

The scope of rape victimization and perpetration among national samples of college students
across 30 years

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Abstract

Research Questions: Rape prevention practice and policy have roots in data from 1985. This study uses 2015 national data to project recent prevalence, assesses whether rates now differ from those of 30 years ago, and disaggregates 2015 prevalence into rape of alcohol incapacitated victims, rapes combining both alcohol and physical tactics, and violent rape.

Methods: Cross-sectional analyses were conducted comparing two national samples. The first was collected in 1984-85 (Koss, Gidycz, & Wisniewski, 1987); the second was collected 30 years later in 2014-2015. Both surveys used in-person administration and measurement by the most current version at the time of the Sexual Experiences Survey (SES). Prevalence rates were compared using Bayesian binomial tests.

Results: In 2015, 33.4% (1 in 3) of women reported experiencing rape or attempted rape and 12.7% of men reported perpetration (1 in 8). Using Jeffreys' label for effect size of the Bayes binomial (1961), both results are "decisively" greater than expected given the 1985 benchmarks of 27.9% for victimization and 7.7% for perpetration. Victimization when incapacitated characterized approximately 75% of incidents in 2015 up from 50% in 1985. Cautions apply as cross-sectional data does not establish causality and the recent data set involved the revised SES.

Conclusions: Across 30 years, neither containment nor reduction of rape was demonstrated and the increasingly prominent association with alcohol was apparent. Among the men who disclosed raping, 9 of 10 incidents were alcohol-involved. Prevention focus might profitably be directed to constraining alcohol environments and policies that facilitate rape of incapacitated persons and on misconduct responses that are proportional to the harm caused to rape victims, thereby raising the perceived risks of perpetration.

1
2 The scope of rape victimization and perpetration among national samples of college students
3 across 30 years

4 **Introduction**

5 The national scope of sexual assault victimization and perpetration among U.S. college
6 students was first identified in 1987 (Koss, Gidycz & Wisniewski, 1987) and is the focus of the
7 book *I Never Called it Rape: The Ms. Guide for Recognizing, Surviving and Avoiding Date and*
8 *Acquaintance Rape* (Warshaw, 1988, 1994, 2019). The oft-cited figure that 1 in 4 college women
9 have been raped derives from this work. This widely circulated estimate provoked substantial
10 backlash from conservative media personalities and academics who attempted to invalidate the
11 findings (for historical context and analysis, see Rutherford, 2011; 2017). Nevertheless, the 1 in 4
12 statistic has also been widely used for activism and was presented in testimony before the U.S.
13 Senate Committee on the Judiciary to support the first Violence Against Women Act (VAWA,
14 December 11, 1990), as well as to propel focused effort on campus sexual assault prevention
15 (Basile, DeGue, Jones, Freire, Dills, Smith, & Raiford, 2016; CDC, 2014). The statistic merits
16 revisiting. Comparison of national data on the prevalence of both victimization and perpetration
17 adhering as closely as possible to the original methods would capture a snapshot of a 30-year
18 period when rape was the subject of extensive media, scholarly, policy, legislative, community
19 services, and prevention activities that have brought it to the forefront of public attention.
20 Examples include the passage of VAWA; the establishment of the Rape Prevention Education
21 program at CDC; two sets of guidelines from the U.S. Department of Education altering
22 implementation of Title IX of the Civil Rights Act at institutions of higher education; and the
23 #MeToo movement (e.g., Ali, 2011; O'Neil, Sojo, Fileborn, Scovelle, & Milner, 2018; Violence
24 Against Women Act (December 11, 1990), U.S. Department of Education, 2018)

1 In theory, projection of national prevalence trends should be possible through aggregating
2 various data sets, even smaller scale single site studies, and plotting reliable slopes over time based
3 on the assembled large sample. In actuality, calculating meaningful national trends from existing
4 studies is precluded according to recent reviews (Anderson, Silver, Ciampaglia, Vitale, &
5 Delahanty, 2019; Fedina, Holmes, & Backes, 2018; Muehlenhard, Peterson, Humphreys, &
6 Jozkowski, 2017). Before discussing more detail, the reader is advised that these reviews collect
7 published literature that virtually all address rape from a heteronormative, sex-based binary where
8 women are victims and men are perpetrators; and further confound genital anatomy with gender
9 identity. The fault lies with the research that has been conducted, not insensitivity of the reviewers
10 (for work beginning to move beyond the binary, see Anderson, Goodman, & Thimm, 2020).

11 Fedina and colleagues (2018) reviewed 34 independent sexual victimization surveys from
12 the years 2000 to 2015 (N = 84,461 students). They concluded that calculation of average rape
13 prevalence among college women would not be valid due to method variance in the data sources
14 that included: presenting the survey in different contexts (e.g., health or crime); priming response
15 through nonstandard introductions; varying definitions of essential variables (e.g., consent, sex
16 acts, and tactics to compel); adapting non-comparable recall periods; utilizing different modes of
17 administration (e.g., paper and pencil, face-to-face interviews, computer assisted interviews, email
18 and online surveys); focusing on single sites with small, nongeneralizable samples; and reporting
19 data with low rates of participation and high levels of missing data. Table 1 lists the citations for
20 recent meta-analyses and scoping reviews on nonconsensual sexual victimization prevalence
21 together with the names and citations for the most prominent recent national surveys. Compared
22 to the 1 in 4 estimate, currently the most disseminated number is 1 in 5 (Muehlenhard et al., 2017).

1 The 1 in 4 versus 1 in 5 estimates give an illusion of reduction not merited by the incomparability
2 of the data as supported by the multiple reviews cited in Table 1.

3 Perpetration also has been the subject of meta-analyses, of which the work of Anderson and
4 colleagues is most relevant (Anderson, Silver, Ciampaglia, Vitale, & Delahanty, 2019). They
5 reviewed surveys of North American college students from the years 2000 to 2017 to connect with
6 an earlier article examining studies prior to 1999 (Spitzberg, 1999). The database consisted of 78
7 independent samples (N=25,524). As with victimization, the majority of studies (78%) measured
8 perpetration with a version the Sexual Experiences Survey (SES, Koss & Oros, 1980; Koss et al.,
9 1987 & Koss et al., 2007). The results statistically examined the impact of methodological
10 differences. The authors concluded that perpetration surveys also resist aggregation and suffer
11 from the same methodological variants as victimization surveys. Although a few national studies
12 of perpetration have been conducted, they do not contribute to the prevalence database. For
13 example, a recent report of a representative national sample of adult men examined the relationship
14 of pornography, impersonal sex and sexual aggression (Wright, Paul, & Herbenick (2021).
15 However, the study defined sexual aggression as verbal pressure for sex, and measured this
16 construct by one yes/no question. Furthermore, the researchers did not report prevalence rates.
17 Another study that used the same 2015 database as this article tested an elaborated confluence
18 model that had been earlier fitted in the archival database used in this study (Malamuth,
19 Sockloskie, Koss, & Tanaka, 1991; Malamuth, Lamade, Koss, Lopez, Seaman, & Prentky, 2021).
20 Neither study focused on prevalence nor presented results calculated through standard SES
21 scoring. A meta-analysis by Wright, Tokunaga and Kraus (2016) included both verbal and
22 physically compelled sex, also in adult men, but the study questions were not methodological and
23 the reported findings did not address prevalence. Perpetration was measured in a national study of

1 college students funded by the U.S. Department of Justice, but the authors concluded in the
2 technical report that their methods were not successful in eliciting perpetration disclosures and the
3 findings have never been published in peer review (Krebs, Lindquist, Shook-Sa, Peterson, Planty,
4 Langton, & Stroop, 2016). Thus, it is fair to conclude that no national data on perpetration by
5 college students subsequent to Koss et al. has appeared in the literature since its publication in
6 1987. The absence of ongoing national estimates of rape perpetration is glaring scientifically and
7 programmatically. Regular gender neutral prevalence surveys of both perpetration and
8 victimization would provide timely data to inform practice and policy, and to track the impact of
9 prevention initiatives at the community level. Prevention programs should have a detectable
10 community level impact over time (DeGue, Valle, Holt, Massetti, Matjasko & Tharp, 2014).

11 This study also examines the intersection of alcohol and sexual assault. Critics' major line
12 of attack in delegitimizing the 1 in 4 estimate was the measurement of alcohol-related rape
13 (Rutherford, 2011; 2017). In fact, the wording did leave unaddressed whether the victim was
14 impaired after a person intentionally administered substances and penetrative sex acts occurred.
15 Alcohol consumption co-occurs with consensual sex as well as many rapes. Critics legitimately
16 point out that it is conceivable victims would be surreptitiously given drugs and/or alcohol but not
17 reach the stage where they are incapacitated. In the absence of incapacitation, an incident may be
18 emotionally distressing but not meet legal rape definitions. A comprehensive review of campus
19 and community studies reported a range of 40-75% of victims, perpetrators or both had been
20 drinking prior to rape (Abbey, Wegner, Woerner, Pegram, & Pierce, 2014). In their national
21 victimization survey including both community and college students, Kilpatrick and colleagues
22 (2007) used the following definition of drug and alcohol facilitated rape: "The perpetrator
23 deliberately gives the victim drugs without her permission or tries to get her drunk, and then

1 commits an unwanted sexual act against her involving oral, anal, or vaginal penetration. The
2 victim is passed out or awake but too drunk or high to know what she is doing or to control her
3 behavior” (p. 10). Kilpatrick and his team label as incapacitated rape the same scenario but when
4 the victim has voluntarily imbibed. The authors reported that the prevalence of these two types
5 rape were nine times more frequent among college women than the general population.

6 The objectives of the current article are to: (a) estimate contemporary national rape
7 victimization and perpetration prevalence, replicating as closely as possible the methods used by
8 Koss and colleagues 30 years ago; (b) statistically compare the magnitude of prevalence estimates
9 at the two time points; and (c) compare the prevalence of forcible versus alcohol-involved
10 victimization and perpetration, including examination of the impact of the revised 2007 SES
11 wording that specifies incapacitation and permits voluntary intoxication.

12 **Methods**

13 This study uses two national survey data sets. The first is data from 6,159 students in 32
14 U.S. institutions of higher education (IHE) first published by Koss et al. in 1987. The second
15 contains 2,471 students enrolled in 13 IHEs. To create a compelling 30-year interval, the
16 designations 1985 and 2015 label the two datasets even though each required portions of two years
17 to complete (1984-1985 and 2015-2016). The 2015 sample was collected as part of a larger
18 project (Lamade, Lopez, Koss, Prentky & Brereton, 2018). Before delving deeper into
19 methodology, we begin with a statement on gender inclusivity. The SES version used in 1987 was
20 based on a heteronormative model of who is victimized and who perpetrates. The Federal Bureau
21 of Investigation definition of rape at that time limited this crime to female victims. Thus,
22 perpetration was operationalized to query men only about unwanted sex acts they had committed.
23 In addition, the earlier survey linked biological sex and genital anatomy. The 2007 revised SES

1 used to obtain the 2015 data contains more gender inclusive language and was designed to permit
2 all respondents to report both victimization and perpetration independent of gender identity.
3 However, even the 2007 item wording is not ideal when viewed through a contemporary lens. For
4 example, genital anatomy and gender identity remain linked. A design conundrum our team faced
5 was that to meet the study aims of comparing data across time points using as similar methods as
6 possible, non-inclusive methods were retained. An SES 2021 Revision Collaboration is underway
7 and is using input from diverse groups to increase inclusion.

8 **Sample of Institutions**

9 The sample plan for the 32 institutions that participated in 1985 was designed to represent
10 the U.S. Department of Education public data on institutional characteristics and student
11 enrollment demographics. These methods are only briefly reviewed here as they are previously
12 published (Koss, et al., 1987). Homogeneous clusters of institutions were created from which to
13 sample and ultimately to achieve representativeness of the higher education enrollment nationally.
14 Variables that were crossed to delineate the clusters included: (a) location inside or outside of a
15 standard metropolitan statistical area of different sizes (>1,000,000 people, <1,000,000 people, or
16 rural); (b) enrollment above or below the national mean percentage of racial/ethnic minority
17 students; (c) control of the institution by private secular, private religious, or public authority; (d)
18 type of institution, (university, other four-year college, two-year junior college, or
19 technical/vocational); (e) total enrollment within three levels (1,000-2,499 students; 2,500-9,999
20 students; >10,000 students) and (f) U.S. Department of Education regions. If an institution
21 declined, it was replaced by another choice from the same cluster of characteristics. A total of 93
22 institutions were approached to achieve a sample of 32.

1 The 2015 data collection could not fully replicate the 1985 procedures for institution
2 selection for two reasons. Cost constraints were the first. The 2015 data were obtained as part of
3 larger initiative and the survey was only one component. Thus, the number of institutions visited
4 could not be as large. Change in human subjects' protection guidelines was the second. In 1985,
5 in-person methods were considered anonymous if students checked a box to indicate consent. The
6 2015 initiative was deemed not to qualify as anonymous. No on-campus IRB liaison was required
7 for the earlier work as it is today in multi-site studies. To accomplish in person data collection,
8 partnering with a local professor at each site was required. This person had to accept responsibility
9 for ethical conduct, submit the IRB application in their own name, and complete required reports
10 on enrollment and study completion. The people who volunteered this significant time
11 commitment were selected by outreach from the authors to other sexual violence researchers at
12 institutions within the clusters used in 1985. The aim was to duplicate as closely as possible the
13 institution types and geographical locations from 1985. The 2015 sample did not revisit the same
14 institutions as 1985.

15 The 1985 surveys were administered in classes selected randomly from the undergraduate
16 course catalogue and booked upon permission of the instructor. This time intensive process was
17 not feasible to expect from volunteer site directors. Therefore, the 2015 survey enlisted student
18 participants using self-selection methods including online systems, flyers, emails, or department-
19 level outreach. The final sample was 13 of the 15 institutions approached for participation. One
20 withdrew and the other did not complete data collection by the deadline. The 2015 sample,
21 although smaller, is proportional (1985--32 institutions yielding approximately 6,500 participants;
22 2015--13 institutions yielding approximately 2,500 respondents). From this point procedures were
23 identical: surveys were on paper, participants read a consent form, checked a box if they were

1 willing to participate, and then completed the self-report questionnaire in a group setting with a
2 trained, graduate student proctor of any gender present. Students were separated by at least one
3 desk to maintain their privacy. Proctors read students their rights to terminate without penalty, to
4 skip parts of the survey if they chose, and to ask any questions to clarify their informed
5 participation. The protocol included steps to handle potential untoward effects of participation. A
6 place and time were announced where students could speak with the proctor privately and sheet
7 listing local resources was distributed at the completion of the survey. In both 1985 and 2015
8 approval was obtained from the IRB of each participating institution and by the IRB of record,
9 which were Kent State University and subsequently University of Arizona (1985 data) and
10 Farleigh Dickinson University (2015 data).

11 **Sample**

12 Table 2 contains institutional and student enrollment characteristics of the research sites in
13 each data set and corresponding national information for the same year. Both national profiles
14 derive from information in the Carnegie Classification of Institutions of Higher Education and
15 additional data available through the National Center for Education Statistics Integrated Post-
16 Secondary Education Data System, <https://www.nces.ed.gov/ipeds>. It is not reasonable to compare
17 the demographics of samples separated by 30 years due to changes in the higher education
18 enrollment in the interim. For this reason, the institutional data are presented in Table 2 for each
19 sample pairs them with the national statistics for the same year. Institutional, geographic and
20 student variables for each sample in Table 2 were examined for differences in prevalence rates. In
21 1985, significantly higher victimization prevalence was found in private colleges and major
22 universities compared to religious colleges. Otherwise, there were no significant institutional
23 differences. Geographically, victimization was higher in the Great Lake and Plains states than in

1 other regions. Perpetration prevalence varied only by region; it was highest among men living in
2 the Southeast and lowest in the Plains states and West (Koss et al., 1987). There were fewer
3 differences in 2015 data. Victimization prevalence differed only between women in rural
4 institutions versus women in metropolitan areas, $\chi^2(2, N = 1342) = 6.10, p = .05$, where rape rates
5 were higher. There were no other significant differences for either victimization or perpetration
6 prevalence by institutional characteristics or geography.

7 Both 1985 and 2015 samples revealed variation in victimization prevalence by
8 race/ethnicity. The 1985 data were criticized because the sample was heavily White, but so was the
9 enrollment in all institutions of higher education at the time. The 2015 data were much more
10 diverse. The only notably under-represented racial/ethnic groups compared to national enrollment
11 statistics were White and Native American/American Indian. The national enrollment of the latter
12 group is 0.8%, which is too low for a stable estimate unless oversampled. In 1985 victimization
13 rates were highest among women who identified as Native American, followed by White, Black
14 and Hispanic, and lowest among Asian American women (Koss et al., 1987). In 2015, significant
15 ethnic/racial differences were also found in victimization risk, $\chi^2(7, N = 1342) = 23.61, p < .001$.
16 Victimization was highest among multi-racial women. No multi-racial identity option existed in
17 1985. The order of lessening risk for the other ethnicities in 2015 was the same as in 1985.
18 Disclosure of rape perpetration was more common among Black men in 1985, followed by
19 Hispanic and Asian men. In 2015, there were no statistically significant ethnic/racial differences
20 in the perpetration of rape.

21 **Measurement**

22 Rape in this study is defined consistently with federal law: oral, anal, or vaginal
23 penetration, against consent, through force, threat of bodily harm, or when incapacitated, including

1 attempts to rape (FBI, 2019). The SES operationalizes this definition in behaviorally-specific
2 terms. The measurement of rape includes wording to establish penetration, without consent,
3 through force or threat of harm, or when the victim is incapacitated. Each data collection used the
4 most current version of the SES at the time. Standard internal consistency and test-retest reliability
5 psychometric data for the 1985 SES are previously published (Koss et al., 1987) as are data for the
6 2007 revised SES used in 2015 (Johnson, Murphy & Gidycz, 2017). However, many experts
7 discourage reporting internal consistency for behavioral or experiential scales. More readers will
8 be concerned about other measurement issues, such as the extent of similarity between the two
9 SES versions. Table 3 presents item wording side by side for the 1985 and 2007 SES. The format
10 of both sets of items is naming the unwanted sexual act first and then specifying the exploitative
11 tactics that may have been used to compel rape. The primary difference is that in 1985 respondents
12 were asked, “Have you had sexual intercourse when you didn't want to because a man gave you
13 alcohol or drugs?”. In 2007, the text was replaced with “by taking advantage of me when I was
14 too drunk or out of it to stop what was happening”.

15 Other questions may be raised about how closely the self-reported rape disclosures on
16 either version comport with written or face-to-face interview narratives. Koss et al., (1987)
17 reported Pearson correlation of .73 between a woman's level of victimization based on self-report
18 and her level of victimization based on responses related to an interviewer several months later.
19 Among rape victims classified on self-report, only 2 of 68 were judged to have misinterpreted
20 questions or to have given answers that appeared to be false. A more recent study of the SES
21 version used in 2015 carried out by independent evaluators also compared written descriptions
22 with self-report. The authors determined that 79.7% of rape endorsements on the SES reflected
23 true positives and 20.2% represented false positives (Littleton, Layh, Rudolph & Haney, 2019; also

1 see Testa, VanZile-Tamsen, Livingston, & Koss, 2004). Discrepancies are least frequent on the
2 rape items. For perpetration, in 1987, Koss and colleagues published a 93% agreement rate
3 between self-disclosure on survey compared to an in-person conversation with a male interviewer.

4 **Statistical Analysis**

5 In 1985 participation rates (98.5%) were very high compared to what is achieved in on-
6 line surveying today. Participation rates for the 2015 sample cannot be calculated, but its size
7 exceeds the power requirements of the design, discussed later. The impact of deviations from the
8 national enrollment for 1985 were previously published (Koss, et al., 1987). Comparisons of
9 weighted and unweighted estimates relative to variance were so small that the subsequent
10 publications and secondary analyses of the 1985 data by other users carried forward with
11 unweighted values. The 2015 results are therefore presented as unweighted estimates. In the 2015
12 data, only 18 of 2,493 participants were excluded due to missing data on sexual experiences.
13 Therefore, no strategies for handling missing data were employed for either data set (e.g., multiple
14 imputation).

15 Bayesian binomial tests were calculated using JASP version 10.2, with the 1985 rates
16 operationalized as priors. This method tests the probability that the 1985 and 2015 sexual assault
17 risk rates are the same versus the probability that 30-year lagged risk assessments differ. The 1985
18 data were re-analyzed in 2020 to re-confirm the previously reported prevalence percentages. There
19 were no deviations from published reports. Bayesian binomial tests generate 95% credibility
20 intervals (CIs) around the estimated rate in addition to what is known as a Bayes factor (BF).
21 Bayes Factor nomenclature is interpreted as follows: larger values of BF_{10} suggests greater support
22 for the alternative hypothesis (the 1985 and 2015 rates differ) than the null hypothesis (no
23 difference). Jeffreys (1961) provided interpretation guidelines for BF values. A BF greater than 30

1 provides “very strong” support and a value greater than 100 provides “decisive” support for the
2 hypothesis that the samples differ. The following is an more detailed explanation of BF
3 interpretation because with few exceptions the comparisons to be reported resulted in very large
4 BF estimates. A BF_{10} value >100 indicates decisive support for the alternative hypothesis that
5 there is a difference in the observed distribution (2015) compared with the prior distribution
6 (1985). When there is a BF_{01} value >100 , the null hypothesis is supported. In Table 4, where $e+$
7 occurs, it references the number of zeros that need to be added to the BF express the magnitude of
8 the statistic. For example, $e+5 = 500,000$; it means moving the decimal to the right 5 spaces or
9 adding five zeros to the BF number.

10 All tests were non-directional to anticipate that difference over 30 years could be
11 increasing, null, or decreasing. A series of Monte Carlo simulations in R v.3.6.3, adapting syntax
12 suggested by Reich (2018), determined power to detect credible effects using Bayesian binomial
13 tests. Results of these simulations suggest both the 2015 victimization ($N=1,342$) and perpetration
14 ($N=1,129$) datasets provided adequate power ($>.80$) to detect effects as small as an 8.7% difference
15 in 2015 rates compared with the 1985 benchmark rate [i.e., $|(P_{2015}-P_{1985})/ P_{1985}|$]. This 8.7% effect
16 size refers to the relative change in prevalence or proportion. For example, the difference between
17 15.0% and 16.3% is 8.7% [$(16.3\%-15.0\%)/15.0\% = 8.7\%$]. Thus, we had adequate power to detect
18 the difference between 15.0% and 16.3%, which is a relatively small difference

19 Results

20 Based on data collected in 1985, Koss and colleagues (1987) estimated that 27.5% of
21 college women experienced an FBI-defined rape between the time they turned 14 years old and
22 their point of assessment during college. This figure is often referred to as total rape, and is
23 comprised of both completed and attempted incidents. The 2015 data suggest a total rape

1 prevalence of 33.4% (95% CI = 30.9% - 36.0%). The 2015 rate is decisively higher compared to
2 what would be expected based on the 1985 benchmark as tested by the Bayes Factor and using
3 Jeffry's suggested nomenclature for effect size (Bayes Factor₁₀ = 2551.6). The patterns were the
4 same for perpetration. In 1985, 7.7% of college men disclosed perpetrating rape. Compared to this
5 prior value, the 2015 prevalence of 12.7% was decisively higher (Bayes Factor₁₀ = 4.43e+5; 95%
6 CI = 10.9% - 14.7%).

7 Next, focus was placed on completed rape only, excluding attempts. These data are found
8 in Table 4. In 1987 a completed rape victimization prevalence of 15.8% was reported (Koss et al.,
9 1987), whereas the 2015 estimate is notably higher at 23.9% (95% CI= 21.6% - 26.3%; Bayes
10 Factor₁₀ = 2.05e+11). The perpetration data revealed that 4.6% of college men disclosed
11 perpetrating completed rape in 1985, whereas the 2015 estimate is 10.1% (95% CI = 8.5% -
12 12.0%; Bayes Factor₁₀ = 1.47e+11). Table 4 also contains completed rape prevalence percentages
13 disaggregated by the exploitative tactics involved. Among women in 1985, 4.6% reported an
14 unwanted penetrative act "after administration of alcohol or drugs". In 2015, 12.1% of women
15 disclosed rape when "incapacitated and unable to consent or stop what was happening" (95%
16 CI=10.4%-13.9%; BF₁₀=3.07e+26), which is a decisive difference. Rates of women who reported
17 experiencing both alcohol-involved and force tactics, whether in the same incident or in separate
18 incidents, were 7.9% in 1985 versus 18.0% in 2015 (CI=16.0%-20.1%, BF₁₀=1.19e+29), another
19 decisive difference. The patterns were similar for perpetration. In 1985, 4.0% of men reported
20 giving a woman alcohol or drugs to perpetrate completed rape, whereas in 2015 men 9.1%
21 disclosed rape of an incapacitated women (CI=7.5%-10.9%, BF₁₀=3.81e+17). The remaining form
22 of rape is that based solely on overt physical force or threats of bodily harm without alcohol
23 involvement. These rates did not differ from 1985 to 2015 for victims (1985=8.0%, 2015=6.0%) or

1 perpetrators (1985=0.6%; 2015=1.1%; see Table 4 for BF). The latter comparison is the only one
2 that is flagged for insufficient power due to the low prevalence of college men who reported
3 perpetrating rape by force alone.

4 These results cannot refute the assertion that 1985 alcohol-involved rape prevalence was
5 inflated because the victim had not imbibed to the point of incapacitation. The alternative
6 interpretation is also viable: that the higher rates in 2015 could reflect that the revised wording is
7 detecting more rape and would also have done so had it been used in the 1985 assessment. We
8 addressed this issue by a follow-up analysis that eliminated respondents who disclosed only
9 alcohol involved rape. The SES is scored categorically according to the most severe item endorsed,
10 whether or not lower level items are also disclosed. Rape involving force is considered from a
11 scoring perspective as more severe than rape involving alcohol with no force. Eliminating the
12 alcohol only rapes removes the group most likely to have been affected by the wording change.
13 What remains are respondents who reported completed forcible rape perpetration or victimization
14 that might or might not have also involved drinking. Because of the SES scoring protocol just
15 described, classification into this group hinges on responses to the force items. A respondent
16 without any force tactic endorsement would be scored as alcohol-only and thus is not included in
17 the following rates. Results of these analyses suggest rates of college women who experienced
18 rape by force and potentially also alcohol tactics were slightly lower in the 2015 (18.0%, 95% CI =
19 16.0%-20.1%) compared with the 1985 data (19.4%; $BF_{10}=.06$). The proportion of college men
20 who reported perpetrating using force and potentially also alcohol in the 2015 data (5.8%, 95% CI
21 = 4.5%-7.3%) was decisively higher than expected from the 1985 data (2.8%; $BF_{10} = 21163$).

22

23

Discussion

1
2 Rape prevalence estimates are presented based on national samples separated by 30 years
3 (1985 and 2015) using the SES for both data collections, administered face-to-face, by paper and
4 pencil self-report. The 2015 data suggest that 1 in 3 college women (33.4%) are victimized by rape
5 including attempts since their 14th birthday, which is typically the first year of high school,
6 compared to the 1985 estimate of 1 in 4 (27.5%). Based on guidelines for interpretation of the
7 Bayes Factor used for the comparisons of time points, this increase is considered decisively
8 statistically significant and thus strong evidence that rape victimization is now higher than 30 years
9 ago. In 1985, the rape perpetration rate was 1 in 19 men. In recent data the estimate is 1 in 8 men;
10 another difference with an effect size supporting increased prevalence based on decisive statistical
11 significance. The results are consistent with an earlier, nearly identical comparison of two national
12 victimization surveys that were methodologically similar but not longitudinal (Kilpatrick, Resnick,
13 Ruggiero, Conoscenti, & McCauley, 2007, p. 5). Kilpatrick's group reported no evidence of
14 reduction in the proportion of adult women who were forcibly raped each year over 15 years
15 dating back to 1992 (Kilpatrick et al., 2007). Thus, there is precedent for the present findings that
16 show no reduction in either victimization or perpetration compared to 30 years ago, and in fact
17 support increased prevalence estimates. Recent public health literature indicates that college-age
18 young adults are overall less sexually active now than in the past (e.g., Ueda et al., 2020). In the
19 context of a lowered number of sexual encounters, evidence of increased percentages of
20 exploitative sex that constitutes rape is very concerning.

21 The 1985 alcohol-involved rape estimate received intense criticism because
22 incapacitation was not specified. We examined whether the wording used to obtain 2015 data
23 elicited more responses than the 1985 approach. The recent rates of alcohol-only rape are much

1 higher. Focusing on rapes that involved both force and alcohol, or force alone, further analyses
2 suggested that phrasing did not make an important difference for women's disclosure of
3 victimization but the revised wording doubled the likelihood of men disclosing perpetration. The
4 contribution of this analysis is that it allows a more nuanced examination of the alternate
5 explanation that the rate of alcohol-involved rape presented as contemporary is increased from
6 1985 solely due to measurement differences. The prevalence of rape victimization in alcohol
7 involved rapes tripled when incapacitation was specified (4.6% in 1985; 12.1% in 2015). This
8 pattern was not seen when force tactics were also present. The assertion that what Koss and
9 colleagues labeled as rape was merely plying with alcohol as a seduction strategy is refuted. At
10 both time points 9 of 10 men disclosing rape perpetration did so in response to the items
11 referencing alcohol. Reliance solely on force to perpetrate rape was low at both time points. In
12 2007, Kilpatrick and colleagues spotlighted that women's most common rape-risk situation overall
13 is "being taken advantage of by a sexual predator after she has become intoxicated voluntarily" (p.
14 5). When 75% of rape victimization and 90% of perpetration involves alcohol, there can be no
15 illusion about the inadequacy of contemporary educational policy and environmental management
16 intended to steer youth and emerging adults towards responsible drinking and sexual behavior.

17 Limitations of the present study not already noted are characteristics of any data collection
18 that involves self-report and sampling strategies that are not reproducible. However, inclusiveness
19 of samples is often-overlooked as a criterion to judge the potential generalizability of a study. Too
20 many articles published in recent years are single site studies from predominately white
21 institutions. No matter how systematic the sampling strategy is, the data represent largely white
22 students. Critics of the 1985 results zeroed in on the high percentage of white students in a
23 supposedly nationally representative sample. Actually, the 1985 college enrollment was primarily

1 white students, and a representative sample mirrored that disproportion. The 2015 data map onto
2 the far more diverse higher education enrollment today. White students constituted 42% of the
3 2015 sample versus 52% of higher education enrollment nationally in the same year. As there
4 were no significant correlations of race/ethnicity with perpetration, the under-representation of
5 white students is unlikely to be of concern for perpetration. However, ethnic/racial differences in
6 risk of victimization were found, but white women were not the highest risk racial/ethnic group,
7 not only in the present study but across multiple surveys noted in Table 1. Therefore, it is arguably
8 more important to have a sample with other racial/ethnic groups represented sufficiently to achieve
9 power adequate to detect differences in victimization risk.

10 The alcohol findings must be interpreted with the cautions that apply to all cross-sectional
11 study designs. The results are not causal statements. Other designs exist that contribute to
12 understanding the role of alcohol in rape including longitudinal, lab-based studies, qualitative
13 analysis, and community-based evaluations. Additionally, sole focus on alcohol is not a
14 comprehensive explanation of rape risk. Other variables at the individual, family, peer,
15 institutional, societal, and environmental level are needed to fully capture the causal nexus of
16 alcohol-involved rape.

17 A contribution of this study to future researchers is that it demonstrates the analyses that
18 are possible when researchers settle on standard definitions and scales for assessing victimization
19 and perpetration. It is the goal of the SES 2021 Revision Collaboration to foster greater buy-in to
20 comparability that will support subsequent aggregation of disparate data sets and permit
21 longitudinal trend projection in the future. Institutions such as the U.S. Department of Justice and
22 the CDC longitudinally track victimization, but these surveys are community-wide. It is unlikely

1 that funds will materialize to track victimization and perpetration among college students except
2 by a boot-strapping aggregation strategy that we as independent researchers most foster.

3 Despite sustained attention to rape prevention, systematic reviews have labeled
4 presentations to educate students on topics including rape-supportive attitudes, rape myths and
5 consent as mostly ineffective at changing behaviorally-measured reports of rape perpetration or
6 victimization (DeGue, Valle, Holt, Massetti, Matjasko, & Tharp, 2014). Our data are predictable
7 based on this review. The present behaviorally-specific data document failure to reduce—and
8 potential growth in—rape victimization and perpetration across a thirty-year interval. College
9 women face an even greater risk for victimization than the numbers that raised red flags 30 years
10 ago. Perpetrators are much more likely today to disclose exploitative sexual acts on women who
11 have drunk to excess than previously. Some people believe that the #MeToo and PSAs like "It's
12 On Us" ended the possibility of valid perpetration assessment. We haven't seen any convincing
13 evidence of that. Neither the current authors or those who have reviewed the perpetration literature
14 have found declines in perpetration rates over the past 10 years up to 2017. Our findings however
15 do not support that men in 2015 were more sensitive to what constitutes sexual exploitation,
16 recognized that it is a socially undesirable behavior, and therefore disclosing it should be
17 suppressed. We are not aware of published data collected after 2017 when #MeToo became viral
18 on social media. Our unpublished data do not show evidence of suppressed perpetration disclosure.

19 Reducing perpetration is key to rape prevention according to systematic reviews (e.g.,
20 DeGue et al., 2014). Alcohol use is an ideal candidate for interventions. Conclusions based on
21 comprehensive literature reviews alcohol use suggest that upstream and community-level
22 interventions are a fruitful use of resources. Lippy and DeGue (2016) review the success in
23 reducing alcohol consumption of multiple environmental level interventions. Public policy such as

1 reducing the density of alcohol outlets permitted by zoning in proximity to campus are effective.
2 These authors also evaluate limitation of drinks to single servings, not pitchers, 2 for 1 drink
3 specials, free nights for women, and condoning or conducting drinking games. Policies that
4 institutions could fruitfully pursue include reducing media depictions of drinking in institutional
5 communications, creating guidelines for social groups in the advertising of their events, and
6 disallowing alcohol distributors to align themselves with college athletics in any public manner.
7 Others include party registration and regulations, presence of sober party monitors, and security at
8 gatherings where alcohol use has been permitted. Institutions could also partner with liquor-
9 serving venues surrounding their campuses to increase staff awareness of sexual aggression and to
10 provide training in safe intervention skills.

11 Students are more likely to appear in conduct offices for drinking violations than for
12 imposition of unwanted sexual acts (Abbey et al., 2014). Psychoeducation is routinely available for
13 student alcohol infractions. The results of the present study add to a large body of literature that
14 persuasively advocates for inclusion of sexual assault content in this curriculum. Another system-
15 level rape prevention methodology that is currently underutilized is improved accountability for
16 sexual misconduct, which currently is infrequently sanctioned (Abbey et al., 2014). In addition to
17 repair of harm to the victim, perpetrators may benefit from rehabilitation to reduce the likelihood
18 of re-offending (Koss, 2014, Koss & Lopez, 2018; Lamade, et al., 2018). It is unrealistic to expect
19 that perpetrators will desist from strategies that increase the likelihood of obtaining sex (the
20 benefit), until accountability (the cost) of being reported for rape by exploitation of alcohol
21 incapacitation becomes higher than it is currently.

22

References

- 1
- 2 Abbey, A., Wegner, R., Woerner, J., Pegram, S. E., & Pierce, J. (2014). Review of survey and
3 experimental research that examines the relationship between alcohol consumption and
4 men's sexual aggression perpetration. *Trauma, Violence, & Abuse, 15*, 265-282.
5 <https://dx.doi.org/10.1177%2F1524838014521031>
- 6 Ali, R. (2011). *Dear Colleague Letter*. Washington, DC: U.S. Department of Education, Office for
7 Civil Rights.
- 8 Anderson, Goodman, & Thimm, (2020). The Assessment of Forced Penetration: A Necessary and
9 Further Step Toward Understanding Men's Sexual Victimization and Women's
10 Perpetration. *Journal of Contemporary Criminal Justice 36*, 480–498.
11 <https://doi.org/doi/10.1177/1043986220936108>
- 12 Anderson, R. E., Silver, K. E., Ciampaglia, A. M., Vitale, A. M., & Delahanty, D. L. (2019). The
13 frequency of sexual perpetration in college men: A systematic review of reported
14 prevalence rates from 2000 to 2017. *Trauma, Violence, & Abuse,*
15 <https://doi.org/10.1177/1524838019860619>
- 16 Basile, K. C., DeGue, S., Jones, K., Freire, K., Dills, J., Smith, S. G., & Raiford, J. L. (2016).
17 STOP SV: A technical package to prevent sexual violence.
- 18 Cantor, D., Fisher, B., Chibnall, S. H., Townsend, R., Lee, H., Bruce, C., & Thomas, G. (October
19 20, 2017). *Report on the AAU campus climate survey on sexual assault and sexual*
20 *misconduct.* [https://www.aau.edu/sites/default/files/AAU-Files/Key-Issues/Campus-](https://www.aau.edu/sites/default/files/AAU-Files/Key-Issues/Campus-Safety/AAU-Campus-Climate-Survey-FINAL-10-20-17.pdf)
21 [Safety/AAU-Campus-Climate-Survey-FINAL-10-20-17.pdf](https://www.aau.edu/sites/default/files/AAU-Files/Key-Issues/Campus-Safety/AAU-Campus-Climate-Survey-FINAL-10-20-17.pdf). Westat: Rockville, MD.
- 22 Carnegie Classification of Institutions of Higher Education (n.d.). About Carnegie Classification.
23 Retrieved April 7, 2020 from <http://carnegieclassifications.iu.edu/>. Data also retrievable
24 from the Integrated Postsecondary Education Data System <https://nces.ed.gov/ipeds/>.

- 1 Centers for Disease Control and Prevention. (2014). Preventing sexual violence on college
2 campuses: Lessons from research and practice. Retrieved October, 2, 2020 from from
3 <https://www.notalone.gov/schools/>
- 4 Congressional Research Service (2019). *The Violence Against Women Act (VAWA). Historical*
5 *overview, funding and reauthorization*. Document number R45410 retrieved from
6 <https://crsreports.congress.gov>
- 7 DeGue, S., & Lippy (2014). Exploring alcohol policy approaches to prevent sexual violence
8 perpetration. *Trauma, Violence, & Abuse*, 1-17. <https://doi.org/10.1177/152483801455729>
- 9 DeGue, S., Valle, L. A., Holt, M. K., Massetti, G. M., Matjasko, J. L., & Tharp, A. T. (2014). A
10 systematic review of primary prevention strategies for sexual violence perpetration.
11 *Aggression and Violent Behavior*, 19, 346-362. <https://doi.org/10.1016/j.avb.2014.05.004>
- 12 Federal Bureau of Investigation. (2019). *Uniform Crime Reports*. Washington, DC Retrieved from
13 <https://ucr.fbi.gov/crime-in-the-u.s/2019>
- 14 Fedina, L., Holmes, J. L., & Backes, B. L. (2018). Campus sexual assault: A systematic review of
15 prevalence research from 2000 to 2015. *Trauma, Violence, & Abuse*, 19, 76-93.
16 <https://doi.org/10.1177%2F1524838016631129>
- 17 Fisher, B.S., Cullen, F.T., & Turner, M.G. (2000). The sexual victimization of college women.
18 Washington, DC: National Institute of Justice, Bureau of Justice Statistics.
19 <https://www.ncjrs.gov/pdffiles1/nij/182369.pdf>
- 20 Jeffreys, H. (1961). *The theory of probability*. Clarendon: Oxford, UK.
- 21 Johnson, S. M., Murphy, M. J., & Gidycz, C. A. (2017). Reliability and validity of the sexual
22 experiences survey—short forms victimization and perpetration. *Violence and Victims*, 32
23 78-92. <https://doi.org/10.1891/0886-6708.VV-D-15-00110>

- 1 Katz, J., & Moore, J. (2013). Bystander education training for campus sexual assault prevention:
2 An initial meta-analysis. *Violence and victims*, 28(6), 1054-1067.
3 <https://doi.org/10.1891/0886-6708.vv-d-12-00113>
- 4 Kilpatrick, D. G., Resnick, H. S., Ruggiero, K. J., Conoscenti, L. M., & McCauley, J. (2007).
5 *Drug-facilitated, incapacitated, and forcible rape: A national study*: National Criminal
6 Justice Reference Service Charleston, SC.
- 7 Koss, M. P. (2014). The RESTORE program of restorative justice for sex crimes: Vision, process,
8 and outcomes. *Journal of Interpersonal Violence*, 29(9), 1623-1660.
9 <https://doi.org/10.1177%2F0886260513511537>
- 10 Koss, M. P., & Gidycz, C. A. (1985). Sexual experiences survey: reliability and validity. *Journal*
11 *of Consulting and Clinical Psychology*, 53, 422-423.
12 <https://psycnet.apa.org/doi/10.1037/0022-006X.53.3.422>
- 13 Koss, M. P., & Oros, C. J. (1982). Sexual Experiences Survey: a research instrument investigating
14 sexual aggression and victimization. *Journal of consulting and clinical psychology*, 50,
15 455-457. <https://psycnet.apa.org/doi/10.1037/0022-006X.50.3.455>
- 16 Koss, M. P., Abbey, A., Campbell, R., Cook, S., Norris, J., Testa, M., . . . White, J. (2007).
17 Revising the SES: A collaborative process to improve assessment of sexual aggression and
18 victimization. *Psychology of Women Quarterly*, 31, 357-370.
19 <https://doi.org/10.1111%2Fj.1471-6402.2007.00385.x>
- 20 Koss, M. P., Gidycz, C. A., & Wisniewski, N. (1987). The scope of rape: incidence and prevalence
21 of sexual aggression and victimization in a national sample of higher education students.
22 *Journal of consulting and clinical psychology*, 55(2), 162.
23 <https://psycnet.apa.org/doi/10.1037/0022-006X.55.2.162>

- 1 Koss, M.P., & Lopez, E. (July 26, 2018). Restorative justice for sexual misconduct: Not if but
2 when. *Gender Policy Report*. [https://genderpolicyreport.umn.edu/restorative-justice-for-](https://genderpolicyreport.umn.edu/restorative-justice-for-sexual-misconduct-not-if-but-when/)
3 [sexual-misconduct-not-if-but-when/](https://genderpolicyreport.umn.edu/restorative-justice-for-sexual-misconduct-not-if-but-when/)
- 4 Krebs, C., Lindquist, C., Berzofsky, M., Shook-Sa, Peterson, K., Planty, M., Langton, L., &
5 Strop, J. (2016). *Campus Climate Survey Validation Study Final Technical Report*.
6 <https://www.bjs.gov/content/pub/pdf/ccsvsfr.pdf>
- 7 Lamade, R. V., Lopez, E., Koss, M. P., Prentky, R., & Brereton, A. (2018). Developing and
8 implementing a treatment intervention for college students found responsible for sexual
9 misconduct. *Journal of Aggression, Conflict and Peace Research*.
10 <https://doi.org/10.1108/JACPR-06-2017-0301>
- 11 Lippy, C., & DeGue, S. (2016). Exploring alcohol policy approaches to prevent sexual violence
12 perpetration. *Trauma, Violence, & Abuse, 17*, 26-42.
13 <https://doi.org/10.1177%2F1524838014557291>
- 14 Malamuth, N. M., Sockloskie, R. J., Koss, M. P., & Tanaka, J. S. (1991). Characteristics of
15 aggressors against women: Testing a model using a national sample of college
16 students. *Journal of consulting and clinical psychology, 59*, 670-681.
17 <https://doi.org/10.1037//0022-006x.59.5.670> .
- 18 Malamuth, N. M., Lamade, R. V., Koss, M. P., Lopez, E., Seaman, C., & Prentky, R. (2021).
19 Factors predictive of sexual violence: Testing the four pillars of the Confluence Model in a
20 large diverse sample of college men. *Aggressive behavior, 47*(4), 405-420.
21 <https://doi.org/10.1002/ab.21960>
- 22

- 1 Mellins, C. A., Walsh, K., Sarvet, A. L., Wall, M., Gilbert, L., Santelli, J. S., ... & Hirsch, J. S.
2 (2017). Sexual assault incidents among college undergraduates: Prevalence and factors
3 associated with risk. *PLoS one*, *12*(11),
4 <https://doi.org/e0186471>.<https://doi.org/10.1371/journal.pone.0186471>
- 5 Muehlenhard, C. L., Peterson, Z. D., Humphreys, T. P., & Jozkowski, K. N. (2017). Evaluating the
6 one-in-five statistic: Women's risk of sexual assault while in college. *The Journal of Sex
7 Research*, *54*(4-5), 549-576. <https://doi.org/10.1080/00224499.2017.1295014>
- 8 Newlands, R., & O'Donohue, W. (2016). A critical review of sexual violence prevention on
9 college campuses. *Acta Psychopathologica*, *2*, 2-13.
- 10 O'Neil, A., Sojo, V., Fileborn, B., Scovelle, A. J., & Milner, A. (2018). The# MeToo movement:
11 an opportunity in public health?. *The Lancet*, *391*(10140), 2587-2589.
12 [https://doi.org/10.1016/S0140-6736\(18\)30991-7](https://doi.org/10.1016/S0140-6736(18)30991-7)
- 13 Pegram, S. E., & Abbey, A. (2019). Associations between sexual assault severity and
14 psychological and physical health outcomes: Similarities and differences among African
15 American and Caucasian survivors. *Journal of Interpersonal Violence*, *34*, 4020-4040.
16 <https://doi.org/10.1002/ab.21960>.[1177/0886260516673626](https://doi.org/10.1177/0886260516673626)
- 17 Reich, B. J. (2018). Bayesian Power Calculation. Applied Bayesian Analysis.
18 <https://www4.stat.ncsu.edu/~reich/ABA/Code/Power>
- 19 Rutherford, A. (2011). Sexual violence against women: Putting rape research in context.
20 *Psychology of Women Quarterly*, *35*(2), 342-347.
21 <https://doi.org/10.1177/0361684311404307>
- 22 Rutherford, A. (2017). Surveying rape: Feminist social science and the ontological politics of
23 sexual assault. *History of the Human Sciences*, *30*, 100-123.

- 1 <https://doi.org/10.1002/ab.21960>
10.1177%2F0952695117722715
- 2 Spitzberg, B. H. (1999). An analysis of empirical estimates of sexual aggression victimization and
3 perpetration. *Violence and Victims*, 14, 241-260. [https://psycnet.apa.org/doi/10.1891/0886-](https://psycnet.apa.org/doi/10.1891/0886-6708.14.3.241)
4 6708.14.3.241
- 5 Testa, M., & Livingston, J. A. (2018). Women's alcohol use and risk of sexual victimization:
6 Implications for prevention. In *Sexual assault risk reduction and resistance: Theory,*
7 *research and practice.* In L. Orchowski & C. Gidycz (Eds), pp. 135-172. Elsevier: London,
8 UK.
- 9 Testa, M., VanZile-Tamsen, C., Livingston, J. A., & Koss, M. P. (2004). Assessing women's
10 experiences of sexual aggression using the sexual experiences survey: Evidence for validity
11 and implications for research. *Psychology of Women Quarterly*, 28(3), 256-265.
12 <https://doi.org/10.1111%2Fj.1471-6402.2004.00143.x>
- 13 U.S. Department of Education. (2018). *Background & Summary of the Education Department's*
14 *Proposed Title IX Regulation.* U.S. Department of Education Office of Civil Rights.
15 Washington, D.C. Retrieved from:
16 [https://www2.ed.gov/about/offices/list/ocr/docs/background-summary-proposed-ttle-ix-](https://www2.ed.gov/about/offices/list/ocr/docs/background-summary-proposed-ttle-ix-regulation.pdf)
17 [regulation.pdf](https://www2.ed.gov/about/offices/list/ocr/docs/background-summary-proposed-ttle-ix-regulation.pdf)
- 18 Ueda, P., Mercer, C. H., Ghaznavi, C., & Herbenick, D. (2020). Trends in frequency of sexual
19 activity and number of sexual partners among adults aged 18 to 44 years in the US, 2000-
20 2018. *JAMA network open*, 3(6), e203833-e203833.
21 <https://doi.org/10.1002/ab.21960>
10.1001/jamanetworkopen.2020.3833
- 22 Violence Against Women Act of 1994 (Title IV, sec. 103–322; part at 42 U.S.C. sections 13701
23 through 14040).

- 1 Warshaw, R. (2019). *I never called it rape: The Ms. guide to recognizing, surviving, and fighting*
2 *date and acquaintance rape*. New York: Harper Collins.
- 3 Wright, P.J., Tokunaga, R.S., & Kraus, A. (2016). A meta-analysis of pornography consumption
4 and actual acts of sexual aggression in general population studies. *Journal of*
5 *Communication*, 66, 183-205. <https://doi.org/10.1111/jcom.12201>

Table 1.

Select relevant literature of sexual assault measurement since 1987

Meta-analyses and literature reviews	
Sexual assault surveys of victimization	Fedina, Holmes, & Backes, 2018; Mellins, Walsh, Sarvet, Wall, Gilbert, Santelli & Hirsch (2017); Muehlenhard, Peterson, Humphreys, & Jozkowski, 2017; Rutherford, 2017, 2018
Sexual assault surveys of perpetration	Anderson, Silver, Ciampaglia, Vitale, & Delahanty, 2019
Association of alcohol and rape	Abbey, Wegner, Woerner, Pegram, & Pierce, 2014; Testa & Livingstone, 2018
Rape prevention on campus	DeGue, Lippy & Hirst, 2016; DeGue, Valle, Hold, Massetti, Matjasko & Tharp, 2014; Newlands & O'Donohue, 2016
Rape prevention at the community level	DeGue, Lippy, & Hirst, 2016; Katz & Moore, 2013; Lippy & DeGue, 2014
Recent national surveys of victimization	
National College Women Sexual Victimization study	Fisher, Cullen, & Turner, 2000
National Study of Drug-facilitated, Incapacitated, and Forcible Rape	Kilpatrick, Resnick, Ruggiero, Conocenti, & McCauley, 2007
<i>Washington Post</i> -Kaiser Family Foundation survey of four-year colleges	Anderson & Clement, 2015
American Association of Universities Campus Climate Survey	Cantor, Fisher, Chibnall, Townsend, Lee, Bruce, & Thomas, 2017; readministered in 2019
U.S. Department of Justice Campus Climate Survey	Krebs, Lindquist, Shook-Sa, Peterson, Planty, Langton, & Strop, 2016

Table 2.

Demographic Comparisons of with National Enrollment Statistics at Each Time Point

Sample Parameter	1985		2015	
	Study Sample	U.S. higher education enrollment	Study Sample	U.S. higher education enrollment
Location				
Not in SMSA	31.0	32.0	5.1	3.0 ^a
SMSA < 1,000,000	25.0	21.0	23.6	12.7
SMSA > 1,000,000	44.0	47.0	71.3	84.3
Ethnicity				
White/Caucasian	86.0	82.4	42.0	52.0 ^b
Black/African American	6.4	9.6	11.0	15.2
Asian	3.3	2.7	18.4	5.7
Hispanic/Latino	3.3	4.4	15.4	19.8
Hawaiian/Pacific Islander	-- ^c	-- ^c	0.8	0.4
Native American	0.6	0.7	0.2	0.8
Other	-- ^c	-- ^c	1.9	-- ^c
Multi-Racial	-- ^c	-- ^c	10.1	3.3
Standard Federal Region				
Region I – New England	12.7	6.3	8.7	5.7 ^c
Region II – Mid Atlantic	15.6	19.4	22.2	16.1
Region IV – Southeast	21.9	22.7	8.0	24.6
Region V – Great Lakes	21.9	15.9	7.1	13.8
Region VI – South Central	0	-- ^c	6.8	9.7

Region VII – Midwest	9.4	10.2	0	23.3
Region VIII – Rocky Mountain	3.1	2.8	0	3.6
Region IX – California and Southwest	12.5	7.5	40.5	-- ^d
Region X – Northwest	9.4	12.1	6.7	24.0
Enrollment (no. institutions)				
1000-2499	6		0	59.9 ^e
2500-9999	10		3	26.4
>10000	16		11	13.7
Governance (no. institutions)				
Public	23		9	73.9 ^e
Private – Secular	7		4	19.1
Private – Religious	2		1	7.0

Note. All results, except where noted, are reported in percentages; SMSA = standard metropolitan statistical area; ^aNational estimates of enrollment by location are from the Integrated Postsecondary Education Data System ^bNational race/ethnicity estimates are from the Council on Education; ^cCategory not assessed; ^d Estimates from the Carnegie Classification of Institutions of Higher Education. ^eCalifornia was moved from Southwest to Far West since 1985, we therefore combined the percentages from those regions for the 2015 estimate.

Table 3. *Wording Comparison of the 1985 and 2015 Sexual Experiences Survey Rape Items*

1985	2007
<p>Have you had sexual intercourse when you didn't want to because a man threatened or used some degree of physical force (twisting your arm, holding you down, etc.) to make you?</p> <p>(Separate item) Have you had sexual intercourse when you didn't want to because a man gave you alcohol or drugs?</p>	<p>A man put his penis into my vagina, or someone inserted fingers or objects without my consent by:</p> <p>Threatening to physically harm me or someone close to me</p> <p>Using force, for example holding me down with their body weight, pinning my arms or having a weapon</p> <p>Taking advantage of me when I was too drunk or out of it to stop what was happening.</p>
<p>Have you had sex acts (anal or oral intercourse or penetration by objects other than the penis) when you didn't want to because a man threatened or used some degree of physical force (twisting your arm, holding you down, etc.) to make you? (alcohol tactic not asked for these acts)</p>	<p>Someone had oral sex with me or made me have oral sex with them without my consent by:</p> <p>(Separate item) A man put his penis or someone inserted fingers or objects into my butt without my consent by:</p> <p>Threatening to physically harm me or someone close to me</p> <p>Using force, for example holding me down with their body weight, pinning my arms or having a weapon</p> <p>Taking advantage of me when I was too drunk or out of it to stop what was happening.</p>
<p>Have you had a man attempt sexual intercourse (get on top of you, attempt to insert his penis) when you didn't want to by...but intercourse did not occur:</p> <p>Threatening or using some degree of force (twisting</p>	<p>Even though it did not happen, someone TRIED to have oral sex with me, or make me have oral sex with them without my consent by:</p> <p>Even though it did not happen, a man TRIED to put his penis into my vagina, or someone tried to stick in fingers or objects without my consent by:</p> <p>Even though it did not happen, a man TRIED to put his penis into my butt, or someone tried to stick in objects or fingers without my consent by:</p> <p>Threatening to physically harm me or someone close to me</p> <p>Using force, for example holding me down with their body weight, pinning my arms or having a weapon</p>

your arm, holding you down, etc.),

(Separate item) Have you had a man attempt sexual intercourse (get on top of you, attempt to insert his penis) when you didn't want to by giving you alcohol or drugs but intercourse did not occur.

Taking advantage of me when I was too drunk or out of it to stop what was happening.

Table 4. *Completed Rape Prevalence Percentages Comparing 1985 and 2015 Data Disaggregated by Tactics.*

	Female Victimization			
	1985 (N = 3,187)	2015 (N = 1,342)	2015 95% CI	BF ₁₀
Completed rape, excluding attempts	15.8%	23.9%	21.6%-26.3%	2.05e+11
Rape victimization when given alcohol/incapacitated	4.4%	12.1%	10.4% - 13.9%	3.07e+26
Rape victimization involving both force or threats of harm and alcohol	3.5%	5.8%	4.8% - 7.3%	203.63
Rape victimization solely by threat of harm or force	8.0%	6.0%	4.8%-7.4%	1.01
	Male Perpetration			
	1985 (N = 2,972)	2015 (N = 1,129)	2015 95% CI	BF ₁₀
Completed rape, excluding attempts	4.5%	10.1%	8.5%-12.0%	2.79e+12
Rape perpetration by giving alcohol or exploiting an incapacitated victim	3.1%	5.8%	4.6%-7.3%	2,197
Rape perpetration involving both force or threats of harm and alcohol	0.9%	3.2%	2.4% - 4.5%	2.50e+7
Rape perpetration solely by threat of harm or force	0.6%	1.1% ^a	.06%-1.9%	113