

# Pervasive Trauma Exposure Among US Sexual Orientation Minority Adults and Risk of Posttraumatic Stress Disorder

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Sexual orientation disparities in exposure to violence over the life course are well documented.<sup>1–10</sup> Individuals with minority sexual orientation (e.g., gay, lesbian, bisexual) report elevated frequency, severity, and persistence of physical and sexual abuse in childhood.<sup>1,3,4</sup>

Throughout their lives, sexual orientation minorities are more likely to experience violence in their communities, including hate crimes.<sup>5,10–12</sup> Intimate partner violence and sexual assault in adulthood are also disproportionately prevalent among sexual orientation minorities.<sup>3,9</sup> It is unknown whether sexual orientation disparities also exist in exposure to other types of potentially traumatic events.

Despite the growing recognition of sexual orientation disparities in violence exposure, population-representative research examining possible sexual orientation differences in risk of posttraumatic stress disorder (PTSD) is very limited. PTSD is a mental disorder that develops in response to exposure to a potentially traumatic event, including violence (e.g., childhood abuse, sexual assault) or other negative life experiences (e.g., disasters, accidents). The disorder is characterized by persistent re-experiencing of the event, persistent avoidance of stimuli associated with the event, emotional numbing, and hyperarousal. For PTSD diagnosis according to *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* criteria, symptoms must be present for at least 1 month and result in functional impairment.<sup>13</sup>

The public health consequences of PTSD are staggering and include secondary mental disorders, substance dependence,<sup>14,15</sup> impaired role functioning, health problems,<sup>16–18</sup> and reduced life course opportunities (e.g., higher rates of unemployment).<sup>19</sup> The lack of data on PTSD among sexual orientation minorities is a critical gap because, of all civilian traumas, interpersonal violence is associated with the highest conditional risk of developing PTSD.<sup>20,21</sup> We

**Objectives.** We assessed sexual orientation disparities in exposure to violence and other potentially traumatic events and onset of posttraumatic stress disorder (PTSD) in a representative US sample.

**Methods.** We used data from 34 653 noninstitutionalized adult US residents from the 2004 to 2005 wave of the National Epidemiologic Survey on Alcohol and Related Conditions.

**Results.** Lesbians and gay men, bisexuals, and heterosexuals who reported any same-sex sexual partners over their lifetime had greater risk of childhood maltreatment, interpersonal violence, trauma to a close friend or relative, and unexpected death of someone close than did heterosexuals with no same-sex attractions or partners. Risk of onset of PTSD was higher among lesbians and gays (adjusted odds ratio [AOR]=2.03; 95% confidence interval [CI]=1.34, 3.06), bisexuals (AOR=2.13; 95% CI=1.38, 3.29), and heterosexuals with any same-sex partners (AOR=2.06; 95% CI=1.54, 2.74) than it was among the heterosexual reference group. This higher risk was largely accounted for by sexual orientation minorities' greater exposure to violence, exposure to more potentially traumatic events, and earlier age of trauma exposure.

**Conclusions.** Profound sexual orientation disparities exist in risk of PTSD and in violence exposure, beginning in childhood. Our findings suggest there is an urgent need for public health interventions aimed at preventing violence against individuals with minority sexual orientations and providing follow-up care to cope with the sequelae of violent victimization. (*Am J Public Health.* 2010;100:2433–2441. doi:10.2105/AJPH.2009.168971)

examined sexual orientation disparities in exposure to violence and other potentially traumatic events and in risk of PTSD in a US representative sample.

Previous studies have found elevated rates of PTSD among sexual orientation minorities in comparison with heterosexuals.<sup>6,10,22,23</sup> However, our understanding of the burden of PTSD in this vulnerable population is constrained by 3 limitations of extant research. First, as far as we know, only 1 study compared rates of PTSD across sexual orientation groups in a nationally representative sample.<sup>23</sup> Several studies relied on convenience samples; selection factors in such samples could bias observed associations among sexual orientation, violence exposure, and PTSD. Second, the only study of sexual orientation and PTSD in a nationally representative sample categorized members into a sexual

orientation group solely by reports of the gender of their sexual partners. Other dimensions of sexual orientation, such as sexual orientation identity and feelings of sexual attraction, which have been shown to be important correlates of physical and mental health,<sup>24,25</sup> were not measured. Third, no previous study attempted to link possible sexual orientation disparities in PTSD directly to elevated risk of exposure to violence and other traumatic events in the minority sexual orientation population. Type of potentially traumatic event exposure—particularly elevated rates of exposure to violence, exposure to multiple events, and younger age at exposure—are all important determinants of PTSD<sup>20,21,26–28</sup> that may account for the disparities in PTSD by sexual orientation.

We designed our study to document the public health burden of potentially traumatic

event exposure and PTSD in US residents with minority sexual orientations. We analyzed data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), a large, nationally representative survey of US adults.<sup>29</sup> Respondents were asked to report on 3 dimensions of sexual orientation: identity (i.e., heterosexual, gay, lesbian, or bisexual), same-sex and opposite-sex attractions, and same-sex and opposite-sex sexual partners. We also investigated the causes of observed disparities in PTSD by analyzing NESARC's detailed information on type of traumatic events and age at first exposure. These are therefore the most comprehensive data reported to date, derived from a nationally representative sample and aimed at quantifying disparities in potentially traumatic events and associated PTSD by sexual orientation.

## METHODS

We analyzed data from Wave 2 (2004–2005) of NESARC, a nationally representative survey of 34 653 adult US residents (86.7% response rate). NESARC used a 3-stage, nested sampling design to obtain a representative sample of the civilian, noninstitutionalized population aged 18 years and older residing in the United States.<sup>29</sup> At Wave 2, respondents were aged 20 years or older; respondents aged 90 years or older were top-coded as age 90 years.

## Measures

*Violence, potentially traumatic events, and posttraumatic stress disorder.* The National Institute on Alcohol Abuse and Alcoholism's Alcohol Use Disorder and Associated Disabilities Interview Schedule from the *DSM-IV*<sup>30</sup> was administered through computer-assisted, face-to-face interviews in respondents' homes by trained US Census Bureau workers<sup>31,32</sup> to assess lifetime experience of violence, other traumatic events, and PTSD. Participants were asked about 27 specific types of potentially traumatic events. We excluded 1 event, indirect exposure to a terrorist attack through watching TV or listening to the radio, from our analysis because its status as a PTSD-level event is controversial. We grouped the potentially traumatic events into 6 major categories for subsequent analyses<sup>33,34</sup>: childhood maltreatment (3 items), interpersonal violence (6 items),

war-related traumas (4 items), other injury or shocking event (7 items), learning of a trauma to a close friend or relative (5 items), and learning of an unexpected death (1 item).

Age at first exposure to violence or maltreatment in childhood was the earliest age the respondent reported for any of the 6 interpersonal violence or 3 childhood maltreatment events, if younger than 18 years. Sexual orientation differences in these childhood experiences are important to assess because these events carry a high risk for PTSD<sup>14</sup>; thus our findings could better identify developmental periods in which public health interventions are needed and could inform clinicians treating children and adolescents.

Each respondent who reported any traumatic event was asked to identify his or her worst event. We diagnosed PTSD resulting from this event based on reported symptoms according to *DSM-IV* criteria.<sup>13</sup> This required that respondents with a worst trauma confirm experiencing each of 6 conditions: (1) extreme feelings of fear, helplessness, or horror during the event; (2) at least 1 persistent reexperiencing symptom; (3) 3 avoidance or emotional numbness symptoms; (4) 2 hyperarousal symptoms; (5) symptoms lasting more than 1 month; and (6) functional impairment resulting from these symptoms.

*Sexual orientation.* Sexual orientation was assessed after the questions about traumatic events and PTSD through items regarding 3 dimensions: identity, attraction, and sex of sexual partners. Respondents chose the sexual orientation identity category that best described them: heterosexual, gay or lesbian, bisexual, or not sure. Respondents were also asked about their feelings of sexual attraction: only attracted to females, mostly attracted to females, equally attracted to males and females, mostly attracted to males, and only attracted to males. Finally, respondents were asked about the sex of their lifetime sexual partners: whether they had had sex with only males, only females, both, or had never had sex.

We classified individuals into 5 categories of sexual orientation, primarily by their sexual orientation identity (heterosexual, lesbian/gay, bisexual). We prioritized sexual orientation identity because studies suggest it is more strongly related to mental health and victimization than is attraction or behavior.<sup>35–38</sup> We

further classified the heterosexual category into 3 subgroups based on sexual attraction and sexual partners: heterosexual with no same-sex attraction or partners (reference group), heterosexual with same-sex attraction but no same-sex partners, and heterosexual with same-sex partners. Subdividing lesbian–gay and bisexual groups according to attraction and sexual partners was not possible because of small sample size.

We excluded from our analysis 170 respondents (0.49%) who were unsure of their sexual orientation identity and 415 respondents (1.20%) who did not respond to 1 of the sexual orientation questions. Compared with the analytic sample, excluded respondents were somewhat older (mean age=53.3 years; SE=1.06 versus mean age=48.1 years; SE=0.17), were more likely to be women (60.1% versus 52.0%;  $P=.007$ ), and had lower educational attainment ( $P<.001$ ), but did not differ in race/ethnicity. With regard to exposure to potentially traumatic events and conditional risk of PTSD, respondents who reported being unsure of their sexual orientation were largely similar to heterosexuals with no same-sex attraction or partners. Many respondents with missing sexual orientation information were also missing data on traumatic events and PTSD; therefore, it was not possible to determine whether these outcomes differed from those of the heterosexuals with no same-sex attraction or partners.

*Mediators.* We considered 3 potential mediators of the association between sexual orientation and PTSD. Worst trauma type was determined according to the 6 categories we delineated from the interview questions. Age at worst trauma was divided into 4 categories: 11 years or younger, 12 to 17 years, 18 to 29 years, and 30 years or older. The third mediator was the number of potentially traumatic event types respondents reported experiencing prior to their worst trauma. Total number of previous potentially traumatic events could not be assessed from NESARC data.

*Demographic covariates.* Following a US Census Bureau algorithm, NESARC classified respondents by self-report of their racial/ethnic origin to 1 race/ethnicity in the following preferential order: Hispanic, non-Hispanic Black, non-Hispanic American Indian/Native Alaskan, non-Hispanic Native Hawaiian/Pacific Islander, non-Hispanic Asian, and non-Hispanic

White.<sup>39</sup> Educational attainment was categorized as less than high school diploma, high school diploma, some college, and college degree or higher. Categories for age at interview were 20 to 29 years, 30 to 39 years, 40 to 49 years, 50 to 59 years, and 60 years or older.

### Analyses

To investigate whether individuals with minority sexual orientation were at greater risk of exposure to violence and other potentially traumatic events than were heterosexuals with no same-sex attractions or sexual partners, we examined with the  $\chi^2$  test lifetime exposure to the 6 categories of events, lifetime exposure to specific events, and differences in violence exposure or maltreatment when younger than 18 years, by sexual orientation stratified by gender. Next, to test whether our proposed mediators differed by sexual orientation, we compared with the Wald test mean age at worst trauma and mean number of event types prior to worst trauma. Finally, to take into account the different ages of the respondents and to adjust for potential confounders, we conducted 7 discrete time survival analyses by sexual orientation, with age at first occurrence of any event and each of the 6 major types of events as the outcomes. Respondents who did not report events were censored at age at interview. Each model adjusted for gender, race/ethnicity, age at interview, and educational attainment. In models where gender-by-sexual orientation interaction terms were significant, we reported results stratified by gender.

To examine whether individuals with minority sexual orientation were more likely to develop PTSD following potentially traumatic event exposure, we compared lifetime prevalence of PTSD among individuals exposed to an event, by sexual orientation stratified by gender. Next, to adjust for potential confounders and test for potential mediators, we constructed 3 logistic regression models estimating the odds of onset of PTSD among respondents exposed to a potentially traumatic event. In the base model, we looked at sexual orientation as the main predictor, adjusting for gender, race/ethnicity, age at interview, and educational attainment. In model 2, we included the potential mediator of worst trauma type to see whether differences in type of event experienced accounted for differences in odds of

PTSD among sexual orientation groups. In model 3, we added 2 more potential mediators, age at worst trauma, and number of event types prior to worst trauma. Because gender-by-sexual orientation interaction terms were not significant, we combined men and women in these models.

All analyses were conducted with SUDAAN software<sup>40</sup> to account for the nested sampling design of the NESARC study, which may have resulted in correlated responses, and to weight the data so that it reflected the US population.<sup>29</sup>

## RESULTS

The lifetime prevalence of potentially traumatic event exposure (80.5% of women; 81.1% of men) and PTSD (10.4% of women; 4.3% of men) was consistent with that found in other epidemiologic studies that used *DSM-IV* criteria.<sup>28,41</sup> The prevalence of sexual orientation groups was, for men, 93.9% heterosexual with no same-sex attractions or sexual partners, 1.8% heterosexual with same-sex attraction only, 2.4% heterosexual with same-sex partners, 1.1% gay, 0.4% bisexual; for women, 92.0% heterosexual with no same-sex attractions or partners, 4.6% heterosexual with same-sex attraction only, 1.5% heterosexual with same-sex partners, 0.7% lesbian, and 0.8% bisexual.

### Prevalence of Exposure to Potentially Traumatic Events by Gender

Table 1 presents lifetime exposure to each of the 6 trauma event categories and individual events among women by sexual orientation. Lesbians, bisexual women, and heterosexual women with same-sex partners reported higher prevalence of childhood maltreatment, interpersonal violence, other injury or shocking event, and learning of trauma to a close friend or relative than did heterosexual women with no same-sex attraction or partners. The prevalence of childhood maltreatment in lesbians (27.6%) and bisexual women (30.5%) was roughly twice that in the reference group (13.1%).

Even more striking were the results for interpersonal violence. Heterosexual women with same-sex partners, lesbians, and bisexual women had significantly higher prevalence of nearly every kind of interpersonal violence than did the reference group, with the majority

of lesbians (60.2%) and bisexual women (54.1%) reporting at least 1 experience of interpersonal violence; only 26.6% of the reference group had such experiences. Lesbians (44.0%) and bisexual women (47.3%) also reported higher rates of unwanted sex than did the reference group (13.4%).

Figure 1 shows that childhood exposure to maltreatment or interpersonal violence was significantly more prevalent among heterosexual women with same-sex partners (40.9%), lesbians (49.2%), and bisexuals (51.2%) than it was among the reference group (21.2%). Heterosexual women with same-sex attraction had higher prevalence of war-related events but lower prevalence of any trauma, learning of trauma to a close friend or relative, and unexpected death of someone close than did the reference group.

Table 2 presents lifetime exposure to each of the 6 trauma event categories and individual events among men by sexual orientation. Gay men and heterosexual men with same-sex partners reported significantly higher prevalence of interpersonal violence and learning of a trauma to a close friend or relative than did the reference group. Experiencing unwanted sex was considerably more common among heterosexual men with any lifetime male sexual partners (12.7%), gay men (18.0%), and bisexual men (12.0%) than among the reference group (2.2%). Gay men, compared with the reference group, also had significantly elevated rates of almost every type of interpersonal violence, including domestic violence (11.5% versus 2.0%), being beaten up (20.7% versus 11.7%), being mugged (27.5% versus 16.2%), and being stalked (8.1% versus 2.6%). Heterosexual men with same-sex attraction had prevalence similar to the reference group for each of the 6 major categories of potentially traumatic events. Figure 1 shows that childhood exposure to violence or maltreatment was also higher among gay men (31.5%) and heterosexual men with same-sex partners (27.9%) than it was among the reference group (19.8%).

### Characteristics of Event Exposure as Mediators of Posttraumatic Stress Disorder

Age at worst trauma was significantly younger among heterosexuals with same-sex

**TABLE 1—Prevalence of Posttraumatic Stress Disorder (PTSD) and Potentially Traumatic Event Exposure Among Women (N = 19 717), by Sexual Orientation: United States, 2004–2005**

	Heterosexual				
	No Same-Sex Attraction or Sexual Partners (n = 18144), % (SE)	Same-Sex Attraction Only (n = 953), % (SE)	Same-Sex Sexual Partners (n = 314), % (SE)	Lesbian (n = 145), % (SE)	Bisexual (n = 161), % (SE)
PTSD prevalence among women exposed to a potentially traumatic event	12.50 (0.39)	11.62 (1.35)	22.78** (3.13)	18.04 (4.07)	25.68** (4.66)
Any potentially traumatic event	80.48 (0.65)	76.79* (1.67)	87.42** (2.98)	88.92** (2.65)	86.25 (3.03)
Childhood maltreatment	13.07 (0.35)	13.91 (1.38)	19.55* (2.73)	27.64** (4.83)	30.52** (4.07)
Physical abuse	3.81 (0.18)	3.53 (0.61)	6.44 (1.63)	11.27 (4.13)	11.11** (2.55)
Neglect	3.26 (0.16)	3.26 (0.75)	6.51 (1.68)	12.36* (4.13)	8.72* (2.28)
Witness to domestic violence	10.90 (0.33)	10.85 (1.26)	14.34 (2.05)	22.01* (4.80)	25.44** (4.07)
Interpersonal violence	26.36 (0.51)	28.35 (1.82)	46.30*** (3.46)	60.21*** (4.98)	54.06*** (4.38)
Unwanted sex	13.41 (0.42)	15.89 (1.53)	29.57*** (3.21)	43.98*** (4.92)	47.26*** (4.67)
Victim of domestic violence	9.44 (0.29)	9.62 (1.20)	23.81*** (3.02)	16.10 (3.82)	20.17** (3.60)
Attacked/beaten up	3.46 (0.17)	4.51 (0.80)	12.88*** (2.18)	10.37* (2.90)	20.73*** (3.96)
Kidnapped	0.93 (0.08)	0.48* (0.21)	3.53* (1.12)	3.14 (1.56)	2.90 (1.47)
Stalked	7.62 (0.29)	8.67 (1.08)	18.37*** (2.64)	14.21 (4.84)	16.64** (3.11)
Mugged	7.27 (0.28)	8.21 (1.14)	16.91*** (2.32)	13.65* (3.09)	17.41* (3.81)
Other injury or shocking event	43.89 (0.59)	46.83 (2.23)	61.12*** (2.98)	57.43** (4.55)	54.89* (4.47)
Serious or life-threatening accident	11.55 (0.35)	14.79* (1.61)	23.35*** (2.81)	15.94 (4.00)	17.01 (3.80)
Serious or life-threatening illness	16.41 (0.39)	17.76 (1.56)	25.05* (3.48)	22.44 (4.53)	12.90 (2.78)
Natural disaster	13.44 (0.61)	15.29 (1.68)	21.87** (2.79)	10.41 (2.87)	16.83 (3.15)
Terrorist attack <sup>a</sup>	0.60 (0.09)	0.50 (0.29)	1.11 (0.74)	0.24 (0.24)	1.36 (0.98)
Saw someone injured/killed/discovered a dead body	16.13 (0.38)	14.10 (1.42)	29.20*** (3.12)	29.39** (4.57)	30.76** (4.30)
War-related trauma	2.29 (0.19)	3.68* (0.67)	7.91** (1.91)	3.97 (1.77)	0.89 (0.89)
Learned of trauma to close friend or relative	55.12 (0.76)	48.58** (2.41)	62.12* (3.42)	65.42* (4.52)	64.62* (4.16)
Close friend or relative experienced serious or life-threatening accident or injury	49.50 (0.78)	43.62* (2.45)	55.26 (3.48)	61.10* (4.74)	61.09* (4.27)
Close friend or relative experienced terrorist attack <sup>a</sup>	4.92 (0.42)	4.81 (0.91)	6.22 (1.70)	7.12 (2.20)	4.84 (1.94)
Close friend or relative experienced other stressful or traumatic experience	14.77 (0.36)	12.45 (1.37)	23.15** (2.84)	16.95 (4.14)	27.90** (3.99)
Learned of unexpected death	42.52 (0.74)	35.02 (2.07) <sup>b</sup>	45.79 (3.45)	52.98 (5.10)	49.97 (4.76)

<sup>a</sup>Determined by 3 questions in interview.

\* $P < .05$ ; \*\* $P < .01$ ; \*\*\* $P < .001$ ; for statistically significant difference in prevalence of potentially traumatic event from reference group, heterosexuals with no same-sex attraction or sexual partners, by the  $\chi^2$  test.

partners (mean = 29.0 years; SE = 0.8), gays and lesbians (mean = 26.5 years; SE = 0.9), and bisexuals (mean = 24.0 years; SE = 1.1) than it was among the reference group (mean = 31.6 years; SE = 0.2), but significantly older in heterosexuals with same-sex attractions only (mean = 35.9 years; SE = 0.8).

We also observed sexual orientation disparities in number of event types prior to worst trauma. Heterosexuals with same-sex partners (mean = 1.8; SE = 0.10) and gay men and lesbians (mean = 1.9; SE = 0.10) reported

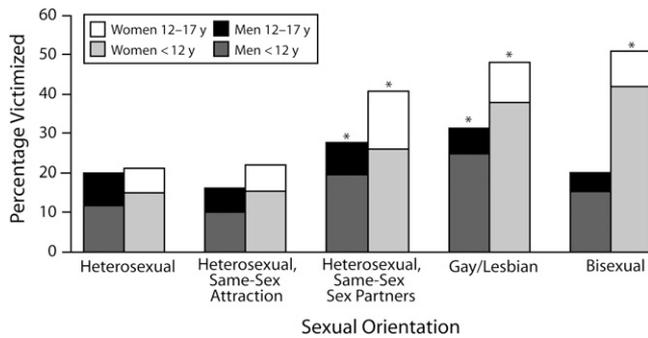
significantly higher numbers of previous event types than did the reference group (mean = 1.3; SE = 0.01). Heterosexuals with same-sex attraction only (mean = 1.4; SE = 0.07) did not differ significantly from the reference group.

### Multivariate Analyses for Potentially Traumatic Events

In discrete time survival models for any potentially traumatic event and the 6 categories of events that adjusted for gender, race/ethnicity, age at interview, and educational

attainment, heterosexuals with same-sex partners, gay men and lesbians, and bisexuals had significantly higher risk of exposure to any event, childhood maltreatment, and trauma to a close friend or relative than did the reference group.

Sexual orientation disparities were substantial for both childhood maltreatment and interpersonal violence. Gay men, lesbians, and bisexuals had more than twice the risk of childhood maltreatment (gay men and lesbians, adjusted odds ratio [AOR] = 2.18; 95%



Note. The sample size was N=34068.

\* $P < .05$ ; for statistically significant difference from heterosexual, by the  $\chi^2$  test.

**FIGURE 1—Childhood maltreatment or interpersonal violence, by sexual orientation, gender, and age at first occurrence: United States, 2004–2005.**

confidence interval [CI]=1.59, 2.99; bisexuals, AOR=2.16; 95% CI=1.59, 2.93) than did the reference group. Risk of interpersonal violence was significantly higher than it was in the reference groups for all female sexual orientation minority groups (heterosexual women with same-sex attraction, AOR=1.24; 95% CI=1.06, 1.46; heterosexual women with same-sex partners, AOR=1.93; 95% CI=1.57, 2.37; lesbians, AOR=2.80; 95% CI=2.12, 3.70; bisexual women, AOR=2.56; 95% CI=1.96, 3.34), gay men (AOR=2.29; 95% CI=1.79, 2.94), and heterosexual men with same-sex partners (AOR=1.51; 95% CI=1.22, 1.88).

Only heterosexuals with same-sex attractions did not have higher risk of childhood maltreatment and had significantly lower risk of other injury or shocking event (AOR=0.92; 95% CI=0.85, 0.99) and unexpected death of someone close (AOR=0.84; 95% CI=0.75, 0.95).

### Multivariate Analyses for Posttraumatic Stress Disorder

Among individuals exposed to a potentially traumatic event, heterosexual men and women with same-sex partners, bisexual women, and gay men had approximately twice the lifetime risk of PTSD as did the reference group (Tables 1 and 2). Table 3 presents the AORs for developing PTSD among people exposed to an event. In a model adjusting for gender, race/ethnicity, education, and age at interview (model 1), heterosexuals with same-sex partners (AOR=2.06; 95% CI=1.54, 2.74), lesbians

and gay men (AOR=2.03; 95% CI=1.34, 3.06), and bisexuals (AOR=2.13; 95% CI=1.38, 3.29) had greater odds of developing PTSD than did heterosexuals without same-sex attraction or partners.

Adding worst event type to the model attenuated but did not fully explain this relationship (model 2). Adding age at worst event and number of trauma types prior to worst trauma further attenuated the relationship between sexual orientation and PTSD risk to nonsignificance for bisexuals and lesbians and gay men (model 3). However, in the full model the odds were still significantly higher for heterosexuals with same-sex partners (AOR=1.59; 95% CI=1.16, 2.18) than for the reference group.

### DISCUSSION

Ours is the first analysis of national population-based data to document the link between sexual orientation disparities in exposure to multiple types of violence and other potentially traumatic events, and the increased risk of PTSD among sexual orientation minorities compared with heterosexuals without same-sex attraction or partners. Our key findings are that (1) lesbians, gay men, bisexuals, and heterosexuals with same-sex sexual partners—but not heterosexuals with same-sex attraction only—had significantly elevated risk of exposure to nearly every event type except war-related traumas; (2) sexual orientation disparities in event exposure were greatest for childhood maltreatment and interpersonal violence; (3)

lesbians and gay men, bisexuals, and heterosexuals with same-sex partners experienced their worst event at a younger age; (4) the 2 types of trauma for which sexual orientation minorities were most differentially at risk (interpersonal violence and childhood abuse or neglect) were also most strongly associated with PTSD onset of all the trauma types; and (5) sexual orientation disparities in PTSD were almost completely accounted for by differential traumatic event exposure, including type, age at worst event, and number of event types prior to the worst event.

The sexual orientation disparities in violence exposure were striking. In these data, gay men, lesbians, and bisexual women were twice as likely as were the heterosexual reference group to be exposed to violence. Some proportion of the increased risk of violence exposure among sexual orientation minorities may involve bias or hate crimes, although the NESARC data did not allow us to examine the motivations of perpetrators of violence against sexual orientation minority participants. According to the Federal Bureau of Investigation's 2002 report on crime in the United States, 16.4% of all single-bias hate crimes were motivated by prejudice against the victim's sexual orientation,<sup>42</sup> and 32% of gay men, lesbians, and bisexuals reported having been personally targeted for violence against their person or property because of their sexual orientation in a recent US study.<sup>43</sup> Sexual orientation disparities in violence exposure are likely 1 manifestation of the larger problem of discrimination and bias against sexual minorities in the United States.

In addition to antigay hate (or bias) crimes, we posit 5 other mechanisms by which sexual orientation minorities could experience high rates of victimization and PTSD. First, sexual minorities may be more likely to exhibit behaviors that do not conform to gender expectations, beginning in early childhood.<sup>44</sup> Such behaviors have consistently been found to be associated with increased risk of victimization and rejection as well as poorer physical and mental health.<sup>22,45–53</sup> Thus, such nonconformist behavior may partly account for the high prevalence of maltreatment and interpersonal violence before age 12 years among sexual orientation minorities in our sample. Second, sexual minorities may experience social isolation

**TABLE 2—Prevalence of Posttraumatic Stress Disorder (PTSD) and Potentially Traumatic Event Exposure Among Men (N = 14 351), by Sexual Orientation: United States, 2004–2005**

	Heterosexual				
	No Same-Sex Attraction or Sexual Partners (n = 13422), % (SE)	Same-Sex Attraction Only (n = 293), % (SE)	Same-Sex Sexual Partners (n = 365), % (SE)	Gay (n = 190), % (SE)	Bisexual (n = 81), % (SE)
PTSD prevalence among men exposed to a potentially traumatic event	5.03 (0.23)	7.04 (1.77)	10.13* (2.07)	13.38** (2.82)	9.00 (4.26)
Any potentially traumatic event	80.84 (0.61)	83.68 (2.53)	88.43*** (2.03)	85.20 (3.30)	75.61 (6.50)
Childhood maltreatment	10.76 (0.36)	10.47 (2.01)	14.98 (2.20)	18.26 (3.75)	12.15 (4.05)
Physical abuse	2.95 (0.17)	1.33* (0.63)	4.92 (1.24)	5.26 (1.88)	8.70 (3.67)
Neglect	2.51 (0.17)	3.69 (1.30)	2.99 (0.92)	11.56* (3.24)	6.20 (3.21)
Witness to domestic violence	8.76 (0.32)	7.53 (1.72)	12.61 (2.01)	11.42 (2.80)	9.16 (3.52)
Interpersonal violence	24.95 (0.48)	20.97 (2.81)	33.98** (2.77)	50.69*** (4.00)	31.05 (3.69)
Unwanted sex	2.23 (1.17)	2.91 (1.06)	12.71*** (2.00)	17.95*** (3.36)	12.04* (4.04)
Victim of domestic violence	2.00 (0.15)	1.53 (0.79)	3.97 (1.06)	11.52** (3.00)	0
Attacked/beaten up	11.73 (0.35)	10.39 (2.38)	16.64 (2.48)	20.70* (3.61)	10.42 (3.40)
Kidnapped	0.67 (0.08)	0	0.81 (0.43)	2.92 (2.11)	1.08 (1.08)
Stalked	2.55 (0.16)	2.33 (0.99)	6.03* (1.50)	8.12* (2.30)	5.15 (3.44)
Mugged	16.21 (0.48)	11.57* (1.77)	19.36 (2.27)	27.47** (3.77)	20.71 (4.94)
Other injury or shocking event	56.27 (0.65)	61.42 (3.72)	60.30 (3.20)	63.33 (4.60)	54.16 (6.46)
Serious or life-threatening accident	21.72 (0.46)	18.70 (2.58)	22.12 (2.71)	20.10 (3.25)	22.40 (4.81)
Serious or life-threatening illness	17.05 (0.50)	22.73* (2.53)	22.69 (2.94)	25.66 (4.89)	33.15** (5.79)
Natural disaster	18.04 (0.70)	16.25 (2.30)	18.21 (2.50)	20.40 (4.29)	8.77* (3.69)
Terrorist attack <sup>a</sup>	1.25 (0.14)	1.41 (0.88)	2.02 (0.84)	4.51 (1.83)	0
Saw someone injured/killed/discovered a dead body	32.45 (0.63)	34.28 (3.19)	34.74 (3.05)	23.96* (3.66)	33.07 (6.03)
War-related trauma	13.13 (0.40)	16.72 (3.02)	11.33 (1.77)	5.76** (1.84)	8.35 (3.10)
Learned of trauma to close friend or relative	49.51 (0.70)	47.01 (3.20)	59.52** (3.27)	71.73*** (4.50)	50.64 (5.92)
Close friend or relative experienced serious or life-threatening accident or injury	43.50 (0.74)	43.37 (3.32)	54.78** (3.33)	60.26** (4.93)	42.74 (5.71)
Close friend or relative experienced terrorist attack <sup>a</sup>	5.57 (0.40)	3.39 (1.16)	6.05 (1.46)	14.17* (3.08)	3.36 (1.72)
Close friend or relative experienced other stressful or traumatic experience	12.71 (0.36)	11.07 (1.97)	15.75 (2.32)	27.04** (4.76)	11.04 (4.07)
Learned of unexpected death	41.21 (0.79)	40.19 (3.62)	48.57* (3.23)	45.69 (4.12)	43.37 (7.09)

<sup>a</sup>Determined by 3 questions in interview.

\* $P < .05$ ; \*\* $P < .01$ ; \*\*\* $P < .001$  (statistically significant difference in prevalence of potentially traumatic event from reference group, heterosexuals with no same-sex attraction or sexual partners, by the  $\chi^2$  test).

and distress if they perceive themselves to belong to a stigmatized group. Internalized stressors stemming from stigma, social isolation, discrimination, and HIV/AIDS may put sexual orientation minorities at higher risk for developing PTSD if exposed to a potentially traumatic event.<sup>54–58</sup>

Third, elevated rates of risk-taking behavior related to social isolation and psychological distress, especially substance use,<sup>35,59</sup> may exacerbate risk for interpersonal violence, other traumatic events, and PTSD. Fourth, fewer

resources to cope with traumatic events, such as lower levels of social support<sup>60–62</sup> and less access to mental health care,<sup>63–65</sup> may lead to higher rates of PTSD once exposed to an event. Finally, childhood traumas may influence how some individuals express their sexual orientation, although no studies to date support this pathway. We were unable to examine these factors in the NESARC data. However, sexual orientation disparities in PTSD were largely accounted for by characteristics of potentially traumatic event exposure, suggesting that event exposure

plays a major role in observed disparities in PTSD.

The finding that heterosexuals with same-sex attraction but not same-sex sexual partners did not have elevated risk of exposure to most events or higher risk of PTSD compared with the reference group is novel, because research on this group is in its infancy. We can speculate that heterosexuals without lifetime same-sex partners may be exposed to lower levels of internal and external stigma than are heterosexuals with same-sex partners, gay men,

**TABLE 3—Logistic Regression Models of Onset of Posttraumatic Stress Disorder Conditional on Exposure to a Potentially Traumatic Event, With Sexual Orientation as the Main Predictor: United States, 2004–2005**

	Model 1, AOR (95% CI)	Model 2, AOR (95% CI)	Model 3, AOR (95% CI)
<b>Sexual orientation</b>			
Heterosexual, no same-sex attraction or sexual partners (Ref)	1.00	1.00	1.00
Heterosexual, same-sex attraction only	1.06 (0.82, 1.38)	0.95 (0.72, 1.26)	0.91 (0.69, 1.20)
Heterosexual, same-sex sexual partners	2.06* (1.54, 2.74)	1.81* (1.35, 2.44)	1.59* (1.16, 2.18)
Lesbian/gay	2.03* (1.34, 3.06)	1.76* (1.13, 2.73)	1.48 (0.95, 2.30)
Bisexual	2.13* (1.38, 3.29)	1.69* (1.08, 2.64)	1.39 (0.86, 2.25)
<b>Worst trauma type</b>			
Learned of trauma to friend or relative (Ref)		1.00	1.00
Learned of unexpected death		1.93* (1.66, 2.23)	1.84* (1.59, 2.13)
War-related		4.54* (3.29, 6.26)	3.45* (2.48, 4.78)
Childhood maltreatment		5.52* (4.27, 7.14)	4.19* (3.20, 5.49)
Interpersonal violence		6.37* (5.43, 7.47)	5.12* (4.33, 6.06)
Injury or shocking event		1.67* (1.43, 1.94)	1.55* (1.33, 1.81)
<b>Age at worst trauma, y</b>			
≤11			2.50* (2.14, 2.91)
12–17			2.03* (1.69, 2.45)
18–29			1.51* (1.31, 1.75)
≥30 (Ref)			1.00
No. of trauma types prior to worst trauma			1.35* (1.32, 1.38)

Note. AOR = adjusted odds ratio; CI = confidence interval. All models adjusted for gender, race/ethnicity, age at interview, and educational attainment.

\* $P < .05$  (statistically significant difference in prevalence of potentially traumatic event from reference group, heterosexuals with no same-sex attraction or sexual partners, by the  $t$  test).

lesbians, and bisexuals,<sup>66</sup> and therefore may be less likely to be targeted in bias crimes, may engage in fewer risk-taking behaviors, and may have better social support and access to mental health care.

Our findings should be interpreted in the context of 3 limitations. First, we relied on retrospective reporting of event exposure, age of event exposure, and PTSD symptoms, which may have resulted in lower prevalence estimates of events and illness than would repeated contemporaneous reporting<sup>67,68</sup> and may have attenuated true associations.<sup>69</sup> Second, reporting bias may have inflated our findings if willingness to report a stigmatized sexual orientation on a survey was associated with greater willingness to report other stigmatizing information (e.g., history of violence victimization).<sup>4</sup> Third, conducting multiple tests of statistical significance may have led to results that were statistically significant by chance.<sup>70,71</sup>

Although the majority of individuals with a minority sexual orientation are mentally healthy, medical professionals need to be aware that a high percentage of patients with minority sexual orientation may have been victims of interpersonal violence and may benefit from follow-up care to cope with the sequelae of violent victimization. Adolescents' health care providers should also note that adolescents who identify as lesbian, gay, bisexual, or who report same-sex sexual partners may have histories of abuse, neglect, or violent victimization and may require additional services or intervention if their exposure to violence or child abuse is ongoing. ■

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A. L. Roberts, S. B. Austin, H. L. Corliss, and K. C. Koenen contributed to designing the analytic approach, data analysis and interpretation, and drafting and revising the article. A. K. Vandermorris contributed to review of relevant literature and to drafting and revising the article. K. C. Koenen originated the study.

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Because this study used de-identified data, no protocol approval was needed.

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