SOCIAL SCIENCES

Victimization rates and traits of sexual and gender minorities in the United States: Results from the National Crime Victimization Survey, 2017

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Do sexual and gender minorities (SGMs) in the United States encounter disproportionate rates of victimization as compared with their cisgender, heterosexual counterparts? Answering this question has proved elusive because nationally representative victimization data have not included victims' sexual orientation or gender identity. The National Crime Victimization Survey, the nation's primary source of representative information on criminal victimization, began documenting sexual orientation and gender identity in 2016 and released data publicly for the first time in 2019. We find SGMs disproportionately are victims across a variety of crimes. The rate of violent victimization for SGMs is 71.1 victimizations per 1000 people compared with 19.2 victimizations per 1000 people for those who are not SGMs. SGMs are 2.7 times more likely to be a victim of violent crime than non-SGMs. These findings raise the importance of further considering sexual orientation and gender identity in victimization and interventions.

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INTRODUCTION

Although some research has suggested that in the United States sexual and gender minorities (SGMs) experience higher levels of criminal victimization than their straight and cisgender counterparts (non-SGMs) (*1*, *2*), no comprehensive national studies have examined this issue. This gap in understanding the victimization of SGMs was due to the fact that the nation's primary source of representative data on criminal victimization—the Bureau of Justice Statistics' (BJS) National Crime Victimization Survey (NCVS)—has not measured respondents' sexual orientation or gender identity (*3*). In July of 2016, BJS added questions to the NCVS to gather data on the sexual orientation and gender identity of respondents 16 years and older (*4*). In November of 2019, BJS released the 2017 NCVS public use file, which is the first publicly available and nationally representative data on criminal victimization, inclusive of respondents' sexual orientation and gender identity (*4*). Using these data, we assess whether SGM levels and patterns of victimization differ from non-SGMs. This article, thus, fills a gap in our understanding of disparities in criminal victimization between SGM and non-SGM people.

RESULTS

The NCVS unweighted sample of persons 16 years or older included 110,627 non-SGM women, 97,170 non-SGM men, 1206 lesbians, 1450 gay men, 941 bisexual women, 301 bisexual men, and 194 persons who were transgender. Grouped together, SGMs made up 2% of the weighted NCVS sample, non-SGMs made up 95%, and data were unknown for about 3% of the population. Respondents' sexual orientation or gender identity was classified as unknown if they did not respond to the survey questions about sexual orientation and gender identity, said they did not know, or identified as "something else," which was not specified; their results are reported in the supplementary tables only.

Demographic characteristics

Table 1 shows demographics for SGMs and non-SGMs. The sex, race or ethnicity, and income profile of the SGM population were fairly similar to those of the non-SGM population. Although statistically significant differences were apparent for race or ethnicity and income, the differences were not substantively large. Across both groups, just over half of the population was female, about two-thirds were white, about a third lived in households with an annual income of less than $35,000, and just over a third lived in households making $75,000 or more. The two groups differed to a greater extent in other demographic characteristics. A larger proportion of SGMs than non-SGMs were between the ages of 16 and 34 (50.8% versus 31.5%, $|t| = 15.63$, $P < 0.001$), while a much smaller proportion were 50 years or older (27.5% versus 44.3%, $|t| = 15.53$, $P < 0.001$). SGMs were more likely than non-SGMs to have at least some college education (69.8% versus 59.4%, $|t| = 8.76$, $P < 0.001$), to have never been married, and to live in urban areas. Table S1 provides demographics for those whose sexual orientation and/or gender identity was unknown.

Violent victimization

Figure 1A shows the rates of violent victimizations, by sexual orientation and gender identity, and Fig. 1B shows the differences in rates in violent victimizations between SGMs and non-SGMs. Consistent with the BJS definition, we defined violent victimization as including rape or sexual assault, robbery, and aggravated or simple assault (*5*).

The odds of experiencing a violent victimization were higher for SGMs than non-SGMs [odds ratio (OR) = 3.91, 95% confidence interval (CI) = 2.45 to 5.38]. SGM persons experienced more criminal victimization than non-SGM persons (OR = 2.69, CI = 2.12 to 3.43), after controlling for respondents' demographics and region of residence (table S2).

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Table 1. Demographics of the sample. Note: Weighted percentages are reported with SEs estimated via direct variance estimation. An *F* test of independence examines whether there is a relationship between a demographic category and SGM status. *T* tests and *P* values are reported to evaluate differences between percentages of non-SGM and SGM. Unweighted sample sizes (*N*) are also reported.

	Non-SGM		SGM		Statistics	
	%	SE	%	SE	|*t*|	*P*
Sex						
Male	48.2	0.15	46.0	1.26	1.67	0.098
Female	52.0	0.15	54.0	1.26	1.67	0.098
N	207,797		4047			
F(1.85,314.92)	2.87	*P* = 0.062				
Race/Hispanic origin						
White	63.7	0.48	69.29	1.1	4.88	<0.001
Black	11.9	0.33	10.36	0.7	2.27	0.025
Hispanic	16.3	0.33	14.3	0.9	2.25	0.026
Other	6.8	0.17	3.59	0.5	6.47	<0.001
Multiracial	1.3	0.05	2.46	0.5	2.34	0.021
N	207,797		4047			
F(6.42,1091.79)	8.13	*P* < 0.001				
Age						
16 to 17	3.1	0.07	4.0	0.52	1.77	0.079
18 to 24	11.2	0.18	20.5	1.11	8.4	<0.001
25 to 34	17.2	0.18	26.2	1.03	8.68	<0.001
35 to 49	24.2	0.16	21.8	0.86	2.78	0.006
50 to 64	24.9	0.19	20.4	0.96	4.66	<0.001
65 or older	19.4	0.18	7.0	0.56	20.69	<0.001
N	207,797		4047			
F(8.65,1471.27)	38.23	*P* < 0.001				
Education						
Less than high school	15.3	0.23	11.8	0.8	4.38	<0.001
High school graduate	25.4	0.26	18.4	1.12	6.15	<0.001
Some college	27.9	0.2	31.6	0.94	3.78	<0.001
Bachelor's degree	20.3	0.2	24.1	1.07	3.51	0.001
Postgraduate	11.1	0.14	14.1	0.85	3.53	0.001
N	205,865		4028			
F(7.06,1200.75)	11.17	*P* < 0.001				
Marital status						
Never married	29.8	0.26	64.8	1.28	27.19	<0.001
Married	51.4	0.24	23.3	1.2	22.87	<0.001
Widowed	5.9	0.09	1.3	0.21	20.4	<0.001
Divorced	10.9	0.12	9.0	0.69	2.63	0.009
Separated	2.0	0.04	1.6	0.25	1.79	0.076
N	206,940		4041			
F(6.56,1115.48)	146.04	*P* < 0.001				

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	Non-SGM		SGM		Statistics	
	%	SE	%	SE	|t|	P
Household income						
Less than $10,000	5.6	0.18	8.4	0.74	4.07	<0.001
$10,000–$14,999	4.6	0.12	5.2	0.5	1.2	0.233
$15,000–$24,999	9.3	0.16	9.6	0.7	0.43	0.664
$25,000–$34,999	10.8	0.16	9.5	0.71	1.78	0.078
$35,000–$49,999	15.7	0.23	13.7	0.87	2.18	0.031
$50,000–$74,999	18.4	0.22	17.2	0.88	1.36	0.175
$75,000–$99,999	15.4	0.21	13.8	0.84	1.93	0.056
$100,000 or more	20.3	0.25	22.6	0.99	2.34	0.02
N	207,797		4047			
F(10.98,1865.94)	7.45	*P* < 0.001				
Urbanicity of residence						
Urban	33.4	0.73	46.9	1.61	9.29	<0.001
Suburban	52.0	0.85	43.5	1.52	5.93	<0.001
Rural	14.7	1.27	9.7	1.48	4.73	<0.001
N	207,797		4047			
F(2.08,354.01)	12.84	*P* < 0.001				

SGMs experienced 71.1 violent victimizations per 1000 persons, compared with 19.2 per 1000 among non-SGM persons. SGMs had a higher rate of serious violence, defined as rape or sexual assault, robbery, or aggravated assault, than non-SGMs, including higher rates of violence involving a weapon and violence resulting in serious injuries. Robbery was only a type of violent crime for which there were no significant differences in rates between the SGM and non-SGM groups.

NCVS violent crime victims were asked about the nature of their relationship to the perpetrator(s). To understand differences in victim-offender relationship between SGM and non-SGM persons, we classified victim-offender relationships as "well known," including intimate partners, relatives, or other well-known persons, including a "casual acquaintance"; "stranger"; and "unknown," if the victim indicated that they were not certain. Figure 1C shows the violent victimization rate by victim-offender relationship, and Fig. 1D shows the differences in rates of violent victimization between SGMs and non-SGMs by victim-offender relationship. More SGMs than non-SGMs experienced violence by a well-known offender (OR = 6.61, CI = 3.02 to 10.20), including intimate partner violence (IPV) (OR = 6.88, CI = 2.00 to 11.76), and violence at the hands of a stranger (OR = 2.59, CI = 1.54 to 3.63). Among non-SGMs, the rates of violence committed by well-known offenders and by strangers were virtually the same and statistically indistinguishable from one another ($|t| = 0.47$, $P = 0.641$). However, among SGMs, the rate of violence by well-known offenders was significantly higher than the rate of violence by strangers ($|t| = 2.10$, $P = 0.037$), suggesting that SGMs are most at risk of violence from persons who are close to them. These victimization rates are also reported in table S3 for SGMs, for non-SGMs, and for those whose sexual orientation and/or gender identity was unknown.

Sex differences in violent victimization

Table S4 shows that both male SGMs and female SGMs had higher violent victimization rates than their non-SGM counterparts. The odds of experiencing violent victimization were higher for SGM females than non-SGM females (OR = 5.17, CI = 2.78 to 7.57) and for SGM males than non-SGM males (OR = 2.42, CI = 1.20 to 3.63). Among females, the rates of nonsexual assault were higher among SGMs than non-SGMs (OR = 4.73, CI = 2.16 to 7.30), and SGM females had a higher rape or sexual assault victimization rate than non-SGM females. Among males, the overall rate of nonsexual assault was higher among SGMs than non-SGMs but not was not statistically significant (OR = 2.18, CI = 0.96 to 3.41). Male SGM rates of aggravated assault and rape or sexual assault were based on small sample sizes and were flagged as unreliable.

Property victimization

Figure 1E shows property victimization rates by sexual orientation and gender identity, and Fig. 1F show differences in property victimization rates between SGMs and non-SGMs. Households with at least one SGM person 16 years or older had higher odds of property crime victimization compared with non-SGM households (OR = 2.26, CI = 1.85 to 2.69). On the basis of BJS definitions, property crime includes burglary, motor vehicle, and other household theft. SGM households experienced 44.3 burglaries per 1000 households compared with 20.5 per 1000 for non-SGM households. The odds of other property theft were also greater among SGM households (OR = 2.21, CI = 1.83 to 2.58). However, there was no difference in the rates of motor vehicle theft among SGM and non-SGM households.

Adjusted violent and property victimization

Because there are demographic differences between SGM and non-SGM, we estimate linear regressions controlling for demographics with results documented in table S5. We then use model predictions to provide adjusted victimization rates as shown in Fig. 2 (A to E) and table S7. Victimization disparities remained between non-SGM and SGM people in the adjusted victimization rates, although the

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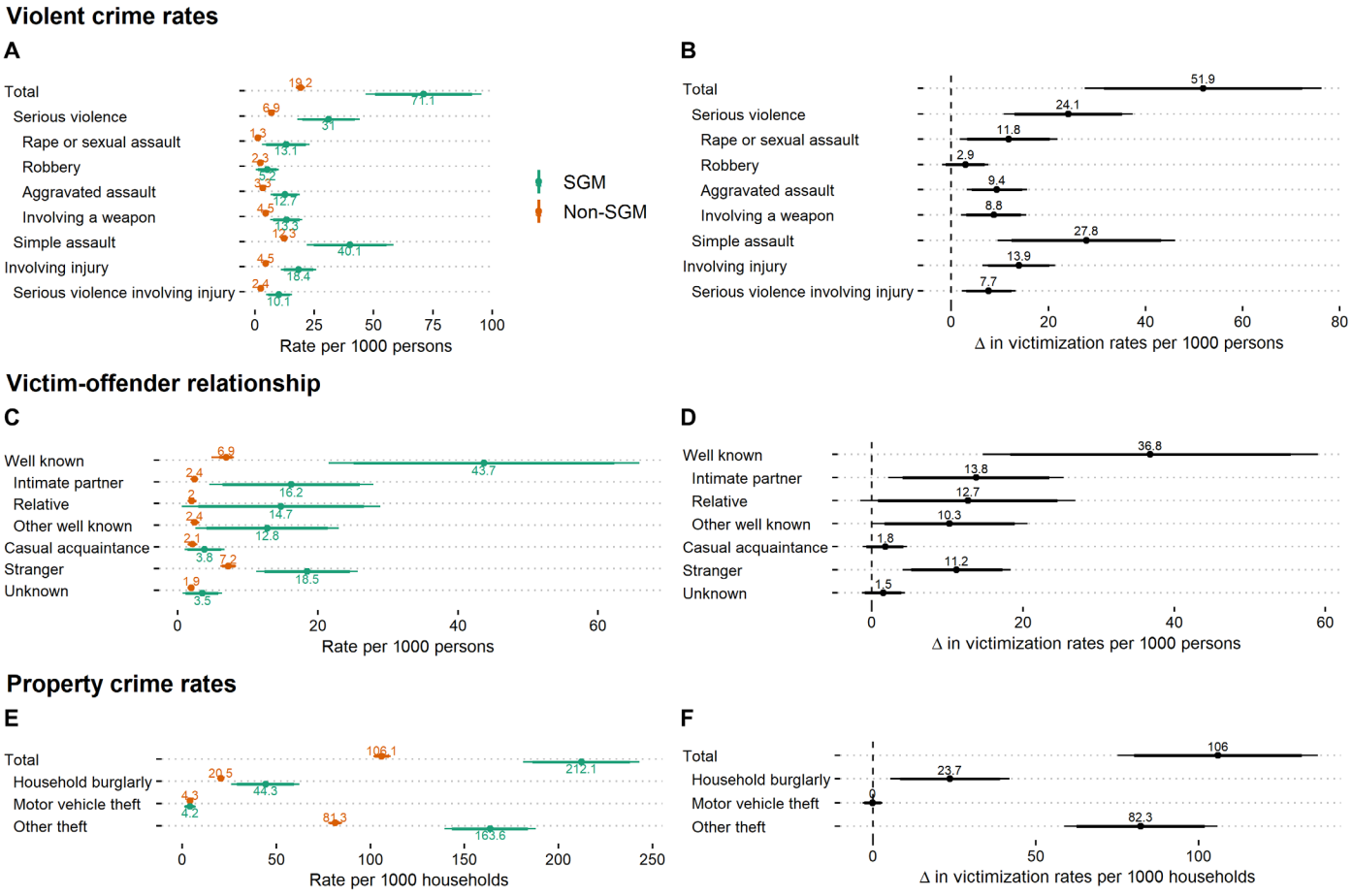

Fig. 1. Rates of victimization by sexual orientation and gender identity. Note: Rates per 1000 persons for violent crimes and rates per 1000 households for property crimes are plotted with 90% CIs and 95% CIs represented by the thick and thin line range about the estimate, respectively. (**A**) Violent crime rates, (**B**) differences in violent crime rates between SGM and non-SGM persons, (**C**) violent crime rates by victim-offender relationship, (**D**) differences in violent crime rates between SGM and non-SGM persons, (**E**) property crime rates, and (**F**) difference in property crime rates between SGM and non-SGM persons. Violent crime is based on individual characteristics ($n = 218{,}439$), and property crimes are estimated by SGM household ($n = 145{,}508$).

magnitude of the disparity is slightly reduced. In regressions reported in table S5, the disparity in violent victimization rates between SGMs and non-SGMs was largest with a well-known offender and smaller, although still significantly disparate, in violence involving a stranger. This suggests that overall disparities in violent victimization rates between SGMs and non-SGMs are driven by well-known offenders.

Reporting victimization to police

There were no statistically significant differences between SGMs and non-SGMs in the percent of violent or property crime victimizations that were reported to police (table S7). Just over half of violent and serious violent crimes against SGMs were reported to the police, which did not vary greatly by type of violence. For instance, about 50% of simple assaults were reported, as were 50% of serious violent incidents involving an injury that resulted in an overnight stay or more in the hospital. Although less than a third of property crimes involving an SGM household were reported to police, the majority of burglaries and motor vehicle theft were reported to police.

Victimization rates by select demographic characteristics

Bivariate comparisons of the demographics of SGM victims versus non-SGM victims show several differences between the two groups, as documented in table S8. Rates of violent victimization were higher for SGMs than non-SGMs among both males and females, whites, those with ages 18 to 34, and those having less than a college degree. In contrast, among Hispanics, persons with ages 35 to 64, and those with a college degree or more, there were no statistically significant differences in rates of violence for SGMs compared with non-SGMs. Results for other racial and ethnic minorities were unreliable due to small sample size.

Although marriage appeared to be a protective factor for non-SGMs, it had the opposite effect for SGMs. Among non-SGMs, those who were married had one of the lowest rates of victimization (married versus never married: $\Delta = -18.6$, SE = 2.3, $|t| = 7.96$, $P < 0.001$; married versus divorced: $\Delta = -17.2$, SE = 3.00, $|t| = 5.75$, $P < 0.001$; and married versus separated: $\Delta = -40.1$, SE = 9.7, $|t| = 4.13$, $P < 0.001$). In contrast, the rate of violence for married SGMs was 86.8 per 1000 persons, compared with 68.2 and 60.2 per 1000 for those who were never married and those who were divorced, respectively (married versus never married: $\Delta = 18.6$, SE = 39.0, $|t| = 0.48$, $P = 0.634$; and married versus divorced: $\Delta = 26.6$, SE = 44.4, $|t| = 0.60$, $P = 0.550$). Although these differences among the SGMs are not significant, these results show the opposite pattern to that of non-SGMs.

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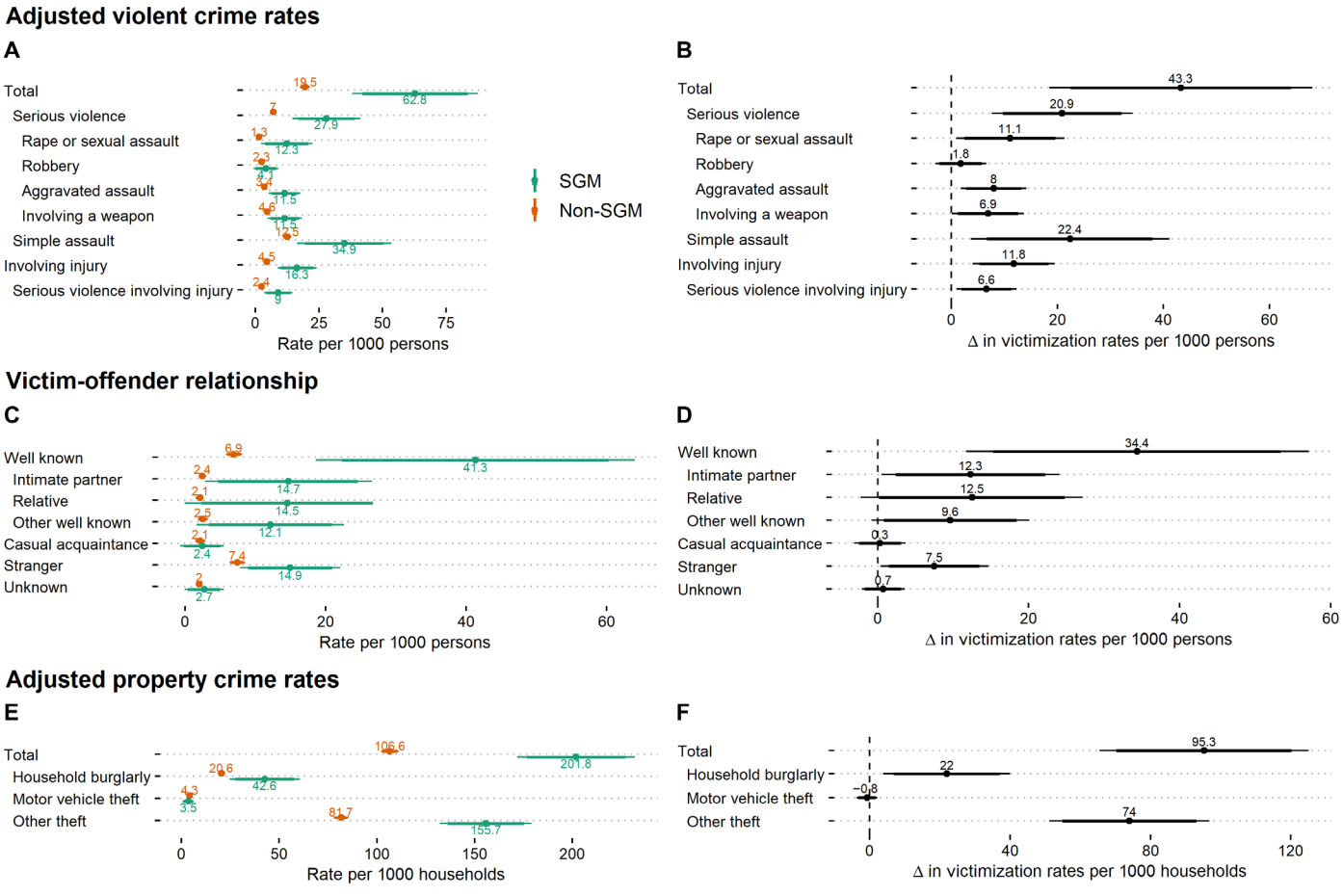

Fig. 2. Adjusted rates of victimization by sexual orientation and gender identity. Note: Rates per 1000 persons for violent crimes and rates per 1000 households for property crimes are plotted with 90% CIs and 95% CIs represented by the thick and thin line range about the estimate, respectively. (**A**) Adjusted violent crime rates, (**B**) differences in adjusted violent crime rates between SGM and non-SGM persons, (**C**) adjusted violent crime rates by victim-offender relationship, (**D**) differences in adjusted violent crime rates between SGM and non-SGM persons, (**E**) adjusted property crime rates, and (**F**) difference in adjusted property crime rates between SGM and non-SGM persons. Violent crime is based on individual characteristics ($n = 215{,}768$), and property crimes are estimated by SGM household ($n = 145{,}508$).

Among non-SGMs, the rate of violent victimization was higher in urban than in suburban areas (24.6 versus 16.6 per 1000). Among SGMs, the rate of victimization in suburban areas was higher, although the difference was not statistically significant (54.3 versus 93.8 per 1000, suburban versus urban: $\Delta = -39.6$, SE = 24.8, $|t| = 1.59$, $P = 0.113$; estimates for rural SGMs were unreliable due to low n).

DISCUSSION

These findings provide the first nationally representative examination of the criminal victimization of SGMs. We found that the odds of violent victimization among SGMs were almost four times that of non-SGMs. SGMs experienced a rate of 71.1 violent victimizations per 1000 persons per year, compared with 19.2 per 1000 per year among non-SGM persons and had higher rates of victimization across nearly all of the violent crime subtypes.

Compared with non-SGMs, SGMs were more likely to experience violence, both by someone who was well known to the victim and to experience violence at the hands of a stranger. That SGMs were at risk for violence by someone they knew well may suggest that, when an offender is aware of an SGM person's sexual orientation or gender identity, the risk of victimization increases. Our finding that SGMs are more likely to be victims of IPV than non-SGMs is consistent with prior findings about sexual minorities based on other data sources (*6*–*8*). Although we were unable to examine IPV by sexual orientation or gender identity subgroups due to small ample sizes, studies indicate that sexual minorities' IPV rate is largely driven by bisexual women and men experiencing violence at the hands of different sex partners (*2*). The prevalence of IPV among gay men and lesbians is lower than that for bisexuals, although lesbians also report IPV perpetrated by men (*2*). Very little population-based research has investigated IPV among transgender individuals.

Overall, only about half of victimizations are reported to police. We found that SGMs are as likely as non-SGMs to report violence to police. This finding is unexpected, given prior research showing that SGMs are often hesitant to turn to law enforcement (*6*), in part because of discrimination and harassment by police (*9*).

The data show that SGMs experience greater violent victimization than non-SGMs, but our study does not explain why SGMS are at higher risk for violent victimization. A plausible cause is anti-SGM prejudice in families, at work, at school, and elsewhere that would make SGMs especially vulnerable to victimization. Although the

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NCVS includes data on respondents' perceptions of whether victimizations were motivated by biases (*10*), the sample sizes were too small to examine for us to assess this explanation. However, consistent with a prejudice motivation explanation, the only type of property crimes for which there was no difference between SGMs and non-SGMs was motor vehicle theft—a crime for which an individual's sexual orientation or gender identity is probably not apparent. Also supporting a prejudice motivation hypothesis is data from the Federal Bureau of Investigation's Uniform Crime Reporting. For example, in 2018, 17% of single-bias crimes reported to law enforcement resulted from sexual orientation bias, and 2.4% of bias crimes resulted from gender identity bias (*11*). Virtually, all of these crimes resulted from anti–lesbian, gay, bisexual, and transgender (LGBT) biases (*5*), making LGBT people, per capita, the group most likely to be victims of bias-motivated crimes in the United States (*12*).

Limitations

There are several limitations to our study. While the 2017 NCVS relied on best practices to document sexual orientation and gender identity, the prevalence of SGMs at 2% is lower than the 4.5% that is estimated by the Williams Institute based on Gallup survey data (*13*). Note that the methods used to achieve these estimates are very different and that the NCVS estimates of sexual minorities are quite similar to other national government surveys, such as the National Health Interview Survey (*14*).

Because of the relatively small prevalence of SGM individuals in the population, their representation in the sample is small. This made some of our estimates too unreliable to draw conclusions from, and we were unable to perform subgroup analyses. For example, we did not provide estimates for the transgender population as separate from sexual minorities or subgroup analyses by race/ethnicity, sexual identity (bisexual versus gay or lesbian), and intersections of identities to more fully explore victimization among SGM persons.

Like all surveys, the NCVS is subject to both sampling and nonsampling error. The Census Bureau's weighting procedures for the NCVS are designed to account for sampling error, and the Census Bureau conducts a nonresponse bias analysis to test the extent to which respondents are different from nonresponders on key characteristics.

NCVS estimates are subject to both type 1 (false positive) and type 2 (false negative) errors. Major reviews of the NCVS have suggested that type 2 error is likely to be a larger problem for the NCVS due to challenges with recalling events, the sensitive nature of the topic, respondent fatigue due to the longitudinal nature of the survey, and the presence of an interviewer administering the survey (*15*, *16*). The NCVS uses procedures to reduce type 2 error to the extent possible by using tools to trigger respondent recall of events in the screener and to conduct interviews in private to the extent possible. Although it is still possible that respondents may not report any or all of the victimizations they experienced, there is no reason to assume that sources of type 2 error, such as fatigue or recall, would differentially affect SGM versus non-SGM respondents.

Type 1 errors typically occur from respondents engaging in telescoping—reporting incidents that occurred outside of the reference period as though they occurred within the reference period. The NCVS longitudinal design, with households interviewed every 6 months for seven total interview waves, controls for telescoping, because each interview, other than the first, is bounded by the prior interview. A bounding adjustment is applied to the NCVS survey estimates to account for the potential for telescoping in wave 1 (*17*). These types of limitations affect the entire survey and would not lead to bias in our reported differences between SGMs and non-SGMs unless the bias was correlated with SGM status. However, it is unknown whether SGM respondents differ from non-SGM respondents in their propensity to report victimizations.

A strength of the study is that it is the first nationally representative sample of SGM and non-SGM Americans. Thus, our findings provide a unique look into crime victimization of SGM people as a group.

Policy implications

Federal, state, and local interventions to reduce victimization should take into account the different rates of victimization of SGM and non-SGMs and the unique and common ways in which SGM populations experience and are susceptible to violence and other forms of crime. However, research finds that law enforcement and antiviolence programs and services are sometimes not equipped to serve SGM populations (*6*, *9*).

Our findings are especially valuable given the changes to the NCVS that the BJS has pursued under the Trump administration. In 2018, BJS proposed to stop asking the sexual orientation and gender identity questions to 16- and 17-year-old respondents, asserting that these demographic items were too sensitive for youth respondents. Following a notice and comment period, in which many academics, states, and organizations focused on youth and victims opposed these changes, BJS did not implement this change. Instead, BJS—without a public notice and comment period—moved the sexual orientation and gender identity questions from the general demographic section of the NCVS asked of all respondents to a part of the survey only asked of victims. As a result of this change, the NCVS will no longer be a source of the victimization rates discussed here. This is troubling, given our findings that SGMs have higher rates of victimization across most types of crimes. Although researchers will still be able to examine characteristics of victimization, such as the percent of victimizations that were reported to the police, this change will limit the ability to assess trends over time and to pool data over years so that researchers might examine victimization rates among SGM subgroups and bias-motivated crimes.

MATERIALS AND METHODS

Results were based on the NCVS 2017, a stratified, multistage cluster sample of 239,541 individuals 12 years or older living in 145,508 households and interviewed in two waves between January and December 2017. The survey is administered by the U.S. Census Bureau for the BJS. The aims of the NCVS are to measure the level and nature of violent (rape and sexual assault, robbery, and aggravated and simple assault) and property (burglary, motor vehicle theft, and other theft) crimes in the United States. The NCVS is in the field on a continuous basis, with households probabilistically selected to be a part of the study for 3.5 years and interviewed at 6-month intervals. Households are sampled on a rotating basis, and each month, one-sixth of the sample rotates out and is replaced by new sampled households. The household roster includes group quarters, such as dormitories, but excludes military base housing and institutional settings, like correctional or hospital facilities.

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All eligible respondents 12 years or older within sampled households are interviewed about any experiences with criminal victimization, including crimes that were not reported to the police. Interviews are conducted by Census Bureau field representatives, either in person or over the telephone. The response rate for the NCVS 2017 was 75.7% at the household level, 83.8% among persons 12 years or older within sampled households, and 63.5% overall. The NCVS 2017 public use files were produced by the Census Bureau for the BJS and managed through the National Archive of Criminal Justice Data at the Interuniversity Consortium for Political and Social Research.

The NCVS includes three primary questionnaires: a control card, a screening questionnaire, and an incident report. The control card is used to collect household characteristics, including the demographic profile of each eligible respondent in the household. The screening questionnaire is administered to a household designee to ask about experiences with property crime victimization (i.e., burglary, motor vehicle theft, and other theft) and administered to all eligible household members to collect information about any experiences with personal crime during the prior 6 months. If a respondent answers a screener question affirmatively, then the incident report is used to gather details about and classify the criminal incident.

The NCVS categorizes victimizations as the number of persons or households victimized in an incident. Since a household or individual within a household might experience multiple victimizations, separate incident reports are collected for each victimization, with the exception of high-occurrence repeat victimizations, called series victimizations. Series victimizations are those that occurred with such frequency that the victim was unable to recall the details of each incident. In this case, NCVS interviewers document the number of events that occurred but only obtain details about the most recent incident in that series.

The Census Bureau applies weights to the data to account for the complex design of the survey by decreasing sampling bias and adjusting for unequal probabilities of selection. The weights are also used to create population estimates. There were three distinct classes of weights in the NCVS: household weights, person weights, and incident weights. The household and person weights were designed to represent the population of the U.S. households and persons within those households 12 years or older and adjust for the fact that households and persons were interviewed every 6 months. The incident weights adjusted the number of incidents to be representative of the number of criminal victimizations either at the household level or the person level. These weights were used in conjunction with one another to estimate victimization rates. For rates of violent crime, the numerator is the weighted number of violent victimizations from the incident file, and the denominator is the weighted number of persons from the person file. Likewise, for rates of property crime, the numerator is the number of weighted property victimizations from the incident file, and the denominator is the weighted number of households from the household file. Further details of sampling and weighting procedures can be found in the BJS report on the 2017 NCVS (*18*) and in the NCVS Technical Documentation (*17*).

Measures

Respondents 16 years and older were asked three questions related to their sexual orientation and gender identity. These measures were included after focus groups, interviewer trainings, interviews with interviewers, and cognitive testing to evaluate how the inclusion of these measures would affect overall data quality of the NCVS (*19*). Sexual orientation was measured by the following: "Which of the following best represents how you think of yourself?" with response options of "lesbian or gay," "straight, that is, not lesbian or gay," "bisexual," "something else," or "I don't know the answer" (variable name: V3084). Gender identity was measured by two questions. The first asked respondents about their sex assigned at birth: "What sex were you assigned at birth, on your original birth certificate?" with response options of "male," "female," or "do not know" (variable name: V3085). The second asked respondents about their current gender identity: "Do you currently describe yourself as male, female, or transgender?" with response options of "male," "female," "transgender," or "none of these" (variable name: V3086). We categorized respondents as SGMs if they identified as lesbian, gay, bisexual, and/or transgender. We also categorized respondents as SGMs if they reported a sex assigned at birth (i.e., male or female) that differed from their current gender identity (i.e., female or male). We categorized respondents who answered "something else" or "I do not know the answer" to the sexual orientation question or "none of these" in the gender identity question as unknown/other. We categorized respondents who were not SGM or unknown/other as non-SGM. Thus, the SGM variable was coded as 0 = "non-SGM," 1 = "SGM," 2 = "unknown/other." About 2.0% (n = 4047) were categorized as SGM, 3.3% (n = 6595) were categorized as unknown/other, and 94.7% (n = 207,797) were categorized as non-SGM.

Certain types of crimes are categorized as personal crimes (i.e., crimes that occur at an individual level), while others are categorized as household crimes (i.e., crimes that occur at a household level). Therefore, we needed to define SGM households, non-SGM households, and unknown/other households. We categorized households as being SGM households if one member in the household identified as a SGM. We categorized households as being unknown/other households if no member of the household identified as a SGM and if at least one member of the household was unknown/other. We categorized households as non-SGM if they were not SGM or unknown/other households. About 2.5% of households (n = 3,436) were categorized as SGM households, 4.5% (n = 5,986) as unknown/other households, and 93.1% (n = 136,086) as non-SGM households.

The dependent variables involved a variety of types of crime, victim-offender relationship, and whether not criminal victimizations were reported to the police. We followed the standard classifications of crime that BJS used in its reporting on the NCVS (*18*, *20*). BJS classifies two broad categories of crime: violent victimizations that happen at the person level (i.e., a personal victimization) and property victimizations that happen at the household level. BJS also has a third category of crime—personal larceny, which includes personal, nonviolent crimes, such as pickpocketing—but because of small sample sizes, personal larceny was excluded from these analyses. Violent victimizations consisted of serious violent victimizations and simple assault. Simple assault was an attack, attempted attack, or verbal threat to attack a victim that does not involve a weapon and that results in minor injury with less than 2 days of hospitalization. Serious violence consisted of crimes of rape or sexual assault, robbery, aggravated assault, and victimizations involving a weapon. BJS defined rape as forced sexual intercourse (i.e., vaginal, anal, or oral penetration) via psychological coercion and/or physical force. Sexual assault included crimes where attacks or attempted attacks

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involve unwanted sexual contact. Robbery was the completed or attempted theft of property or cash from a person through force or threat of force. Aggravated assault involved an attack or attempted attack involving a weapon regardless of injury. Victimizations involving a weapon included incidents of rape or sexual assaults, robberies, or aggravated assault where a weapon was present. Property crimes consisted of household burglaries, motor vehicle theft, and other thefts. Burglary was the unlawful or forcible entry or attempted entry of a residence, including detached garages or sheds, and often includes theft. Motor vehicle theft was the stealing, unauthorized taking, or attempted stealing or unauthorized taking of a motor vehicle. Other thefts include other taking or attempted taking of property not classified as burglaries or motor vehicle thefts.

Respondents who experienced victimization were asked about the relationship they had with the perpetrator or perpetrators. Respondents were asked to specify one of six categories to indicate how well the victim knew the offender: stranger (i.e., someone whom the victim had never seen before), someone whom the victim had seen before but had very little interaction, a casual acquaintance (i.e., someone whom the victim interacted with before more than saying "hello"), someone whom the victim knows better than a casual acquaintance (i.e., well known), a relative, and a well-known nonrelative. Relatives also contained the following subcategories: a spouse, an ex-spouse, parent or stepparent, own child or stepchild, sibling, or other relative. Well-known nonrelatives contained the following subcategories: a significant other or former significant other, a friend or former friend, a roommate, a schoolmate, a neighbor, a coworker or customer, and other well-known nonrelative. For crimes that had multiple offenders, respondents indicated whether all the offenders were strangers, all were relatives, all were known, if some were relatives, or if some were known. Crimes involving at least one well-known offender were considered as a well-known victim-offender relationship. A well-known victim-offender relationship also contained subcategories if at least one offender or offenders were intimate partners, relatives, or other well known. Crimes involving at least a spouse, an ex-spouse, a significant other, or former significant other were considered as an intimate partner victim-offender relationship. Crimes involving at least one relative but no intimate partners were considered as a relative victim-offender relationship. Crimes involving at least one other well-known offender but no relatives or intimate partners were considered as an other well-known victim-offender relationship. Crimes involving at least one casual acquaintance and none were well known were considered as a casual acquaintance victim-offender relationship. Crimes only involving a stranger or multiple strangers were considered as a stranger victim-offender relationship. Crimes where the victim could not identify the offender or offenders were categorized as an unknown victim-offender relationship. This variable was a recode of a set of variables in the incident-level file (variable names: V4234, V4241, V4243, V4245, V4256, V4258, V4259, V4260, V4261, V4262, V4265, V4266, V4267, V4268, V4269, V4271, and V4278).

Respondents who experienced a victimization were asked if the incident was reported to the police. Victims could indicate whether the incident was or was not reported to the police, or they could indicate that they do not know if the incident was reported to the police. This variable was located in the incident-level file (variable name: V4399).

We considered the following demographic characteristics. Respondent sex was measured dichotomously with 51.9% (n = 116,457) of the sample being female (variable name: V3018). Age cohort was measured from a continuous measure of the respondent's age (variable name: V3014) discretized to age groups with 3.1% (n = 4,237) aged 16 to 17 years, 11.3% (n = 17,089) aged 18 to 24 years, 17.4% (n = 33,183) aged 25 to 34 years, 24.1% (n = 52,413) aged 35 to 49 years, 24.9% (n = 59,401) aged 50 to 64 years, and 19.2% (n = 52,116) aged 65 years or more. Race and ethnicity were measured as a summary measure (variable name: V3023A) that was recoded to measure respondents who are non-Hispanic, white (63.9%, n = 153,068), black (11.9%, n = 11.9), Hispanic or Latino (16.1%, n = 27,388), other (6.8%, n = 11,714), and multiracial (1.3%, n = 2580). Educational attainment was measured as the respondent's highest year of completed education (variable name: V3020) recoded into the following groups: less than a high school diploma (15.2%, n = 29,483); high school graduate (25.2%, n = 55,126); some college, a 2-year degree, or a vocational degree or certificate (28.0%, n = 60,783); a bachelor's degree (20.5%, n = 44,511); and a graduate or professional degree (11.2%, n = 25,865). Marital status was measured as the current relationship status of the respondent (variable name: V3015) with 50.1% (n = 118,851) married, 30.6% (n = 52,885) never married, 5.8% (n = 15,237) widowed, 10.8% (n = 25,968) divorced, and 2.0% (n = 4,160) separated. Household income (variable name: SC214A) and urbanicity (variable name: V2129) were measured at the household level. Following BJS practices, these variables were merged to the person-level file and applied to each individual respondent. The income distribution was rescaled to the eight following income categories, coded 1 = "less than $9999," 2 = "$10,000 to $14,999," 3 = "$15,000 to $24,999," 4 = "$25,000 to $34,999," 5 = "$35,000 to $49,999," 6 = "$50,000 to $74,999," 7 = "$75,000 to $99,999," and 8 = "$100,000 or more." The median income category was $50,000 to $74,999 at both the household level and person level. Urbanicity was measured as a three-level variable with 34.9% (n = 46,124) in a city of metropolitan statistical area (i.e., urban), 50.4% (n = 77,639) in a metropolitan statistical area but not in a city (i.e., suburban), and 14.7% (n = 21,745) not in a metropolitan statistical area (i.e., rural) at the household level, and 33.9% (n = 66,493), 51.7% (n = 118,819), and 14.4% (n = 33,127), respectively, at the individual level. Census region of respondent's residence was also documented as a four-level variable with 17.4% (n = 19,587) in the Northeast, 22.2% (n = 43,167) in the Midwest, 38.0% (n = 52,016) in the South, and 22.4% (n = 30,738) in the West at the household level, and 17.3% (n = 28,418), 21.2% (n = 63,755), 38.1% (n = 79,527), and 23.4% (n = 46,739), respectively, at the individual level.

Statistical analysis

We use weighted data to account for the probability of respondent selection and nonresponse. These poststratification weights are based on known U.S. population totals from the American Community Survey and were provided in the NCVS public use file. Weights are available at the household, person, and incident levels. These weights could be used in conjunction with one another to provide estimates for criminal victimization rates. All the parameter estimates were weighted, and the SEs accounted for the complex design of the NCVS 2017. The SEs estimated here were calculated through direct variance estimation, which took into account the complex design of the survey and permitted statistical modeling and hypothesis testing [see (*20*)]. Direct variance estimation was done through Taylor series linearization. All analyses were performed in Stata v. 14, and the figures were crated in R v. 3.5.1. Because only respondents 16 years

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and older were asked their sexual orientation and gender identity, we constrained our analyses to respondents 16 years and older and incidents of victimization involving respondents 16 years and older in the NCVS 2017. At times, the NCVS needed to conduct proxy interviews because the interviewee is somehow incapable of completing the survey on their own. All proxy interviews were removed from the analyses because sexual orientation and gender identity were not documented. BJS traditionally reported victimizations that only occur within the United States, so we excluded any victimizations that occurred outside of the United States for consistency.

We reported all results separately for SGM and non-SGM respondents. We performed our analyses comparing the three sexual orientation and gender identity categories (non-SGM, SGM, and unknown/other), but we did not report the results for unknown/other in the Results section, as there were no a priori expectations about this group. We reported these results in the Supplementary Materials. Our results were designed to generally align with the reporting of victimization data from the NCVS (*18*, *20*). Thus, we accounted for the number of persons victimized in an incident and series victimizations. All statistical results were weighted throughout Results and Materials and Methods, except for sample sizes that were unweighted.

We reported two distinct statistics relating to criminal victimization: victimization percentages and victimization rates. Victimization percentages described characteristics of victimizations or victims based on certain characteristics (e.g., the percentage of certain victimizations that were reported to the police). Victimization percentages were estimated in the incident-level file relying on the series-adjusted victimization rate (v_{ijk}; variable name: SERIES_WEIGHT). The estimated victimization percentage ($\hat{p}_{A_aD}$) across each level (a) of covariate (A) on certain characteristics (D) is

$$\hat{p}_{A_aD} = \frac{\Sigma_{ijk\in A_a,D}\, v_{ijk}}{\Sigma_{ijk\in D}\, v_{ijk}} * 100 \tag{1}$$

The numerator of Eq. 1 represented the summation of the series-adjusted victimization weights for victimizations (k) based on certain characteristics associated with a level of a covariate. The denominator of Eq. 1 represented the summation of the series-adjusted victimization weights for victimizations based on certain characteristics across all levels of a covariate.

Victimization rates were the estimated number of victimizations per 1000 persons or households in the population based on certain characteristics (e.g., the number violent victimizations against males per 1000 males). Victimization rates were estimated in the person-level file or household-level file after creating a summary file of the number of victimizations based on certain characteristics ($n_{ij,C}$) from the incident-level file accounting for series victimizations. The estimated victimization rate ($\widehat{VR}_{C,D}$) for a type of crime (C) on certain characteristics (D) is

$$\widehat{VR}_{C,D} = \frac{\Sigma_{ijk\in C,D}\, v_{ijk}}{\Sigma_{ijk\in D}\, w_{ijk}} * 1000 \tag{2}$$

The numerator of Eq. 2 represented the summation of the series-adjusted victimization weights for household (i), respondent (j), and victimization (k). The denominator of Eq. 2 represented the summation of person weight (w_{ijk}; variable name: WGTPERCY) if the crime is a personal crime or the household weight (w_{ijk}; WGTHHCY) if the crime is a property crime. For direct variance estimation, Eq. 2 could be rewritten by first calculating a victimization adjustment factor (A_{ij})

$$A_{ij} = \frac{v_{ij}}{w_{ij}} \tag{3}$$

The victimization adjustment factor was set to zero if no incidents were reported. This adjustment factor was available in the household-level and person-level files (variable name: ADJINC_WT). An equivalent form of estimating the victimization rate is

$$\widehat{VR}_{C,D} = \frac{\Sigma_{ij\in D}\, w_{ij} * A_{ij} * n_{ij,C}}{\Sigma_{ijk\in D}\, w_{ij}} * 1000 \tag{4}$$

We also estimated ORs comparing the victimization rates between SGM ($\widehat{VR}_{C,\mathrm{SGM}}$) and non-SGM persons ($\widehat{VR}_{C,\mathrm{Non-SGM}}$). These ORs were calculated as

$$\mathrm{OR} = \frac{\widehat{VR}_{C,\mathrm{SGM}}}{1000 - \widehat{VR}_{C,\mathrm{SGM}}} \div \frac{\widehat{VR}_{C,\mathrm{Non-SGM}}}{1000 - \widehat{VR}_{C,\mathrm{Non-SGM}}} \tag{5}$$

We reported the estimated OR with its 95% CI estimated via direct variance estimation. Other characteristics (D), such as sex, were also used to estimate victimization rates for SGM and non-SGM persons, and Eq. 5 was used to compute ORs between SGM and non-SGM persons by those certain characteristics.

Following BJS guidelines, we flagged results that were deemed to be unreliable. Unreliability was determined on the basis of two criteria. The first criterion was if an estimate was based on 10 or fewer unweighted observations. For victimization rates, this was if the estimate is based on 10 or fewer victimizations. For victimization percentages, this is based on if the denominator of Eq. 1 had 10 or fewer unweighted victimizations. The second criterion was based on the percent relative SE (RSE). The RSE of victimization proportions was calculated as

$$\mathrm{RSE}_{\hat{p}_{A_a}} = \begin{cases} \dfrac{\mathrm{SE}(\hat{p}_{A_a})}{\hat{p}_{A_a} * \left|\log\left(\frac{\hat{p}_{A_a}}{100}\right)\right|} * 100 : \hat{p}_{A_a} \le 50 \\ \dfrac{\mathrm{SE}(\hat{p}_{A_a})}{(100 - \hat{p}_{A_a}) * \left|\log\left(1 - \frac{\hat{p}_{A_a}}{100}\right)\right|} * 100 : \hat{p}_{A_a} > 50 \end{cases} \tag{6}$$

The RSE of victimization rates was calculated as

$$\mathrm{RSE}_{\widehat{VR}_{C,D}} = \frac{\mathrm{SE}(\widehat{VR}_{C,D})}{\widehat{VR}_{C,D}} * 100 \tag{7}$$

If RSE $\geq$ 50, then an estimate was flagged as unreliable. While we reported estimates that were unreliable, we did not discuss or make any statistical comparisons in Results relying on unreliable estimates.

Demographic statistics reported were estimated using the *svy: tab* command in Stata. A Pearson chi-squared statistic was corrected for the complex survey design and a second-order correction, which was converted into an F-statistic, to determine whether demographic differences were statistically significant (*21*). In addition, the *svy: prop* command in Stata was used with the *over()* option to test whether observed proportions were significantly different from one another, by using the *lincom* postestimation command to provide a Student's t statistic and associated P value.

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Victimization percentages were estimated via the *svy: prop* command with the *over()* option to estimate percentages by type of crime and demographic subgroups. Victimization rates were estimated via the *svy: mean* command with the *over()* option to estimate rates by demographic subgroups. When testing between group differences between SGM and non-SGM persons, a Student's t statistic was used as the test. In Stata, we relied on the *lincom* command after estimating victimization percentage or victimization rates. We reported P values from these hypothesis tests and interpreted differences with a two-tailed $P < 0.050$ as statistically significant. We additionally performed analyses on victimization rates and reporting percentages adjusting for demographic covariates. Table 1 showed demographic differences between non-SGM and SGM people in terms of race or ethnicity, age, educational attainment, marital status, household income, and urbanicity. Given these differences, it was important to also consider whether disparities in victimization no longer existed after taking differences into account. These analyses used ordinary least squares regression on the victimization rates. An ordinary least squares regression was selected because BJS recommended estimating victimization rates by using the *svy: mean* command in Stata (*20*). Because an analysis of means was recommended in a bivariate context, regression to the mean was appropriate with multiple covariates. For personal victimizations, the models controlled for respondent demographics and household characteristics. For property victimizations, the models controlled for household characteristics. These analyses used the *svy: reg* command in Stata. Table S5 contained the regression results from these models. We also noted the relative P value of the effect size at the two-tailed 0.05, 0.01, and 0.001 levels. After fitting each regression model, the *margins* command in Stata was used to estimate adjusted victimization rates. Table S6 contained the adjusted victimization rates, and Student's t tests and associated P values were also reported testing whether the non-SGM victimization rate differed from the SGM victimization rate or the unknown/other victimization rate.

To calculate ORs and 95% CIs, we relied on the *nlcom* command after estimating victimization rates by SGM group. A logistic regression was fit via the *svy: logistic* command to estimate the OR for SGM people to be a victim of violent victimization controlling for gender, race and ethnicity, age cohort, educational attainment, household income, urbanicity, and census region. Throughout the analysis, the *subpop* option was used to constrain the analysis to respondents 16 years or older and who were not interviewed via a proxy interview, which correctly estimates standard errors in complex surveys.

SUPPLEMENTARY MATERIALS

Supplementary material for this article is available at http://advances.sciencemag.org/cgi/content/full/6/40/eaba6910/DC1

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