	1.13 (0.87, 1.46)	0.364	1.69 (0.39, 7.39)	0.487
Bisexual	2.37 (2.12, 2.65)	<0.001	3.13 (2.28, 4.28)	<0.001	3.19 (2.37, 4.27)	<0.001	2.31 (2.05, 2.60)<	0.001	1.25 (0.32, 4.89)	0.749
Unsure	1.95 (1.66, 2.28)	<0.001	3.02 (2.09, 4.38)	<0.001	2.92 (2.10, 4.08)	<0.001	1.68 (1.40, 2.02)<	0.001	2.94 (0.76, 11.30)	0.117
Race/ethnicity										
White	1.00 (ref)		1.00 (ref)		1.00 (ref)		1.00 (ref)		1.00 (ref)	
Asian or Pacific Islander	0.75 (0.66, 0.85)	<0.001	0.92 (0.69, 1.24)	0.593	0.89 (0.67, 1.18)	0.414	0.72 (0.62, 0.83)	<0.001	N/A	
Latino	0.81 (0.72, 0.92)	0.001	1.29 (0.98, 1.70)	0.073	1.21 (0.93, 1.57)	0.150	0.73 (0.63, 0.84)	<0.001	2.21 (0.47, 10.50)	0.319
Black	1.28 (1.13, 1.44)	<0.001	2.15 (1.61, 2.88)	<0.001	1.97 (1.49, 2.61)	<0.001	1.16 (1.01, 1.34)	0.032	8.26 (1.09, 62.82)	0.041
Other	1.23 (1.13, 1.34)	<0.001	1.66 (1.36, 2.03)	<0.001	1.66 (1.37, 2.00)	<0.001	1.15 (1.04, 1.26)	<0.001	1.50 (0.58, 3.87)	0.404
Age (years)										
18	1.00 (ref)		1.00 (ref)		1.00 (ref)		1.00 (ref)		1.00 (ref)	
19	0.99 (0.88, 1.12)	0.935	1.00 (0.88, 1.12)	0.956	1.22 (0.93, 1.61)	0.156	0.96 (0.84, 1.10)	0.537	1.92 (0.40, 9.30)	0.416
20	0.92 (0.79, 1.07)	0.274	0.93 (0.80, 1.08)	0.350	1.30 (0.93, 1.82)	0.127	0.87 (0.74, 1.04)	0.119	0.52 (0.07, 3.91)	0.525
21	0.89 (0.75, 1.05)	0.158	0.91 (0.77, 1.08)	0.271	1.26 (0.87, 1.82)	0.217	0.85 (0.70, 1.03)	0.099	0.14 (0.02, 1.14)	0.066
22	0.83 (0.68, 1.00)	0.051	0.85 (0.70, 1.03)	0.095	1.50 (1.02, 2.22)	0.040	0.73 (0.59, 0.91)	0.006	0.28 (0.03, 2.92)	0.286
23–24	0.65 (0.52, 0.80)	<0.001	0.66 (0.53, 0.82)	<0.001	1.29 (0.85, 1.95)	0.227	0.53 (0.41, 0.68)	<0.001	1.21 (0.14, 10.43)	0.865
25–29	0.46 (0.36, 0.58)	<0.001	0.47 (0.37, 0.59)	<0.001	0.65 (0.41, 1.05)	0.077	0.43 (0.33, 0.57)	<0.001	0.28 (0.03, 2.89)	0.286
30–39	0.42 (0.32, 0.54)	<0.001	0.42 (0.32, 0.55)	<0.001	0.64 (0.37, 1.10)	0.107	0.38 (0.28, 0.52)	<0.001	0.21 (0.01, 3.76)	0.287
40	0.29 (0.20, 0.41)	<0.001	0.29 (0.20, 0.41)	<0.001	0.44 (0.20, 0.98)	0.044	0.26 (0.18, 0.40)	<0.001	0.13 (0.01, 2.01)	0.145

	Model 1. Sexual Assault Among Total Sample (N=71,421)		Model 2. Sexual Assault Among Cisgender People (n=71,244)		Model 3. Sexual Assault Among Cisgender Men (n=22,936)		Model 4. Sexual Assault Among Cisgender Women (n=48,308)		Model 5. Sexual Assault Among Transgender People (n=170)	
	AOR (95% CI)	p-value	AOR (95% CI)	p-value	AOR (95% CI)	p-value	AOR (95% CI) p-value		AOR (95% CI)	p-value
Year in school										
1st	1.00 (ref)		1.00 (ref)		1.00 (ref)		1.00 (ref)		1.00 (ref)	
2nd	1.08 (0.96, 1.22)	0.191	1.08 (0.96, 1.21)	0.208	0.92 (0.71, 1.20)	0.534	1.12 (0.98, 1.27)	0.105	0.66 (0.13, 3.23)	0.608
3rd	1.01 (0.88, 1.17)	0.855	1.00 (0.86, 1.16)	0.980	0.92 (0.67, 1.26)	0.595	1.02 (0.86, 1.20)	0.817	2.45 (0.40, 14.95)	0.332
4th	1.08 (0.91, 1.28)	0.361	1.05 (0.89, 1.24)	0.545	1.00 (0.71, 1.42)	0.985	1.07 (0.89, 1.30)	0.476	6.01 (0.90, 40.15)	0.064
5th	1.20 (0.98, 1.48)	0.075	1.17 (0.96, 1.44)	0.127	1.16 (0.78, 1.74)	0.454	1.18 (0.93, 1.50)	0.170	3.75 (0.51, 27.47)	0.193
Gender identity × Sexual identity Interactions										
Female × Gay/lesbian			**0.32 (0.23, 0.45)**	**<0.001**						
Female × Bisexual			0.74 (0.53, 1.01)	0.059						
Female × Unsure			**0.58 (0.39, 0.85)**	**0.005**						
Gender identity × Race/ Ethnicity Interactions										
Female × Asian			0.82 (0.59, 1.12)	0.212						
Female × Latino			**0.56 (0.41, 0.75)**	**<0.001**						
Female × Black			**0.55 (0.40, 0.75)**	**<0.001**						
Female × Other			**0.68 (0.55, 0.85)**	**0.001**						
Sexual identity × Race/ Ethnicity Interactions										
Gay/lesbian × Asian			0.95 (0.43, 2.08)	0.898						
Gay/lesbian × Latino			1.02 (0.55, 1.89)	0.944						
Gay/lesbian × Black			0.72 (0.39, 1.35)	0.307						
Gay/lesbian × Other			0.95 (0.61, 1.48)	0.820						
Bisexual × Asian			0.91 (0.53, 1.58)	0.749						
Bisexual × Latino			1.13 (0.74, 1.72)	0.585						
Bisexual × Black			0.85 (0.54, 1.34)	0.489						
Bisexual × Other			1.03 (0.77, 1.38)	0.829						
Unsure × Asian			**0.39 (0.18, 0.86)**	**0.020**						
Unsure × Latino			0.74 (0.37, 1.49)	0.406						

	Model 1. Sexual Assault Among Total Sample (N=71,421)		Model 2. Sexual Assault Among Cisgender People (n=71,244)		Model 3. Sexual Assault Among Cisgender Men (n=22,936)		Model 4. Sexual Assault Among Cisgender Women (n=48,308)		Model 5. Sexual Assault Among Transgender People (n=170)	
	AOR (95% CI)	p-value	AOR (95% CI)	p-value	AOR (95% CI)	p-value	AOR (95% CI) p-value		AOR (95% CI)	p-value
Unsure × Black			0.81 (0.42, 1.56)	0.527						
Unsure × Other			1.30 (0.87, 1.94)	0.197						

Note. Boldface indicates statistical significance (*p*<0.05). AORs = adjusted odds ratios; CI = confidence interval. All models adjusted for survey year. Models 1 through 4 were estimated using multilevel logistic regression models, and Model 5 was estimated using a standard logistic regression model. Models 2 through 4 excluded transgender people, while Model 5 excluded cisgender people. Model 5 also excluded Asian transgender people because they reported no sexual assaults.

Table 4

Predicted Probabilities of Past-Year Sexual Assault for Sexual Identity and Race/Ethnicity by Gender Identity: 2011–2013

	Gender identity		
	Cisgender men[a]	Cisgender women[a]	Transgender people[b]
	Predicted probability (95% CI)	Predicted probability (95% CI)	Predicted probability (95% CI)
Sexual identity			
Heterosexual	2.9 (2.6, 3.1)	7.7 (7.2, 8.1)	12.2 (0.0, 24.4)
Gay/lesbian	9.4 (7.6, 11.2)	8.5 (6.5, 10.6)	19.0 (5.0, 33.0)
Bisexual	8.5 (6.2, 10.7)	15.9 (14.3, 17.6)	14.8 (5.2, 24.4)
Unsure	7.7 (5.3, 10.0)	11.8 (9.8, 13.8)	29.1 (13.4, 44.7)
Race/ethnicity			
White	2.8 (2.5, 3.1)	8.2 (7.7, 8.7)	14.2 (6.8, 21.5)
Asian or Pacific Islander	2.6 (1.9, 3.2)	6.2 (5.3, 7.0)	N/A
Latino	3.6 (2.7, 4.5)	6.0 (5.2, 6.8)	26.7 (−1.8, 55.3)
Black	5.8 (4.3, 7.3)	9.4 (8.2, 10.6)	57.7 (11.0, 104.4)
Other	4.6 (3.9, 5.4)	9.2 (8.4, 10.1)	19.8 (7.9, 31.8)

Note. CI = confidence interval. All predicted probabilities were averaged across age, year in school, and survey year.

[a]Estimated from multilevel logistic regression model of sexual assault among cisgender people only containing 2-way interactions between sexual identity, gender identity, and race/ethnicity (Model 2, Table 3).

[b]Estimated from standard logistic regression model of sexual assault among transgender people only (Model 3, Table 3). Asian transgender people reported no sexual assaults, and were therefore excluded from the analysis.