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# Sexual Orientation Change Efforts, Adverse Childhood Experiences, and Suicide Ideation and Attempt Among Sexual Minority Adults, United States, 2016–2018

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*Objectives.* To examine how sexual orientation change efforts (SOCE) are associated with suicide morbidity after controlling for adverse childhood experiences (ACEs).

*Methods.* Cross-sectional survey data are from the Generations survey, a nationally representative sample of 1518 nontransgender sexual minority adults recruited between March 28, 2016, and March 30, 2018, in the United States. Self-identified transgender individuals were included in a separate, related TransPop study. We used weighted multiple logistic regression analyses to assess the independent association of SOCE with suicidal ideation and suicide attempt while controlling for demographics and ACEs.

*Results.* Approximately 7% experienced SOCE; of them, 80.8% reported SOCE from a religious leader. After adjusting for demographics and ACEs, sexual minorities exposed to SOCE had nearly twice the odds of lifetime suicidal ideation, 75% increased odds of planning to attempt suicide, and 88% increased odds of a suicide attempt with minor injury compared with sexual minorities who did not experience SOCE.

*Conclusions.* Over the lifetime, sexual minorities who experienced SOCE reported a higher prevalence of suicidal ideation and attempts than did sexual minorities who did not experience SOCE.

*Public Health Implications.* Evidence supports minimizing exposure of sexual minorities to SOCE and providing affirming care with SOCE-exposed sexual minorities. (*Am J Public Health*. Published online ahead of print May 21, 2020: e1–e7. doi:10.2105/AJPH.2020.305637)

Suicide has increased to a level that, along with drug overdose– and alcohol-related deaths, has reduced life expectancy for US persons for 3 consecutive years.<sup>1</sup> Suicidal ideation and suicide attempt (i.e., suicide morbidity) are strong predictors of death by suicide,<sup>2</sup> and suicide morbidity occurs more frequently among lesbian, gay, and bisexual (LGB or sexual minority) populations than among heterosexuals.<sup>3,4</sup> Identifying unique stressors that are associated with sexual minority individuals' suicidal ideation and suicide attempts can lead to tailored intervention and prevention efforts.

One stressor unique to sexual minorities is experiencing sexual orientation change efforts (SOCE), sometimes referred to as conversion or reparative therapy.<sup>5</sup> SOCE include a variety of approaches such as immersion in heterosexual-focused cognitive exercises, amplification of shame for same-gender attraction, and physical punishment (e.g., electric shock) intended to

condition against mental or physical attraction to the same gender.<sup>6-8</sup> Negative outcomes of SOCE include increased distress, depression, hopelessness, and suicidal thoughts and behaviors.<sup>6,8-10</sup> SOCE have been practiced by religious counselors, medical professionals, and other health care providers for decades.<sup>11</sup> Despite several national professional organizations' official positions against SOCE (e.g., American Psychological Association,<sup>11</sup> American Medical Association,<sup>12</sup> National Association of Social Workers<sup>13</sup>), as of June 2019, only 18 US states (and Puerto Rico and Washington, DC) have laws that ban subjecting minors to SOCE.<sup>14</sup>

Minority stress theory describes stressors as unique in that they stem from homophobia and chronic in that they are present in day-to-day social interactions.<sup>15</sup> Minority stressors include prejudicial events and conditions that are expressed both interpersonally (e.g., violent attacks, discrimination) and structurally (e.g., laws allowing rejection of sexual minorities in housing and employment).<sup>16</sup> By its very nature and purpose, SOCE can be defined as a minority stressor because they promote heteronormativity as the only acceptable way of life and reinforce individual, family, and community rejection of LGB sexual orientation. By reinforcing stigmatizing societal attitudes and promoting self-rejection, professionals who engage in SOCE provide the exact opposite of recommended therapeutic approaches that should support self-acceptance.<sup>17-19</sup> Minority stress also affects sexual minorities through internalization of stigmatizing social attitudes and stereotypes. For example, LGB people internalize homophobic notions, contributing to adverse health outcomes.<sup>17,20</sup>

Related to stigmatization in their families, sexual minorities have a high prevalence of adverse childhood experiences (ACEs),<sup>21</sup> including physical and sexual abuse. Evidence shows dose-response relations of ACEs with suicidality,<sup>22</sup> which may partly explain disparities in poor mental health between sexual minority and heterosexual individuals.<sup>23,24</sup> Less is understood about how ACEs and SOCE may be associated among sexual minorities. For instance, it is plausible that sexual minority children may be less accepted by their parents and more likely to be subjected to SOCE. To date, no research has examined the relationship between ACEs and SOCE to our knowledge.

Regardless of its relationship with ACEs, there has been scant investigation of how experiencing SOCE is related to suicidal ideation and attempt among sexual minorities. Similarly, little is known about the independent associations of SOCE and ACEs and suicidal ideation and attempt. The dearth of inquiry stems mainly from a lack of data on experiencing SOCE among sexual minorities. Capitalizing on a novel probability-based national sample of sexual minority adults, we examined how experiencing SOCE is associated with suicide morbidity, after considering the effects of ACEs.

## **METHODS**

We collected data as part of the Generations study, which was designed to examine health and well-being across 3 generations of nontransgender sexual minority people.

Generations contracted with Gallup to use an innovative 2-phase sampling approach. In phase 1, Gallup used a dual-frame sampling procedure, which included random-digit dialing to reach US landline and cellphone users (a random selection method was used for choosing a respondent in households reached on landline phones). Respondents screened at phase 1 were eligible to participate in phase 2 (a self-administered Web or paper questionnaire) if they identified as cisgender or gender nonbinary sexual minority (and not trans-gender); were in the age ranges for 1 of the 3 cohorts of interest in the Generations study (aged 18–25, 34–41, or 52–59 years); belonged to the racial and ethnic groups targeted (Black, Latino, or White, or had multiple racial and ethnic identities that included at least 1 of these; Table 1); completed at least sixth grade; and spoke English well enough to conduct the telephone interview in English.

The specific age groups were selected to represent people who came of age in distinct social historical periods relevant to lesbian gay bisexual transgender (LGBT) rights. The investigators identified the Pride generation as people who came of age in the 1970s and were aged 51 to 59 years at the time of recruitment, the Visibility generation as people who came of age in the late 1980s and 1990s and were aged 34 to 41 years at the time of recruitment, and the Equality generation as people who came of age in the 2000s and were aged 18 to 25 years at the time of recruitment.

Asian American and American Indian/Alaska Native sexual minority people were excluded because their low representation in the US population meant the researchers would have not been able to recruit sufficient numbers of respondents during the recruitment period to allow meaningful statistical analyses for these racial and ethnic groups. Education level was selected because respondents needed to be able to comprehend and self-administer the main study questionnaire. Respondents who identified as transgender, regardless of their sexual orientation, were invited to participate in a related TransPop study, which asked questions that were tailored to the transgender population.

In phase 1 366 640 respondents were screened in the brief telephone interview between March 2016 and March 2017. Of these respondents, 3.5% ( $n = 12\,837$ ) identified as sexual minority, transgender, or both. After applying the study inclusion criteria, 3525 were eligible to participate in the Generations study. The final co-operation rate<sup>25</sup> for the Generations study was 39%. The final sample included 1518 respondents, including 187 respondents from an enhancement recruitment period (April 2017 to March 2018) aimed at increasing the number of Black and Latino respondents. The entire sample was weighted for nonresponse using the US Census and for specific demographics of the LGBT population using Gallup data collected since 2012. More information about the study's methodology and rationale is available online at <http://www.generations-study.com>.

## Measures

Demographic covariates included gender identity (man, woman, or nonbinary or genderqueer); sexual identity (lesbian, gay, bisexual, queer, pansexual, asexual, or other minority sexual identities); racial and ethnic identity (White, Black or African American, Hispanic or

Latinx, or other racial and ethnic identity); educational attainment (high school diploma or less, some college, college degree, or more than a college degree); and age.

ACEs were measured using 11 items employed by the Centers for Disease Control and Prevention in population health surveillance.<sup>26</sup> The items are predicated with the statement “Now, looking back before you were 18 years of age. . .” and followed by several categories of negative experiences (e.g., living with anyone who was depressed, mentally ill, or suicidal; frequency of parents or adults in the home ever slapping, hitting, kicking, punching, or beating up each other; frequency of physical abuse). Three items specifically asked respondents about sexual abuse: How often did anyone at least 5 years older than you, or an adult, (1) ever touch you sexually, (2) try to make you touch them sexually, and (3) force you to have sex? These 3 sexual abuse items were combined into a cumulative measure of “any sexual abuse” if a respondent affirmatively answered 1 or more of the items.

Experiencing SOCE was measured by an item created by the survey team: “Did you ever receive treatment from someone who tried to change your sexual orientation (such as try to make you straight/heterosexual)?” Response options were: no; yes, from a health care professional (such as a psychologist or counselor who was not religious focused); and yes, from a religious leader (such as a pastor, religious counselor, priest). Because respondents could report

**TABLE 1—Sociodemographic Characteristics of Individuals, by Experiencing Sexual Orientation Change Efforts (SOCE), Counts, and Weighted Proportions: Probability Sample of Sexual Minorities, United States, 2016–2018**

	Overall Sample (n = 1518), No. (%; SE) or Mean ±SE	Experienced SOCE		P
		No (n = 1410), No. (%; SE) or Mean ±SE	Yes (n = 108), No. (%; SE) or Mean ±SE	
<b>Gender identity</b>				
Woman	750 (55.0; 0.016)	708 (94.3; 0.011)	42 (5.7; 0.011)	.15
Man	674 (37.6; 0.015)	616 (91.2; 0.014)	58 (8.8; 0.014)	
Nonbinary or genderqueer	94 (7.4; 0.009)	86 (94.2; 0.022)	8 (5.8; 0.022)	
<b>Sexual identity</b>				
Lesbian/gay	833 (46.9; 0.016)	757 (89.9; 0.014)	76 (10.1; 0.014)	.01
Bisexual	493 (40.6; 0.016)	476 (96.3; 0.011)	17 (3.7; 0.011)	
Other sexual identity	181 (12.5; 0.010)	166 (94.3; 0.018)	15 (5.7; 0.018)	
<b>Racial/ethnic identity</b>				
White	931 (59.5; 0.016)	871 (94.2; 0.010)	60 (5.8; 0.010)	.14
Black/African American	180 (13.5; 0.011)	162 (88.6; 0.029)	18 (11.3; 0.029)	
Latino/a	158 (10.8; 0.010)	145 (91.7; 0.027)	13 (8.3; 0.027)	
Other racial/ethnic identity	249 (16.2; 0.011)	232 (94.0; 0.019)	17 (6.0; 0.019)	
<b>Educational attainment</b>				
More than a college degree	288 (9.6; 0.006)	260 (90.6; 0.018)	28 (9.4; 0.018)	.08
College degree	429 (16.0; 0.009)	403 (95.5; 0.016)	26 (4.5; 0.016)	
Some college	492 (31.9; 0.014)	464 (94.5; 0.011)	28 (5.5; 0.011)	
High school diploma or less	309 (42.5; 0.017)	283 (91.8; 0.009)	26 (8.2; 0.009)	
Age, y	30.9 ± 0.37	30.7 ± 0.38	32.7 ± 1.43	.19

Note. Percentages and means were weighted. Sample size was n = 1518.

experiencing both forms of SOCE, answers were combined in a single category of having experienced SOCE by either or both sources.

Suicide morbidity was captured with several measures adapted from the Army Study to Assess Risk and Resilience in Service Members instrument,<sup>27</sup> which was adapted from the Columbia Suicide Severity Rating Scale (C-SSRS).<sup>28</sup> These measures included suicidal ideation (i.e., “Did you ever in your life have thoughts of killing yourself?”), having made a plan for suicide (i.e., “Did you ever think about how you might kill yourself [e.g., taking pills, shooting yourself] or work out a plan of how to kill yourself?”), and attempted suicide (“Did you ever make a suicide attempt [i.e., purposefully hurt yourself with at least some intention to die]?”). Individuals who reported at least 1 previous suicide attempt were then asked, “What were the most serious injuries you ever received from a suicide attempt?” Then C-SSRS has 6 different categories of injury severity, but because of low frequencies in some categories, we combined information from these 2 items to create a 3-category suicide attempt variable: no attempt; attempt with no or minor injury (e.g., surface scratches, mild nausea, sprain, first-degree burns, flesh wound); and attempt with moderate or severe injuries (e.g., broken bones, second- or third-degree burns, stitches, bullet wound, major fracture, coma requiring respirator, or surgery).

## **Analyses**

We summarized demographics for the overall sample using descriptive statistics. We examined ACEs as 8 dichotomous categories (yes or no) and in a count of ACEs endorsed by the respondents. We tested differences in sociodemographics, ACEs, and suicide morbidity between respondents who had experienced SOCE and respondents who did not experience SOCE. To better understand the relation between ACEs and experiencing SOCE, we used multiple logistic regression to assess the association of exposure to SOCE with ACEs after adjusting for demographics.

To investigate the independent associations of ACEs and SOCE with suicidal ideation, suicide planning, and suicide attempt, we first conducted separate multiple logistic regression models including covariates and ACEs followed by second models that added experiencing SOCE. For the 3-category variable of suicide attempt, we conducted multinomial logistic regression analyses, with “no attempts” set as the reference category; we followed the same method of having the first model include covariates and ACEs followed by a second model that added experiencing SOCE. We conducted all analyses using Stata/SE version 15 (StataCorp, College Station, TX). We weighted analyses to account for the complex sampling design and nonresponse. We reported all point estimates with 95% confidence intervals and assessed statistical significance at a P level of less than .05. All reported means and percentages are weighted.

## **RESULTS**

Of the 1518 participants, 55% identified as women, more identified as lesbian or gay than bisexual (46.9% vs 40.6%, respectively), and about 60% identified as White (Table 1). Among men and women, sex assigned as birth was 100% concordant; for nonbinary individuals, 67.3% reported being assigned female sex at birth and 32.7% indicated being assigned male sex at birth

(data not shown). Across the sample, 6.9% ( $n = 108$ ) experienced SOCE from any source; of them, 80.8% reported SOCE from a religious leader, and 31.0% reported SOCE from a health care provider. Individuals with gay or lesbian identities were more likely to report experiencing SOCE than bisexually identified respondents or respondents with other sexual minority identities (e.g., queer, pan-sexual). The prevalence of experiencing SOCE did not significantly differ across the age cohorts of Generations: 6.2% among those aged 18 to 25 years, 8.3% among those aged 34 to 41 years, and 7.8% among those aged 52 to 59 years ( $P = .43$ ; data not shown).

Participants had an average of 3 ACEs, and odds of experiencing SOCE were significantly greater among people who as children lived with a parent or another adult who was depressed, mentally ill, or suicidal; lived in a household with parental intimate partner violence; or reported emotional, physical, or sexual abuse (Table 2) than among their counterparts. When ACEs were counted, there was a significant 25% increased odds of reporting SOCE experiences with each additional ACE experienced.

Sexual minorities who experienced SOCE had greater prevalence of all measures of suicide morbidity relative to sexual minorities without SOCE experiences (Table 3). Results of regression models with only ACEs and not SOCE and then with both ACEs and SOCE showed little change in estimates, and interaction tests of ACEs and SOCE were not significant (data not shown). Therefore, results of the full models are shown in Table 4. In the adjusted models, ACEs were positively associated with all measures of suicide morbidity. Compared with not experiencing SOCE, experiencing SOCE was associated with twice the odds of lifetime suicidal ideation, 75% increased odds of planning to attempt suicide, 88% increased odds of attempting suicide resulting in no or minor injury, and 67% increased odds of suicide attempt resulting in moderate or severe injury (the last did not reach statistical significance at  $P < .05$ ).

## **DISCUSSION**

We found that about 7% of sexual minorities experienced SOCE. This compares with 17% reported by a previous study from the Multisite AIDS Cohort Study.<sup>29</sup> But that study is not directly comparable because its sample included men who have sex with men, was not representative of the US population, and had a mean age of 61.5 years, which is older than our sample. A study using a nonprobability sample of transgender and gender nonbinary individuals in the United States found that about 10% reported experiences of SOCE.<sup>30</sup> To our knowledge, our study is the first to publish data on SOCE in a nationally representative sample of non-transgender sexual minorities in the United States.

We found that sexual minorities who experienced ACEs were more likely to have experienced SOCE than were sexual minorities who did not experience ACEs. Even after adjustment for exposure to ACEs, which are known risk factors for mental health problems and suicide morbidity, experiencing SOCE was independently associated with suicidal ideation, suicide planning, and suicide attempts. We did not find a significant relation between experiencing SOCE and suicide attempt with moderate or severe injury, but it is noteworthy that the odds ratio estimate was in the same direction and of similar magnitude as the other significant

associations. The relatively small sample may have hampered statistical power for the rare outcome of suicide attempts resulting in moderate or severe injury.

**TABLE 2—Prevalence and Adjusted Association of Adverse Childhood Experiences (ACEs) With Experiencing Sexual Orientation Change Efforts (SOCE), Counts, Weighted Proportions, and AORs: Probability Sample of Sexual Minorities, United States, 2016–2018**

ACEs	Experienced SOCE		P	Multivariable, <sup>a</sup> AOR (95% CI)
	No, No. (%; SE) or Mean ±SE	Yes, No. (%; SE) or Mean ±SE		
<b>Household substance use</b>				
No	771 (94.4; 0.010)	48 (5.6; 0.010)	.11	1 (Ref)
Yes	639 (91.8; 0.013)	60 (8.2; 0.013)		1.56 (0.92, 2.65)
<b>Parental separation or divorce</b>				
No	928 (93.6; 0.009)	72 (6.4; 0.009)	.45	1 (Ref)
Yes	482 (92.3; 0.015)	36 (7.7; 0.015)		1.38 (0.83, 2.30)
<b>Parental mental illness</b>				
No	789 (94.0; 0.010)	50 (6.0; 0.010)	.23	1 (Ref)
Yes	621 (92.1; 0.013)	58 (7.9; 0.013)		1.76 (1.05, 2.94)
<b>Incarcerated household member</b>				
No	1218 (93.3; 0.009)	90 (6.7; 0.009)	.59	1 (Ref)
Yes	192 (92.1; 0.023)	18 (7.9; 0.023)		1.17 (0.57, 2.39)
<b>Parental partner violence</b>				
No	960 (94.5; 0.009)	62 (5.5; 0.009)	.02	1 (Ref)
Yes	450 (90.5; 0.016)	46 (9.5; 0.016)		1.86 (1.13, 3.05)
<b>Emotional abuse</b>				
No	478 (96.1; 0.011)	22 (3.9; 0.011)	.01	1 (Ref)
Yes	932 (91.9; 0.011)	86 (8.1; 0.011)		2.48 (1.31, 4.70)
<b>Physical abuse</b>				
No	870 (94.7; 0.009)	49 (5.3; 0.009)	.02	1 (Ref)
Yes	540 (90.9; 0.014)	59 (9.1; 0.014)		1.87 (1.11, 3.13)
<b>Sexual abuse</b>				
No	907 (95.4; 0.008)	47 (4.6; 0.008)	<.001	1 (Ref)
Yes	503 (89.1; 0.017)	61 (10.9; 0.017)		2.95 (1.75, 5.00)
<b>No. of ACEs</b>	<b>3.3 ±0.07</b>	<b>4.2 ±0.31</b>	<b>.01</b>	<b>1.25 (1.10, 1.42)</b>

Note. AOR = adjusted odds ratio; CI = confidence interval. Percentages and means are weighted. Sample size was n = 1518.

<sup>a</sup>All multivariable models were weighted and adjusted for age, gender identity, sexual identity, education, and race/ethnicity.

To date, the mental health harms of SOCE have been documented primarily via qualitative inquiry.<sup>6–8</sup> Our study adds to previous anecdotal findings with quantitative evidence showing the association between SOCE and suicide morbidity. The results of this study suggest that SOCE is a stressor with particularly insidious associations with suicide risk. The SOCE associations may be explained with the construct of perceived burdensomeness of the interpersonal theory of suicide,<sup>31</sup> which has been associated with suicide morbidity among sexual minorities.<sup>32</sup> Further research into this area may investigate the specific constructs and mechanisms (e.g., enacted



stigma, internalized stigma, identity concealment) that could incite perceived burdensomeness and create the risk of suicidal thoughts and behaviors among survivors of SOCE.

**TABLE 3—Prevalence of Suicide Morbidity, by Experiencing Sexual Orientation Change Efforts (SOCE), Counts, and Weighted Proportions: Probability Sample of Sexual Minorities, United States, 2016–2018**

Lifetime Suicide Morbidity	Experienced SOCE		<i>P</i>
	No, No. (%; SE)	Yes, No. (%; SE)	
Suicidal ideation	967 (73.4, 0.014)	90 (84.0, 0.042)	.04
Made a suicide plan	763 (58.7, 0.016)	74 (71.7, 0.054)	.03
Attempted suicide			
No	1087 (73.8, 0.015)	65 (59.6, 0.060)	.02
Yes, no injury or minor injury	172 (13.4, 0.012)	23 (24.6, 0.053)	
Yes, moderate or severe injury	151 (12.8, 0.012)	20 (15.7, 0.042)	

*Note.* Percentages were weighted. Sample size was  $n = 1518$ .

Limited evidence exists to guide clinical practice with individuals who have experienced SOCE. Many people participate in SOCE to conform to social expectations of family, culture, and religion.<sup>6</sup> Yet SOCE are ineffective and may compound or create problems, such as depression, guilt, intimacy avoidance,<sup>5–8</sup> and, as we have shown here, suicidal ideation and suicide attempts. Cognitive behavioral therapy may help resolve these outcomes by addressing the detrimental effects of minority stressors,<sup>18</sup> including the effects of SOCE. However, best practices for affirming care with sexual minorities who experienced SOCE are largely uncharted.

Health care and social service providers working with sexual minorities with histories of or active suicidal thoughts and suicide at-tempts should be aware that cumulative trauma assessments should include a history of SOCE experiences, which may have amplified internalized stigma. To better understand the impacts of SOCE as a unique minority stressor for sexual minorities, population health surveys that include items about stressful life experiences should also include items to assess experiences of SOCE.

### Study Limitations

The Generations study team developed the SOCE measure, and although it seems straightforward, no evidence of the measure’s validity and reliability exists at this time. Additionally, people who experienced SOCE may continue to have negative feelings about their same-sex sexual orientation and may be more likely than others to hide their sexual minority identity; thus, our study recruitment method may have underrepresented SOCE exposure among sexual minorities.

**TABLE 4—Associations of ACEs and Experiencing Sexual Orientation Change Efforts (SOCE) With Suicide Morbidity, AORs: Probability Sample of Sexual Minorities, United States, 2016–2018**

	Suicide attempt <sup>a</sup>			
	Suicidal Ideation (n = 1489), AOR (95%CI)	Suicide Planning (n = 1480), AOR (95%CI)	Suicide Attempt With No/Minor Injury (n = 1507), AOR (95%CI)	Suicide Attempt With Moderate/Severe Injury (n = 1507), AOR (95%CI)
Experienced SOCE	1.92 (1.01, 3.64)	1.75 (1.01, 3.06)	1.88 (1.01, 3.50)	1.67 (0.76, 3.64)
No. of ACEs	1.28 (1.17, 1.39)	1.27 (1.19, 1.37)	1.27 (1.17, 1.39)	1.38 (1.25, 1.52)
Age, y	0.97 (0.96, 0.98)	0.98 (0.97, 0.99)	0.99 (0.97, 1.00)	0.99 (0.97, 1.00)
Gender identity				
Female (Ref)	1	1	1	1
Male	1.06 (0.77, 1.45)	0.86 (0.64, 1.15)	1.19 (0.78, 1.82)	0.46 (0.28, 0.78)
Nonbinary/genderqueer	3.32 (1.32, 8.35)	2.22 (1.08, 4.56)	0.98 (0.35, 2.74)	1.70 (0.83, 3.50)
Sexual identity				
Gay/lesbian (Ref)	1	1	1	1
Bisexual	1.34 (0.93, 1.92)	1.16 (0.83, 1.61)	1.12 (0.69, 1.82)	1.53 (0.94, 2.49)
Other sexual minority	2.19 (1.27, 3.79)	1.87 (1.13, 3.09)	1.55 (0.74, 3.25)	0.96 (0.47, 1.96)
Race/ethnic identity				
White (Ref)	1	1	1	1
Black/African American	0.55 (0.35, 0.85)	0.65 (0.43, 0.99)	1.43 (0.85, 2.39)	0.54 (0.26, 1.12)
Latino/a	0.55 (0.34, 0.89)	0.70 (0.45, 1.10)	1.02 (0.53, 1.98)	0.59 (0.26, 1.31)
Other racial/ethnic identity	0.93 (0.59, 1.48)	1.22 (0.81, 1.82)	0.85 (0.50, 1.44)	1.12 (0.68, 1.85)
Educational attainment				
Postgraduate (Ref)	1	1	1	1
College degree	1.01 (0.70, 1.46)	0.88 (0.62, 1.25)	1.53 (0.86, 2.73)	0.84 (0.45, 1.56)
Some college	0.90 (0.61, 1.33)	1.08 (0.75, 1.54)	1.56 (0.89, 2.73)	1.21 (0.68, 2.15)
High school diploma or less	1.02 (0.65, 1.60)	0.91 (0.60, 1.37)	1.54 (0.83, 2.84)	0.97 (0.51, 1.84)

Note. ACE = adverse childhood experience; AOR = adjusted odds ratio; CI = confidence interval. All multivariable models were weighted. Sample size was n = 1518.

<sup>a</sup>Estimated with multinomial logit model (no suicide attempts as reference category).

Our measure of SOCE is limited in that it does not differentiate among the diverse experiences SOCE people may have had. Despite the strong associations of SOCE, further research is necessary to understand variability in SOCE experiences. For instance, our survey item broadly captured SOCE, but we are unable to determine if SOCE were received from a practitioner who solely focused on SOCE (e.g., conversion camps) or arose in the context of a generalized discussion with a mental health profession or religious leader. Thus, we cannot discern differential impact of various experiences of SOCE.

Similarly, our measure did not allow us to accurately time SOCE experiences as they related to ACEs exposure. To probe causal relationships, future survey items ought to attend to issues of the timing of ACEs and SOCE (e.g., age of first and last experiences) and the type and dosage of these stressful exposures (e.g., number of experiences). Other methodological limitations include that ACEs may be prone to recall bias, likely resulting in underestimates of the phenomena.<sup>33</sup> Additionally, other childhood adversities may not be captured in the ACEs inventory (e.g., community safety) that may be associated with SOCE or suicidal ideation or attempt. Last, data about mental health care utilization other than SOCE were not available, so we could not examine the relationship of non-SOCE mental health treatments, ACEs, and suicidality.

Other limitations include that because of their low base rates in the US population, our methodology did not allow us to recruit sufficient numbers of Asian and American Indian/Alaska Native sexual minorities to facilitate analyses of these groups. Our survey completion rate is lower than that of the 2017 Behavioral Risk Factor Surveillance System (BRFSS) survey (63.8%), but this may be because our comprehensive self-administered survey may be more demanding for respondents than the BRFSS interviewer-administered phone modality.<sup>34</sup>

### **Public Health Implications**

Major professional medical and health services organizations condemn the practice of SOCE.<sup>11-13</sup> However, to date, 32 US states have no laws protecting minors from SOCE, and existing laws do not apply to adults or SOCE administered through religious leaders.<sup>14</sup> This religious exemption is particularly concerning because among the sexual minorities in this sample who experienced SOCE, 4 of 5 people received it from a religious provider. The landscape regarding legality of banning SOCE continues to evolve,<sup>35</sup> and despite both the lack of scientific evidence to uphold SOCE and the documented harm it can do, sexual minority people continue to be at risk for exposure to SOCE. Greater awareness of the harms of SOCE need to be conveyed to the general public, especially in areas that may have a greater prevalence of professionals who engage in SOCE.

### **CONTRIBUTORS**

J. R. Blosnich conducted the analyses. J. R. Blosnich and I. H. Meyer conceptualized the study. All authors contributed to writing and reviewing article drafts.

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### **CONFLICTS OF INTEREST**

The authors have no conflicts of interest to disclose.

## **HUMAN PARTICIPANT PROTECTION**

Approval was received for this study by the institutional review boards of the University of California, Los Angeles and the University of Pittsburgh.

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