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Sexual Minority Specific and Related Traumatic Experiences are Associated with Increased Risk for Smoking Among Gay and Bisexual Men

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Abstract

Objective—Our study examined the hypothesis that sexual minority specific stress and trauma histories may explain some of the risk for smoking among gay/bisexual men.

Methods—Patients at a Boston community health center were invited to complete a 25-item questionnaire assessing demographics, general health, trauma history, and substance use. Of the 3,103 who responded, 1309 identified as male and gay or bisexual (82.8% White and mean age of 38.55 [sd = 9.76]).

Results—A multinomial logistic regression with current and former smoking status as the outcome (never smoked as referent group) and covariates of age, education, employment, HIV status, and race, showed that the number of sexual minority stressors/traumas were significantly related to the odds of both current and former smoking. In comparison to participants with no trauma history, those who reported 1, 2, 3, and 4 traumas had respectively 1.70 (OR=1.70: 95% CI: 1.24-2.34), 2.19 (OR=2.19: 95% CI: 1.48-3.23), 2.88 (OR=2.88: 95% CI: 1.71-4.85), and 6.94 (OR=6.94: 95% CI: 2.62-18.38) the odds of identifying as a current smoker. Adjusted logistic regression analysis revealed a significant dose effect of number of sexual minority stressors/traumas with odds of ever smoking. Experiencing intimate partner violence, anti-gay verbal attack, anti-gay physical attack, and childhood sexual abuse were each independently associated with increased odds of the smoking outcomes.

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Conclusion—A sexual minority specific trauma history may represent a vulnerability for smoking among gay/bisexual men. Interventions that address trauma may enhance the efficacy of smoking cessation programs and improve the mental health of gay/bisexual men.

Keywords

sexual minority; trauma; smoking; gay; men

Researchers found that among gay and bisexual men 48% currently smoked (1, 2) and 71% had a smoking history (3) and the driving forces behind the high smoking prevalence in gay and bisexual men may be partially explained by sexual minority stress and trauma histories. A Sexual Minority Stress Model, proposed by Meyer (4), posits that common environmental factors interact with sexual minority status and sexual minority identity to contribute to general stress, distal minority stress processes (e.g., prejudice events, including discrimination and violence) and proximal stress processes (e.g., fear of rejection and internalized homophobia) which, together, contribute to mental health outcomes such as increased substance abuse. Better understanding of the empirical link between smoking and sexual minority stress and traumas among gay and bisexual men, has clear implications for target outcomes in smoking cessation treatment and potential major health benefits for this population.

Rates of reported traumas (e.g., sexual and physical abuse, and intimate partner violence) are high among gay, bisexual, and other men who have sex with men (MSM) (5-7). For instance, a meta-analysis of 12 studies by Lloyd and Operario (5) found that 27.3% of MSM in a total sample of 15,622 reported a history of childhood sexual abuse. In addition, MSM experience intimate partner violence at a high rate (15-39% estimated prevalence rates of physical assault) (8). To further compound the high rates of physical and sexual abuse histories among MSMs, they are often verbally and physically attacked due to their sexual minority status (9, 10). Individuals who have stressful experiences and resulting psychological distress, but limited adaptive coping resources may engage in maladaptive coping strategies such as smoking (11-13).

MSM are the single largest risk group of HIV-positive Americans (14) and the prevalence of tobacco use among HIV-positive persons has been estimated at between 50 and 70% (15-18). At the intersection of smoking and HIV, gay and bisexual men may well find themselves with a distinct vulnerability and at a substantial health disadvantage. Tobacco use has been implicated in myriad negative health outcomes among HIV-positive smokers including increased risk of respiratory diseases, medication nonadherence, decreased effectiveness of HIV medication, virologic failure, and accelerated disease progression (19-22). Being HIV positive may also increase gay and bisexual men's risk for exposure to violence due to HIV related stigma (23) as well as their decisions to remain in abusive intimate relationships because of fear of being alone or getting sick (8, 24).

In sum, gay/bisexual men report high rates of smoking and experience sexual minority specific stress as well as other traumas (e.g., intimate partner violence) that may increase their vulnerability to smoking. In addition, smoking has negative consequences for their overall health and perhaps even greater consequences for those who are HIV-positive. The

present study investigated whether sexual minority stress and traumas are factors that may account for the high rates of smoking among gay/bisexual men and hypothesized that sexual minority stress/traumas would be associated with increased risk for smoking. The study also explored whether HIV status moderated the relations between sexual minority stress/traumas and smoking.

Method

Setting and Population

Participants were patients receiving care at a large, community-based health clinic in Massachusetts that focuses on serving sexual minorities. The sociodemographic characteristics of the subsample we analyzed (male-identified and sexual minority) are shown in Table 1. Transgender men were not a part of this subsample because the survey did not capture information distinguishing whether clients identified as transgender men or women. The sample was predominantly White, although 16.7% of patients included identified as racial/ethnic minorities.

Procedures

As part of ongoing patient surveys, all clinic patients who attended visits during a 12-month period are offered an opportunity at intake to complete a 25-item survey. A total of 3,103 patients completed the survey out of the 10,549 individuals who were listed as clinic patients. Study protocol was reviewed by the health center's Institutional Review Board and exempted from IRB oversight, as the analysis was restricted to secondary data analysis in a de-identified data set.

Measures

Sexual minority identity—Participants were invited to identify as heterosexual, gay, bisexual, or “not sure/undecided,” or other. All heterosexual identified participants were excluded from analyses.

Socio-demographics—Socio-demographic variables included age, race/ethnicity, education level, employment status, and income.

HIV Status—Participants had the option to select HIV-negative, HIV-positive, unknown/never tested, or prefer not to say.

Tobacco use—Participants were presented with the question, “In your lifetime, and in the past six months, have you used tobacco?” Three variables were created from participant responses: current smokers (0=not current, 1=current), which comprised all participants who indicated smoking within the past 6 months, former smokers (0=not former, 1=current), participants who indicated only lifetime smoking and excluding participants who endorsed current smoking, and ever smokers (0=never, 1=ever), consisting of all participants who reported ever smoking during their lifetime or the past six months. For analyses, current smokers and former smokers formed a multinomial variable using never smokers as the referent group.

Sexual minority stressors and trauma—To capture sexual minority stress, participants were asked: “Have any of the following happened to you because you are lesbian/gay/bisexual/transgender?” and, under it, participants had the option of selecting yes to “Physically Attacked” and “Verbally Attacked.” Additionally, to assess for intimate partner violence, participants were asked to indicate if they had ever been “physically or sexually hurt by [their] spouse (or former spouse), a boyfriend/girlfriend, or some other intimate partner.” Childhood sexual abuse was captured with, “Were you ever sexually harmed as a child (under 15 years old)?” Five variables were created from participant responses: physically attacked due to non-heterosexual identity (yes/no), verbally attacked due to non-heterosexual identity (yes/no), intimate partner violence (yes/no), childhood sexual abuse (yes/no), and a categorical variable of the count of all four potentially traumatic events (1, 2, 3, 4 with 0 as reference group).

Statistical Analyses

SPSS version 21.0 was used to analyze the data with binary and multinomial logistic regressions. All analyses were evaluated for significance at an alpha level of .05. Participants' history of sexual minority stressors (i.e., verbal and/or physical attack) and trauma histories were analyzed in relation to ever smoking, current smoking, and former smoking. The analytic sample comprised 1309 gay and bisexual men with available data on most study variables. There was a small amount (range 1% to 4.9%) of missing data on some measures: age (n=13, 1%), intimate partner violence (n=15, 1.1%), anti-gay verbal attack (n=64, 4.9%), anti-gay physical attack (n=64, 4.9%), and childhood sexual abuse (n=25, 1.9%). Participants with missing data were excluded from the applicable analyses using listwise deletion. For those variables with negligible missing values (< 2% missing) listwise deletion was used and follow up comparative analysis was not conducted due to very small sample sizes. Missingness on age, intimate partner violence, and childhood sexual abuse variables were negligible. For those predictor variables with greater than 2% missing (i.e. anti-gay verbal attack and anti-gay physical attack) chi-square analyses were conducted to identify differences on the outcome variables. Chi Square analyses identified no significant differences on demographics (i.e. age, race, employment, and education) or smoking outcomes for participants missing data on anti-gay verbal attack or anti-gay physical attack versus participants with data.

Results

Socio-demographic Characteristics

Of the 3,103 patients who responded (29% response rate of the 10,549 listed patients), 1309 identified as male and gay or bisexual. The sample was predominantly White (82.8%) with a mean age of 38.55 (sd = 9.76). In addition, 21.3% of the men were HIV-positive.

Descriptive Statistics on Smoking and Sexual Minority Stressors and Traumas

Approximately 49.4% of men reported smoking at any time (ever smoking), 27.9% percent reported being current smokers within the last six months, and 21.5% endorsed a history of being former tobacco users, but not current. There was a high prevalence of sexual minority stressors and trauma histories, with 60.1% of participants reporting one or more traumas

(one trauma 32.5%, two traumas 17.3%, three traumas 7.4%, four traumas 2.9%). Of men who experienced trauma 56.9% reported ever smoking, 24.8% endorsed former smoking, and 32.1% reported current smoking. However, for men who did not experience trauma, 38.4% reported ever smoking, 16.6% reported former smoking, and 21.8% endorsed current smoking.

Regression Analyses on the Associations Between Sexual Minority Stressors and Traumas and Smoking

To test whether more sexual minority stressors and traumas related to the likelihood of ever being a smoker, we ran a binary logistic regression analysis adjusting for age, education, employment, HIV status, and race. Covariates were entered in Block 1 and the categorical variable for traumas (0, 1, 2, 3, 4) was entered as a main effect in Block 2. The outcome was ever smoking. Results, presented in Table 2, column 1, revealed a dose effect of number of sexual minority stressors/traumas onto ever smoking. In comparison to those with no trauma history, those who reported 1, 2, 3, and 4 traumas had respectively 1.76 (OR=1.76, $p < .001$, 95% CI: 1.34-2.30), 2.23 (OR=2.23, $p < .001$, 95% CI: 1.60-3.10), 2.58 (OR=2.58, $p < .001$, 95% CI: 1.63-4.09), and 6.90 (OR=6.90, $p < .001$, 95% CI: 2.79-17.07) times the odds of identifying as ever being a smoker.

Further to explore how sexual minority stressors and traumas related to the likelihood of current and former smoking status (never smoking as referent group), we ran a multinomial logistic regression with traumas (0, 1, 2, 3, 4) as the predictor and smoking status as the outcome while adjusting for age, education, employment, HIV status, and race. Results displayed in Table 2 (columns 1 and 2) showed a dose effect of number of sexual minority stressors/traumas onto both current and former smoking. For example, in comparison to participants with no trauma history, those who reported 1, 2, 3, and 4 traumas had respectively 1.70 (OR=1.70, $p < .01$, 95% CI: 1.24-2.34), 2.19 (OR=2.19, $p < .001$, 95% CI: 1.48-3.23), 2.88 (OR=2.88, $p < .001$, 95% CI: 1.71-4.85), and 6.94 (OR=6.94, $p < .01$, 95% CI: 2.62-18.38) times the odds of identifying as a current smoker. This relationship between the number of sexual minority stressors/traumas and the odds of being a current smoker is also depicted in Figure 1.

Regression Analyses on the Associations Between Specific Sexual Minority Stressors and Traumas and Smoking

A binary logistic regression was run to determine which specific traumas were significantly associated with risk of ever smoking. Intimate partner violence, anti-gay verbal attack, anti-gay physical attack, and childhood sexual abuse were entered together as predictors in a binary logistic regression model with ever smoking as the outcome along with covariates of age, education, employment, HIV status, and race. Results indicated that those who experienced an anti-gay verbal attack (OR=1.75, $p < .001$, 95% CI: 1.35-2.27) or childhood sexual abuse (OR=2.17, $p < .001$, 95% CI: 1.50-3.14) had significantly more odds of reporting smoking at any point in their history. Intimate partner violence and anti-gay physical attack were not associated with ever smoking. A multinomial logistic regression (outcomes of former smoking and current smoking with never smoking as the referent group) was also conducted to determine how intimate partner violence, anti-gay verbal

attack, anti-gay physical attack, and childhood sexual abuse entered together as predictors were associated with current smoking and former smoking, while controlling for age, education, employment, HIV status, and race. Intimate partner violence (OR=1.58, $p < .05$, 95% CI: 1.07-2.34), anti-gay verbal attack (OR=1.71, $p < .01$, 95% CI: 1.26-2.31), and childhood sexual abuse (OR=2.02, $p < .01$, 95% CI: 1.33-3.07) were associated with significantly more odds of current smoking and anti-gay verbal attack (OR=1.81, $p < .01$, 95% CI: 1.29-2.54) and childhood sexual abuse (OR=2.39, $p < .001$, 95% CI: 1.53-3.71) were associated with significantly more odds of former smoking. Anti-gay physical attack was not associated with current or former smoking and intimate partner violence was not associated with former smoking.

To determine how each type of trauma was independently related to smoking status separate binary logistic regressions with covariates of age, education, employment, HIV status, and race were run with ever smoking as the outcome and separate multinomial logistic regressions were conducted with current and former smoking as outcomes (categorized as former smoking and current smoking versus never smoking versus). Intimate partner violence, anti-gay verbal attack, anti-gay physical attack, and childhood sexual abuse were entered separately in the binary logistic regression models (with ever smoking as the outcome) and multinomial logistic models (outcomes of former smoking and current smoking with never smoking as the referent group). As displayed in Table 3 results identified that all the specific traumas (intimate partner violence, anti-gay verbal attack, anti-gay physical attack, and childhood sexual abuse) were independently and significantly associated with ever smoking, current smoking, and former smoking. For example, those who experienced an anti-gay verbal attack had significantly more odds of reporting smoking at any point (ever) in their history (OR=1.98, $p < .001$, 95% CI: 1.57-2.51), currently (OR=1.98, $p < .001$, 95% CI: 1.50-2.62), and formerly (OR=1.99, $p < .001$, 95% CI: 1.46-2.70).

HIV Status Moderating the Effects of Sexual Minority Stressors/Traumas on Smoking

An hierarchical binary logistic regression was run to explore whether HIV status moderated the associations between minority stressors/traumas and ever smoking. The regression included covariates of education, age, employment, and race entered in block 1; main effects of minority stressors/traumas and HIV status entered as predictors in block 2; and dummy variables representing the interaction of minority stressors/traumas with HIV status entered in block 3. Findings indicated that the interaction term between HIV status and sexual minority stressors/traumas did not significantly relate to ever smoking (OR= 1.20, $p < .20$, 95% CI: 0.91-1.56). A multinomial logistic regression was also conducted to explore whether HIV status moderated the associations between minority stressors/traumas and current and former smoking (using never smoking as the referent group) and included covariates of education, age, employment, and race. Results showed that HIV status did not significantly moderate the relationships between sexual minority stressors/traumas and current (OR= .70, $p < .74$, 95% CI: .09-5.48) or former smoking (OR= .32, $p < .30$, 95% CI: .04-2.71).

Discussion

This is the first study of which we are aware that examined, and found, that more sexual minority stress and traumas were each associated with a greater likelihood of ever smoking, former smoking, or current smoking in a community health sample of sexual minority men. The relations between tobacco use and sexual minority stressors and traumas suggests that the high smoking rates in this group may be accounted for, at least in part, by the vulnerabilities associated with living as a sexual minority person and the associated stress that entails. It is also possible that sexual minority stress and traumas may exert their influence on smoking through the development of subsequent mental health issues, such as posttraumatic stress or other anxiety disorders. In fact, the co-occurrence of smoking and anxiety disorders is a well-established finding in the literature (25). Our findings provide some additional support for Meyer's Sexual Minority Stress Model (4) and reiterate that sexual minority specific stressors, combined with more general stressors, together place sexual minority men at risk for negative health outcomes such as smoking.

Consistent with previous literature (9), rates of potentially traumatic events (sexual minority specific and other) were high. One or more of these experiences were endorsed by 60.1% of the men in this sub-sample of gay or bisexual identified men. Anti-gay verbal attacks, anti-gay physical attacks, intimate partner violence, and childhood sexual abuse were all independently predictive of current smoking, former smoking, and ever smoking. When specific traumas were analyzed together intimate partner violence, anti-gay verbal attack, and childhood sexual abuse were associated with current smoking and anti-gay verbal attack and childhood sexual abuse were associated with former smoking, however anti-gay physical attack was not associated with current or former smoking and intimate partner violence was not associated with former smoking. Anti-gay verbal attacks are frequent and pervasive discrimination experiences (9) that may be experienced as chronic stressors for some people and, in the absence of protective factors such as social support, may lead to health risk behaviors such as smoking (26, 27).

Intimate partner violence is a proximal vulnerability often consisting of various forms of abuse, including verbal, physical, psychological, and sexual and, thus, may be especially distressing. Gay and bisexual men in abusive relationships may lack the skills or tailored public resources to cope with their distress and, indeed, may turn to smoking as well as the use of other substances. Childhood sexual abuse may be associated with smoking, because although distal the sexual abuse that occurred during childhood may have placed men at risk for smoking earlier in their lives and may continue to exert an influence on current smoking via proximal vulnerabilities, such as intimate partner abuse, since individuals with histories of childhood abuse are more likely to be victimized as adults (29).

Our exploratory analyses on whether HIV status moderated the relations between sexual minority stressors/traumas and smoking did not produce any significant findings, indicating that the relations between sexual stressors/traumas and smoking among gay and bisexual men do not differ based on HIV status. Instead across gay and bisexual men sexual stressors/traumas significantly predicts smoking status irrespective of HIV status.

The present study was limited by a cross-sectional study design. The assessment for trauma and smoking history consisted of a one page self-report measure that may have been subject to the biases associated with self-report methods. Similarly, due to the narratives of abuse among gay and bisexual men in popular culture there may have been the potential for recall bias in self-reported abuse. As this article is based upon a patient administered survey conducted in a primary care community setting, assessments were necessarily brief, and the survey used only one item per area of assessment (e.g., smoking). In addition, no information was available on the severity or chronicity of sexual minority stress and traumas, as well as the frequency and amount of typical tobacco use or length of time as a smoker. It was not possible to compare survey responders with non responders on socio-demographic and study variables as sexual orientation at the time of the survey did not form part of the clinic's patient medical record. As a result it is not possible to affirm with confidence that the survey findings reported here is representative of the larger clinic population of gay and bisexual men. Nonetheless, our findings that sexual minority stress and traumas relate to smoking in a community health sample of gay and bisexual identified men provide important implications for future research and intervention development.

Given the limitations of the current study future research studies are critical for knowledge development. Specifically, studies in larger samples of MSM and with longitudinal study designs are needed to (a) provide greater understanding of the relations among sexual minority stress and smoking over time and (b) explore the pathways by which sexual minority and other traumatic events may lead to smoking. Also, research that examines relevant factors among smokers (e.g., age, years of smoking, packs of cigarettes per day) will help to explicate the associations between sexual minority stress and smoking. With the negative impact of smoking on the overall health of MSM who smoke, research efforts to develop tailored interventions to target both abuse histories and smoking in this population may also be beneficial. Currently no interventions of which we are aware have addressed specifically sexual minority specific stress and traumas together with smoking cessation. Perhaps an intervention that simultaneously addresses sexual minority specific stress as vulnerability for smoking and smoking cessation may have promise for gay and bisexual identified men. Evidence based trauma protocols such as prolonged exposure and cognitive processing therapy could be combined with smoking cessation treatments to address both trauma histories and smoking cessation (30, 31).

Although additional research is warranted and our cross sectional study design prevents causal conclusions, the high rates of abuse and smoking reported among sexual minority men supported by prior studies combined with our findings that sexual minority stress and traumas are significantly associated with smoking among MSM, suggests that at the very least, providers need to be informed of the potential link between sexual minority stressors and smoking and be able to provide gay and bisexual men with strategies for adaptively coping with sexual minority stressors/traumas and smoking cessation. Unfortunately, providers are reporting little training in tobacco cessation efforts and, thus, infrequent engagement with patients around smoking (32) therefore provider interventions may also be needed

In summary, sexual minority stressors and traumas may place sexual minority men at a disadvantage through the negative health consequences of smoking. Although future research studies of larger samples and scope are needed to broaden our understanding of the relations between smoking and sexual minority stressors and traumas. In addition, beyond the scope of the current paper, some of these vulnerabilities (e.g., abuse) along with others (e.g., mental health issues) have been studied and used to explain negative health outcomes in sexual minority samples (33, 34). Smoking cessation intervention efforts in community health samples that take into consideration the proximal (e.g., daily anti-gay verbal attacks) and distal (e.g., abuse history) stressors faced by gay and bisexual men who smoke may reap the benefit of larger treatment effect sizes that traditional cessation programs. Integrated treatment programs that address smoking cessation and the mental health issues related to sexual minority stress will have the additional public health benefit of improving the mental health of gay and bisexual men.

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- We examined if sexual minority stress and trauma may explain the risk for smoking.
- Our sample consisted of gay and bisexual men.
- Sexual minority stressors/traumas related to anytime, current, and former smoking.
- Sexual minority specific trauma history may represent a vulnerability for smoking.

Figure 1.
The relationship between the number of sexual minority stressors and trauma and the odds of identifying as as current smoker with those reporting no trauma as the referent group.

Table 1

Sample Socio-demographic Characteristics

	Whole Sample (n=1309) Mean (SD) or Frequency (%)
Age	38.55 (9.76)
Race/Ethnicity	
Asian	44 (3.4%)
Black/African America	63 (4.8%)
Latino/Hispanic	80 (6.1%)
Native American	7 (.5 %)
White	1084 (82.8%)
Bi-racial	5 (.4%)
Other	19 (1.5%)
Declined	7 (.5%)
Education	
<High School	10 (.8%)
High School/GED	129 (9.9%)
Some College	330 (25.2%)
College Degree	492 (37.6%)
Graduate Degree	342 (26.1%)
Declined	6 (.5%)
Family Income	
<\$20,000	234 (17.9%)
\$20,000-\$34,999	265 (20.2%)
\$35,000-\$49,000	267 (20.4%)
>\$50,000	489 (37.4%)
Declined	54 (4.1%)
Employment Status	
Full-time	870 (66.5%)
Part-time	96 (7.3%)
Unemployed	157 (12.0%)
Retired	18 (1.4%)
Student	101 (7.7%)
Homemaker	3 (.2%)
Other	55 (4.2%)
Declined	9 (.7%)
HIV Status	
HIV-Negative	851 (65%)
HIV-Positive	279 (21.3%)
Unknown	161 (12.3%)

Table 2

Binary logistic regression results of the number of sexual minority stressors and traumas predicting ever smoking status and multinomial logistic results with current and former smoking compared to never smoking

Predictor	Logistic Regression	Multinomial Logistic Regression	
	Any Smoking History OR (CI)	Current Smoking OR (CI)	Former Smoking OR (CI)
Age	1.00 (.98-1.01)	.97 (.96-.99)***	1.02 (1.01-1.04)**
Race	1.92 (1.39-2.65)***	1.51 (1.05-2.16)*	3.08 (1.86-5.13)***
Education	.76 (.67-.87)***	.74 (.64-.86)***	.80 (.68-.94)**
Employment	.89 (.68-1.17)	.98 (.72-1.35)	.82 (.58-1.16)
HIV status	1.05 (.78-1.40)	1.17 (.83-1.65)	.96 (.66-1.38)
1 Stressor/Trauma	1.76 (1.34-2.30)***	1.70 (1.24-2.34)**	1.84 (1.29-2.62)**
2 Stressors/Traumas	2.23 (1.60-3.10)***	2.19 (1.48-3.23)***	2.27 (1.50-3.45)***
3 Stressors/Traumas	2.58 (1.63-4.09)***	2.88 (1.71-4.85)***	2.22 (1.24-3.99)**
4 Stressors/Traumas	6.90 (2.79-17.07)***	6.94 (2.62-18.38)***	6.89 (2.52-18.85)***

Note. OR= Odds ratio. CI= Confidence interval.

^t $p < .10$,

* $p < .05$,

** $p < .01$,

*** $p < .001$.

Table 3

Results of separate binary logistic regressions for specific sexual minority stress and traumas predicting ever smoking (versus never) and separate multinomial logistic results with current and former smoking compared to never smoking

Predictor	Binary Logistic Regression	Multinomial Logistic Regressions	
	Ever Smoking OR (CI)	Current Smoking OR (CI)	Former Smoking OR (CI)
Age	1.00 (.98-1.01)	.97 (.96-.99) **	1.02 (1.01-1.04) ***
Race	1.91 (1.37-2.66) ***	1.51 (1.05-2.19) *	3.02 (1.80-5.10) *
Education	.75 (.66-.85)	.74 (.63-.85) ***	.77 (.66-.91) **
Employment	.85 (.65-1.12)	.94 (.68-1.29)	.79 (.56-1.11)
HIV status	1.12 (.84-1.51)	1.23 (.87-1.74)	1.05 (.73-1.52)
Anti-gay verbal attack	1.98 (1.57-2.51) ***	1.98 (1.50-2.62) ***	1.99 (1.46-2.70) ***
Age	.99 (.98-1.01)	.97 (.96-.99) ***	1.02 (1.00-1.04) *
Race	2.04 (1.47-2.83) ***	1.62 (1.12-2.33) *	3.23 (1.92-5.42) ***
Education	1.70 (1.23-2.35) ***	.74 (.64-.86) ***	.78 (.66-.92) **
Employment	.87 (.66-1.14)	.96 (.70-1.32)	.80 (.57-1.13)
HIV status	1.14 (.85-1.52)	1.25 (.89-1.75)	1.06 (1.74-1.53)
Anti-gay physical attack	1.49 (1.10-2.02) *	1.49 (1.04-2.12) *	1.50 (1.03-2.17) *
Age	1.00 (.99-1.01)	.98 (.96-.99) **	1.02 (1.01-1.04) **
Race	1.93 (1.40-2.65) ***	1.51 (1.06-2.16) *	3.10 (1.87-5.15) ***
Education	.76 (.67-.86) ***	.74 (.64-.86)	.79 (.67-.93) **
Employment	.89 (.68-1.16)	.98 (.71-1.33)	.82 (.58-1.15)
HIV status	1.07 (.80-1.42)	1.19 (.85-1.67)	.98 (.68-1.41)
Intimate partner violence	1.84 (1.33-2.54) ***	2.11 (1.47-3.04) ***	1.52 (1.01-2.29) *
Age	1.00 (.98-1.01)	.97 (.96-.99) **	1.02 (1.01-1.04) **
Race	2.07 (1.50-2.87) ***	1.64 (1.14-2.35) **	3.30 (1.98-5.50) ***
Education	.76 (.67-.86) ***	.74 (.64-.85) ***	.80 (.68-.94) **
Employment	.89 (.80-1.42)	.97 (.71-1.33)	.84 (.60-1.19)
HIV status	1.07 (.80-1.42) **	1.21 (.86-1.70)	.95 (.66-1.38)

Predictor	Binary Logistic Regression	Multinomial Logistic Regressions	
	Ever Smoking OR (CI)	Current Smoking OR (CI)	Former Smoking OR (CI)
Childhood sexual abuse	2.54 (1.80-3.60)***	2.44 (1.66-3.61)***	2.68 (1.77-4.06)***

Note. OR= Odds ratio. CI= Confidence interval.

^t $p < .10$,

* $p < .05$,

** $p < .01$,

*** $p < .001$.