Comparing Rates of Sexual Assault between Panel Quota and Social Media Samples: Findings Across Sexual Orientation Categories

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Abstract

Sexual assault is prevalent and may be even more prevalent among sexual minorities. However, prevalence rates vary, in part, due to discrepancies in sampling methods. Given this, we assessed whether two popular non-probability sampling types (panel quota vs. social media recruitment) produced different sexual assault prevalence rates when holding all other methodological choices (definitions, measures, scoring) constant in a sample of lesbian, bisexual, queer, and heterosexual adults, excluding cisgender men. Two phases of data collection occurred—a panel quota sample (n = 1,366), recruited from an online sample aggregator, and social media sample (n = 1,102), recruited through LGBT social media sites. Participants were asked about sexual assault and rape experiences in both childhood and adulthood using a modified form of the Sexual Experiences Scale-Short Form. Both phases used the same definitions of sexual assault, prevalence measures, and prevalence scoring. Overall, the sample recruited via LGBT social media yielded statistically higher sexual assault prevalence rates for all four types of victimization experiences measured: lifetime sexual assault, rape-specific lifetime sexual assault, childhood sexual assault, and adulthood sexual assault. However, when parsing out subgroups, this finding only held for heterosexual participants who had rates >30% higher in the social media sample compared with the panel quota sample. These findings suggest that researchers studying sexual assault in lesbian, bisexual, or queer adults may be able to use social media sampling techniques, which require less resources, without concern that the sampling technique is inflating prevalence when compared to panels.

Keywords: sexual violence, sexual assault, prevalence, measurement, sampling, lesbian, bisexual

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Sexual assault is prevalent and may be even more prevalent among sexual minorities (Rothman et al., 2011). However, prevalence rates for sexual minorities vary drastically across studies. With current concerns of replicability in the social sciences (Open Science Collaboration, 2015) and because of recent critiques of sexual assault measurement in the lay media (e.g. Kessler, 2015), it is important to address methodological issues associated with assessing sexual assault victimization which may be contributing to the wide prevalence range across studies (Rothman et al., 2011). To begin to fill this gap, we used two different popular sampling methods while holding definitions and measures constant to assess the effects of sampling method on prevalence rates for sexual assault among lesbian, bisexual, queer and heterosexual adults, excluding cisgender men.

Sexual Assault among Lesbian, Bisexual, and Queer Women

Approximately one in five women are sexually assaulted in their adult lifetime (Muehlenhard et al., 2017). Sexual assault, as characterized by these studies, is nonconsensual sexual contact or penetration in which the perpetrator has used force, coercion, or other means to acquire such contact from another person (Cantor et al., 2015). Researchers suggest that lesbian and bisexual individuals are at elevated risk for sexual assault compared with women who identify as heterosexual, even when controlling for other demographic characteristics (Canan et al., 2019). Similarly, queer women have an increased odds of experiencing sexual assault compared with lesbian and bisexual women (Logie et al., 2014). Yet, prevalence rates range widely across studies. For example, in one systematic review prevalence rates for sexual assault

ranged from 16% to 85% with a median rate of 43% for lesbian and bisexual identified women (Rothman et al., 2011).

Measuring Sexual Assault Prevalence in Lesbian, Bisexual, and Queer Women

We present three different methodological considerations that may contribute to these varying prevalence rates. First, different definitions of sexual assault might lead to different prevalence rates being reported. The terms rape, sexual assault, sexual violence, and sexual abuse are all used to measure nonconsensual sexual behavior; sometimes these terms refer to the same behaviors and other times they refer to different behaviors. Second, different measures and scoring procedures can lead to different reported prevalence rates. Some studies use crime statistics formally reported to officials while other studies reply on anonymous or confidential surveys, with the former consistently yielding lower rates than the latter (Kruttschnitt et al., 2014). Other studies use several behaviorally specific questions to assess sexual assault, which are viewed as more accurate (Koss et al., 2007). See Krebs et al. (2016) for further commentary on measurement and scoring behaviorally specific questionnaires and how this scoring affects sexual assault prevalence rates.

Third, and the main focus of the current study, there may be variability in sexual assault prevalence rates due to sampling method. Through a systematic review of the literature, Rothman and colleagues (2011) find that studies using convenience samples report higher sexual assault prevalence rates than population-based or census sample studies. However, many of the studies that Rothman and colleagues (2011) assess use different terms, definitions, and measures across studies. As such, it is difficult to say whether the different prevalence rates between sampling techniques are due to sampling strategy alone or whether differing terms, definitions, and/or measures are creating this difference. To our knowledge, there is currently no study of

sexual assault which directly compares different sampling techniques while holding all other methodological choices (definitions, measures, scoring) constant.

Aims

This study aims to make comparisons of sexual assault rates between two sampling methods: one using a research participant panel and the other recruiting from social media; both oversampled for lesbian, bisexual, and queer adults. We selected these two sampling methods due to their popularity among social science researchers (Lehdonvirta et al., 2020). More specifically, given previous research on incidence rates in differing non-probability samples for other forms of violence (e.g. cyber-harassment; Lehdonvirta et al., 2020), we hypothesize that a social media sample will report higher prevalence rates compared with a panel sample while holding other methodological choices constant. We also hypothesize that this difference in prevalence rates between sampling techniques will exist for all four groups: lesbian, bisexual, queer, and heterosexual.

Method

Procedure

Two phases of data were collected as part of a larger, multi-phase project. Although phases of data collection occurred at different times, decisions about measurement tools, sampling techniques, and hypotheses were planned a priori.

Panel quota sample. Data were collected in Summer 2016 via an online survey disseminated by Qualtrics Online Survey Company via their participant pool. Qualtrics Online Survey Company is an online research sample aggregator that reaches over one million people. This service identified individuals from their national participant pool who met the study's eligibility requirements (cisgender women or transgender individuals; 18+ years old) and sent

out incentivized invitations to participate in the study until approximately equal quotas (n = ~430 each) of lesbian, bisexual, and heterosexual adults were obtained. Queer individuals were not recruited to fit a quota, but were also not excluded from recruitment. Survey invitations were kept very general and did not include specific details about the contents of the survey (ESOMAR, 2019).

Social media sample. A sample of lesbian, bisexual, queer, and heterosexual cisgender women or transgender individuals were also collected in the Spring and Summer of 2017 using an online survey. Sample recruitment occurred via advertising in specific lesbian, bisexual, and queer women's online magazines (e.g., Elixher.com) as well as other LGBTQ social networking sites (e.g., Facebook, Reddit.com/r/LGBT). Participants were entered into a drawing to win one of ten $50 electronic gift cards for their participation. The study protocol was approved by the Institutional Review Board prior to survey dissemination.

Participants

For the panel quota sample (*n* = 1,366), we recruited relatively similar sub-samples of lesbian (31%), bisexual (32%), and heterosexual (31%) identified participants with approximately 5% of the sample identifying as another sexual orientation (queer, unsure/questioning, asexual). Compared with the panel quota sample, the social media sample (n = 1,102) comprised of fewer lesbians (9%); similar rates of bisexuals (35%) and heterosexuals (29%); and higher proportions of queer (17%), unsure/questioning (4%), and asexual (4%) participants. Compared with the panel quota sample, the social media sample also comprised of more transgender individuals (2% vs. 18%), slightly more white individuals (80% vs. 82%), more highly educated individuals (12% vs. 19% with graduate degree), and more lower income

individuals (32% vs. 44% making <$30,000 a year). Participant demographic data for both samples are reported in Table 1.

Although we were not intending to recruit transgender individuals, we had 228 across both samples who selected either "transgender" alone or "transgender" in addition to either "woman" or "man" in the check-all-that apply gender demographic question. Transgender men and women were retained in the sample for two reasons. First, people who are transgender are often excluded from research in general because of concern over small sample size despite recommendations against the practice (Schlesinger et al., 2016). Second, the disproportional sexual violence rates among women compared with men are not inherently due to biological traits of women but, instead, are related to societal treatment of women (Sanday, 1981). Therefore, although we recognize that transgender men are not women and that transgender women's and cisgender women's experiences of sexual assault may be different, they are all exposed to a key risk factor of sexual violence: being treated as a woman within the U.S. for part of or all of their lives. Because the focus of this paper is on sexual orientation—not gender identity, race, education, etc.—we retained all transgender individuals in the sample, but we do not distinguish them from cisgender individuals just as we are not distinguishing between other demographic characteristics (e.g., race, education).

Measures

Both panel quota sample and social media sample surveys largely contained the same measures. Items that differed between samples are not reported here. The preliminary survey was first reviewed by an expert panel (n = 6) of researchers with expertise in gender and sexual orientation. After several rounds of revisions, we then cognitively tested the instrument using a small focus group (n = 5) of LGBT college students. After additional revisions, the survey was

pilot tested (n = 20) with members from the general population. After incorporating feedback from participants of this pilot phase, the survey was reviewed again by the expert panel of researchers.

Anatomy. Because transgender individuals were included in the sample and the later survey questions about sexual assault referred to body parts, we first asked participants about their reproductive anatomy to sort them to the appropriate questions. Participants selected either "I have a vagina" or "I have a penis" in response to "To determine your next questions, please select whether you have vagina or a penis."

Modified Sexual Experiences Survey-Short Form Victimization (SES-SFV). We assessed sexual assault victimization with a modified version of the SES-SFV (Koss et al., 2007). There were five non-consensual sexual acts (fondling, oral, vaginal, penile, or anal) in the modified SES-SFV with each person only responding to four of the five sections, depending on their anatomy. Behaviors that were only attempted, not completed, are excluded from this paper. The original SES-SFV also contained a standalone question of "Have you ever been raped?" For more detail in the modifications to this measure see (Canan et al., 2020).

Participants who indicated experiencing any of the non-consensual sexual acts during their lifetime were categorized as victims. Participants who only selected "0" times for all non-consensual sexual acts, but also selected "Yes" or "Unsure" to the "Have you ever been raped?" question were also categorized as victims. All other cases who selected "0" times for all non-consensual sexual acts and answered "No" to being raped were categorized as non-victims.

Data Analysis

We conducted several chi-square analyses to compare four different dichotomously-scored categories of sexual assault: overall lifetime sexual assault (LSA), rape-specific LSA,

childhood sexual assault (CSA; occurring before age 14), and adult sexual assault (ASA; occurring at age 14 or later). Participants are categorized as experiencing overall LSA if they indicated experiencing any of the completed non-consensual sexual acts at least one time. Participants are categorized as experiencing rape-specific LSA if they indicated experiencing any of the completed, penetrative non-consensual behaviors (oral, vaginal/penile, or anal) at least one time. Participants are categorized as experiencing CSA if they indicated experiencing any of the completed non-consensual behaviors (fondling, oral, vaginal/penile, or anal) before age 14. Participants are categorized as experiencing ASA if they indicated experiencing any of the completed non-consensual behaviors (fondling, oral, vaginal/penile, or anal) from age 14 to present (Koss et al., 2007).

We compared these four categories of sexual assault between panel quota and social media samples as well as compare across sexual orientation groups (lesbian, bisexual, queer, heterosexual). We use a Holm's sequential Bonferroni procedure to control for family-wise error occurring from repeated testing of the same dataset (Holm, 1979). Additionally, we report Cramer's V effect sizes for each of these chi-squares.

Results

Rates Between Panel Quota and Social Media Samples

For each of the four types of sexual assault categorizations, prevalence rates were higher in the social media sample. Overall LSA ($\chi^2(1) = 70.51$, $p < .0001$, $\varphi = .169$), rape-specific LSA ($\chi^2(1) = 33.19$, $p < .0001$, $\varphi = .116$), and ASA ($\chi^2(1) = 77.2$, $p < .0001$, $\varphi = .177$) all had prevalence discrepancies greater than 10%. CSA, while still having a prevalence discrepancy of 6.4% that was statistically significant, only had a very small effect size for sampling type, $\chi^2(1) =$

11.16, $p < .0009$, $\varphi = .067$. See Table 2 for prevalence rates and Table 3 for Chi-square values and effect sizes.

Rates Between Sexual Orientation Categories Across Samples

When looking specifically at different sexual orientation categories, as predicted, we found that the overall trend of higher prevalence rates in the social media sample existed for heterosexual participants. This was true of all four types of sexual assault (overall LSA, $\chi^2(1) = 74.80$, $p < .0001$, $\varphi = .316$; rape-specific LSA, $\chi^2(1) = 39.57$, $p < .0001$, $\varphi = .230$; CSA, $\chi^2(1) = 24.77$, $p < .0001$, $\varphi = .182$; and ASA, $\chi^2(1) = 82.70$, $p < .0001$, $\varphi = .333$). However, in contrast to our hypotheses, there were no differences between the two samples for either lesbians or bisexuals. Queer adults had too few participants in the panel quota sample to conduct meaningful analyses. See Table 3 for all Chi-square values and effect sizes.

Discussion

Confirming our first hypothesis, rates of sexual assault were higher in our social media sample compared with our panel quota sample. This may be a function of social media samples' increased susceptibility to topical self-selection bias than panel samples. Social media samples aim to attract participants to the study via relevant advertisements. In contrast, panel samples typically receive little information about a survey—brief, vague descriptions are the norm (Lehdonvirta et al., 2020). This same effect was found by Lehdonvirta et al., (2020) in which their Facebook samples had inflated incidence of cyber-harassment compared with their panel samples.

It is also important to note that the sample demographic compositions were quite different. There was a medium-large effect size difference for gender, large effect size difference for sexual orientation, medium effect size difference for race, medium-large effect size

difference for education, and medium effect size difference for income. In other words, the social media sample was statistically more gender diverse, more queer, more white, more educated, and less wealthy than the panel quota sample. Given previous research, some of these demographic subgroups are at greater risk for sexual assault (e.g., gender diversity, Langenderfer-Magruder et al., 2016; queerness, Logie et al., 2014; lower income, Loya, 2014). Yet, other subgroups are at less risk (e.g., white, Black et al., 2011; educated, Daigle et al., 2008). However, according to studies that use multivariate analyses, race/ethnicity, education, and income do not remain significant predictors of sexual assault risk on their own when included in models with sexual orientation (Canan et al., 2019; Logie et al., 2014). Therefore, due to the presence of both higher and lower risk demographic characteristics in each sample and issues of multicollinearity between these demographic characteristics, we cannot claim that demographic differences between the samples are a clear or even likely cause of the difference in our sexual assault prevalence rates.

Contrary to our second hypothesis, subgroup differences across the two sampling types emerged. Specifically, although rate discrepancies for lesbian, bisexual, and queer participants were <5-10% between samples, rates for heterosexuals were >30% discrepant. Given the null findings for lesbian and bisexual women's rates across sample type, it seems that heterosexual women are the driving force between the inflated rates in the social media sample. In determining why that might be, we considered that heterosexual rates have the most potential for variability. That is, prevalence rates for lesbian and bisexual participants are so ubiquitously high that potential variance is limited. In other words, we could have null findings for lesbian and bisexuals due to ceiling effects. However, it is difficult to make this claim with certainty given our small sample size of lesbians in the social media sample.

Nevertheless, practically these results might mean that studies of lesbian, bisexual, and queer adults, excluding cisgender men, can use more social media sampling methods and still get similar sexual assault rates to panel quota samples. Therefore, research on lesbian, bisexual, and queer sexual assault could be conducted with social media sampling, which often demands fewer financial resources than panel quota sampling. Given that lesbian, bisexual, and queer individuals are a growing population of interest with regard to sexual violence, reduced financial barriers can lead to increased study in this area.

Limitations

Due to the nature of asking participants to reflect back across a lifetime, recall bias may increase error on prevalence reporting. Although the SES-SFV is specifically designed to elicit memories through its fairly comprehensive list of behaviorally-specific questions, time undoubtedly has an effect on memory. However, short of conducting a longitudinal study that follows individuals over a lifetime and frequently asks them about victimization experience, studies of sexual assault may have to rely on memories affected by time. Nevertheless, recall bias likely exists in both sampling types, which allows us to make the comparisons we have made in this paper. Additionally, our measure for sexual assault, the SES-SFV, has not typically been used to study childhood sexual assault. The original measure only addresses experiences happening after 14 years of age (Koss et al., 2007). Therefore, researchers should replicate the current study with a measure originally intended for measurement of CSA. Lastly, this paper is limited in scope to only assessing completed contact behaviors. Researchers may consider examining prevalence of sexual harassment, attempted rape, and other forms of sexual violence.

Conclusion

Previous research finds wide ranging prevalence rates of sexual assault experienced by lesbian, bisexual, and queer adults (Logie et al., 2014; Rothman et al., 2011). This wide range may be due, in part, to differences in sampling methods. In comparing two popular forms of non-probability sampling—panel quota samples and social media samples—we found that the effect of sampling method on prevalence only held for heterosexuals, but not lesbians or bisexuals. Frequency differences between samples were found for queer adults too, but we were unable to test these differences due to low sample size. Researchers should consider these findings when planning their sample designs; researchers studying lesbian and bisexuals may be able to use social media samples while maintaining prevalence rates comparable to panel quota sampling.

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