

## Detailed Methodology

### Participants

Our data come from the National Epidemiologic Survey of Alcohol and Related Conditions-III (NESARC-III;  $n=36,309$  non-institutionalized U.S. adults aged  $\geq 18$  years), collected between April 2012 through June 2013; overall response rate was 60.1% (Grant et al., 2015). More information about the NESARC-III methodology can be found elsewhere (Grant et al., 2015). Our sample was restricted to sexual minorities (i.e., lesbian/gay, bisexual, heterosexual-identified but reported same-sex attraction or behavior, and individuals who were unsure of their sexual identity) aged  $\geq 50$  years. To ensure an adequate sample size for subgroup analyses, we excluded respondents who identified as Asian/Native Hawaiian/Pacific Islander ( $n=58$ ), or American Indian/Alaska Native ( $n=23$ ). Our final sample included 1,258 respondents.

### *Sexual Orientation*

Respondents were asked which category best described them: heterosexual (straight), gay/lesbian, bisexual, or not sure. Sexual behavior was assessed with the question, “*In your entire life, have you had sex with only males, only females, both males and females, or have you never had sex?*” Sexual attraction was assessed with the item, “*People are different in their sexual attraction to other people. Which category on the card best describes your feelings (only attracted to females, mostly attracted to females, equally attracted to both sexes, mostly attracted to males, and only attracted to males)?*” Sexual minority status was a composite of sexual identity, attraction, and behavior as described above.

### *Sociodemographic Variables*

These included age (50-64 or  $\geq 65$  years), sex (male or female), race/ethnicity (White non-Hispanic, African American non-Hispanic, or Hispanic), educational attainment (high school degree or less, attending some college but not receiving a degree, or receiving a college degree or higher), urbanicity (urban or rural), geographic region (Northeast, Midwest, South, or West), relationship status (married/cohabitating, widowed, divorced, separated, or never married), and religiosity/spirituality (very important, somewhat important, not very important, or not important at all).

### **Statistical Analysis**

We first examined bivariate associations of age with moderate-to-severe TUD using the `svy: tab` command in Stata to account for the complex sample design features of the NESARC-III, including sampling clusters, sampling strata, and survey weights. We estimated the mean amount of lifetime racial/ethnic and sexual orientation discrimination and social support across the age subgroups. We conducted Rao-Scott tests of significance for each bivariate association involving categorical measures and design-adjusted Wald-F Tests for comparisons of mean values.

We next performed multivariable logistic regression analyses accounting for the NESARC-III sample design. We used the `subpop()` option within Stata's `svy: logit` command to compute appropriate subpopulation estimates with design-adjusted standard errors. We estimated the relationship of lifetime racial/ethnic and sexual orientation discrimination with moderate-to-severe TUD among the overall sample and for each age group (50-64 years and  $\geq 65$  years). We adjusted for the following covariates in these multivariable analyses: age, sex, sexual orientation, race/ethnicity, educational attainment, urbanicity, geographic region, social support scale, relationship status, religiosity/spirituality, stressful life events, any past-year DSM-5 anxiety

disorder, and any past-year DSM-5 mood disorder. We tested the interaction between lifetime racial/ethnic and sexual orientation discrimination and age. Subsequently, we conducted multivariable, age-stratified analyses and omitted age as a covariate. Given the number of models fitted, we evaluated significance at the 0.01 level. We also performed a design-adjusted goodness of fit test for each of our models.

Rates of missing data were small for most individual variables (<5%) except for sexual orientation discrimination (14.5%). To determine if the missing values made a difference in our analyses, we also conducted multiple multivariate hot deck imputation, and then performed a combined analysis of the multiply imputed data sets.

Supplemental Table 1 Creation of the Past-Year Tobacco Use Disorder Indicator

| DSM-5 Tobacco Use Disorder Symptom Criteria <sup>a</sup>   | NESARC-III Survey Items <sup>b,c</sup>   |
|--|--|
| 1. Tobacco is often taken in larger amounts or over a longer period than was intended                      | Ever have period when used tobacco more/longer than intended to  |
| 2. There is a persistent desire or unsuccessful efforts to cut down or control tobacco use                 | More than once unsuccessfully try to stop/cut down on tobacco/nicotine use<br><br>More than once want to stop/cut down on tobacco/nicotine use                           |
| 3. A great deal of time is spent in activities necessary to obtain or use tobacco                          | Ever have period when spent a lot of time using tobacco or nicotine<br><br>Ever have period when spent a lot of time making sure that you had enough tobacco or nicotine |
| 4. Craving, or a strong desire or urge to use tobacco  | Ever have a very strong desire to use tobacco or nicotine<br><br>Ever want to use tobacco or nicotine so badly that you couldn't think of anything else                  |
| 5. Recurrent tobacco use resulting in a failure to fulfill major role obligations at work, school, or home | Ever have job or school problems as a result of tobacco/nicotine use   |

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|--|--|
|  | Continue to use tobacco or nicotine even if causing problems at job or school                                |
|  | Ever have period when tobacco use interfered with taking care of home or family                              |
| 6. Continued tobacco use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of tobacco | Ever have arguments with family or friends because of tobacco or nicotine use                                |
|  | Continue to use tobacco or nicotine even if causing problems with people                                     |
| 7. Important social, occupational, or recreational activities are given up or reduced because of tobacco use.                                    | Ever give up/cut down on activities that were important to you because tobacco use not permitted at activity |
|  | Ever give up/cut down on activities of interest to you because tobacco use not permitted at activity         |
| 8. Recurrent tobacco use in situations in which it is physically hazardous   | More than once use tobacco in a dangerous situation  |
| 9. Tobacco use is continued despite knowledge of having a persistent or recurrent physical or  | Ever continue to use tobacco even though aware it made you nervous/jittery/depressed                         |

psychological problem that is likely to have been caused or exacerbated by tobacco.

Ever continue to use tobacco even though aware it was causing/exacerbating a health problem

10. Tolerance, as defined by either of the following:

Ever had to use much more tobacco than usual to get desired effect

a. A need for markedly increased amounts of tobacco to achieve the desired effect.

b. A markedly diminished effect with continued use of the same amount of tobacco

Ever increase use of tobacco because amount used to use didn't give same effect

11. Withdrawal, as manifested by either of the following:

Did at least 4 withdrawal symptoms happen around the same time in the last 12 months

a. The characteristic withdrawal syndrome for tobacco (Found in Criteria A and B of the criteria set for tobacco withdrawal in the DSM-5 Diagnosis Handbook)

b. Tobacco (or a closely related substance, such as nicotine) is taken to relieve or avoid withdrawal symptoms

Ever use tobacco to avoid nicotine withdrawal symptoms

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*Notes.* <sup>a</sup>Derived from the Diagnostic and Statistical Manual of Mental Disorders 5<sup>th</sup> Edition (DSM-5). <sup>b</sup>Derived from the Alcohol Use Disorder and Associated Disabilities Interview Schedule-5 (AUDADIS-5). <sup>c</sup>Items assessed occurrence within the last 12 months prior to the survey.

Supplemental Table 2 Estimated Distributions of Key Study Measures for Sexual Minority<sup>a</sup> Adults in the NESARC-III by Age Categories, Multiple Imputation Analysis (*n* = #,###)

| Variable   | Age Categories                    |                       |                       |
|--|-----------------------------------|-----------------------|-----------------------|
|  | Age ≥50 Years<br>(Overall Sample) | Age 50-64 Years       | Age ≥65 Years         |
| Categories   | <i>n</i> = 6,290<br>%             | <i>n</i> = 4,055<br>% | <i>n</i> = 2,235<br>% |
| <b>Past-Year Any TUD**</b>                           | 15.8%                             | 19.8%                 | 9.2%                  |
| <b>Past-Year Moderate-to-Severe TUD**</b>            | 8.1%                              | 10.8%                 | 3.6%                  |
| <b>Lifetime Ethnic/racial and Sexual Orientation</b> | 4.4, (0.3)                        | 5.6, (0.4)            | 2.5, (0.3)            |
| <b>Discrimination Scale (0-96) [mean, SE]†</b>       |                                   |                       |                       |
| <b>Sex</b>   |                                   |                       |                       |
| Male   | 47.4%                             | 49.0%                 | 44.8%                 |
| Female   | 52.6%                             | 51.0%                 | 55.2%                 |
| <b>Sexual Orientation**</b>                          |                                   |                       |                       |



|  |       |       |       |
|--|-------|-------|-------|
| Heterosexual-identified with same-sex attraction and/or behavior | 73.9% | 68.6% | 82.4% |
| Lesbian/Gay-identified   | 14.4% | 17.9% | 8.5%  |
| Bisexual-identified  | 5.9%  | 7.6%  | 3.2%  |
| Not sure   | 5.9%  | 5.9%  | 5.9%  |
| <b>Race/Ethnicity**</b>  |       |       |       |
| White  | 80.6% | 76.7% | 86.8% |
| African American   | 10.9% | 13.9% | 6.2%  |
| Hispanic   | 8.5%  | 9.4%  | 7.0%  |
| <b>Educational Attainment**</b>                                  |       |       |       |
| High school degree or less                                       | 37.8% | 32.4% | 46.7% |
| Some college   | 18.7% | 20.7% | 15.6% |
| College degree or higher   | 43.5% | 47.0% | 37.7% |
| <b>Urbanicity</b>  |       |       |       |
| Urban  | 80.7% | 80.8% | 80.5% |
| Rural  | 19.3% | 19.2% | 19.5% |

**Geographic Region**

|           |       |       |       |
|-----------|-------|-------|-------|
| Northeast | 21.6% | 21.0% | 22.5% |
| Midwest   | 19.7% | 20.1% | 19.0% |
| South     | 31.2% | 32.0% | 29.8% |
| West      | 27.6% | 26.9% | 28.7% |

**Social Support Scale (0-36) [mean, SE]**

|             |             |             |
|-------------|-------------|-------------|
| 28.1, (0.2) | 28.2, (0.3) | 28.0, (0.3) |
|-------------|-------------|-------------|

**Relationship Status\*\***

|                    |       |       |       |
|--------------------|-------|-------|-------|
| Married/Cohabiting | 52.0% | 51.5% | 53.0% |
| Widowed            | 11.2% | 4.9%  | 21.6% |
| Divorced           | 17.4% | 19.4% | 14.2% |
| Separated          | 3.8%  | 4.9%  | 2.0%  |
| Never Married      | 15.5% | 19.3% | 9.2%  |

**Religiosity/Spirituality**

|                    |       |       |       |
|--------------------|-------|-------|-------|
| Very important     | 59.7% | 58.6% | 61.5% |
| Somewhat important | 24.7% | 26.0% | 22.5% |
| Not very important | 7.4%  | 6.5%  | 8.9%  |

|  |       |       |       |
|--|-------|-------|-------|
| Not important at all                         | 8.3%  | 9.0%  | 7.1%  |
| <b>Stressful Life Events**</b>               |       |       |       |
| None   | 33.8% | 26.6% | 45.7% |
| 1-2  | 46.0% | 45.7% | 46.3% |
| 3+   | 20.2% | 27.7% | 8.0%  |
| <b>Any Past-Year DSM-5 Anxiety Disorder*</b> |       |       |       |
| No   | 83.6% | 81.2% | 87.5% |
| Yes  | 16.4% | 18.8% | 12.5% |
| <b>Any Past-Year DSM-5 Mood Disorder*</b>    |       |       |       |
| No   | 87.2% | 84.6% | 91.5% |
| Yes  | 12.8% | 15.4% | 8.5%  |

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*Notes.* DSM-5, Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; TUD, Tobacco Use Disorder. <sup>3</sup>Sexual Minorities defined as lesbian/gay-identified, bisexual-identified, heterosexual-identified people with same sex attraction and/or behavior, and individuals who were not sure about their sexual identity.

Rao-Scott Chi-Square Test: \*p<0.01, \*\*p<0.001. Wald F-Test: †p<0.001

Supplemental Table 3 Estimated Multivariable Logistic Regression Models Describing Associations between Ethnic/racial and Sexual Orientation Discrimination and Moderate-to-Severe Tobacco Use Disorder among Sexual Minority Adults, Multiple Imputation Analysis

| <b>Variables</b>  | <b>Model 1</b>          |                 | <b>Model 2</b>         |                 | <b>Model 3</b>       |                 |
|---|-------------------------|-----------------|------------------------|-----------------|----------------------|-----------------|
| <b>Categories</b>   | <b>Age ≥50 Years</b>    |                 | <b>Age 50-64 Years</b> |                 | <b>Age ≥65 Years</b> |                 |
|   | <b>(Overall Sample)</b> |                 |                        |                 |                      |                 |
|   | <i>n</i> = 1,174        |                 | <i>n</i> = 755         |                 | <i>n</i> = 408       |                 |
|   | <b>AOR</b>              | <b>(95% CI)</b> | <b>AOR</b>             | <b>(95% CI)</b> | <b>AOR</b>           | <b>(95% CI)</b> |
| <b>Lifetime Ethnic/racial and Sexual Orientation Discrimination Scale</b> | 1.0                     | (1.0, 1.0)      | 1.0                    | (0.9, 1.0)      | 1.1                  | (1.0, 1.2)*     |
| <b>Age</b>  |                         |                 | --                     | --              | --                   | --              |
| 50-64   | REF                     | REF             | --                     | --              | --                   | --              |
| 65+   |                         |                 | --                     | --              | --                   | --              |
| <b>Sex</b>  |                         |                 |                        |                 |                      |                 |
| Male  | REF                     | REF             | REF                    | REF             | REF                  | REF             |

|  |     |             |     |             |     |             |
|--|-----|-------------|-----|-------------|-----|-------------|
| Female   | 0.8 | (0.5, 1.3)  | 0.9 | (0.5, 1.7)  | 0.3 | (0.1, 1.1)  |
| <b>Sexual Orientation</b>  |     |             |     |             |     |             |
| Heterosexual-identified with<br>same-sex attraction and/or<br>behavior | REF | REF         | REF | REF         | REF | REF         |
| Lesbian/Gay-identified   | 0.8 | (0.3, 2.1)  | 0.8 | (0.3, 2.3)  | 1.9 | (0.3, 10.1) |
| Bisexual-identified  | 1.5 | (0.6, 4.0)  | 1.7 | (0.6, 4.9)  | 1.2 | (0.0, 37.9) |
| Not sure   | 1.5 | (0.6, 4.1)  | 1.7 | (0.6, 5.0)  | 0.5 | (0.1, 2.6)  |
| <b>Race/Ethnicity</b>  |     |             |     |             |     |             |
| White  | REF | REF         | REF | REF         | REF | REF         |
| African American   | 1.7 | (0.9, 3.3)  | 1.5 | (0.3, 1.3)  | 4.1 | (0.6, 29.7) |
| Hispanic   | 0.8 | (0.4, 1.6)  | 0.7 | (0.3, 1.9)  | 0.7 | (0.0, 13.8) |
| <b>Educational Attainment</b>  |     |             |     |             |     |             |
| High school degree or less   | REF | REF         | REF | REF         | REF | REF         |
| Some college   | 0.7 | (0.4, 1.2)  | 0.6 | (0.3, 1.3)  | 0.7 | (0.1, 3.1)  |
| College degree or higher   | 0.2 | (0.1, 0.5)* | 0.2 | (0.1, 0.5)* | 0.3 | (0.1, 1.4)  |

**Urbanicity**

|       |     |            |     |            |     |            |
|-------|-----|------------|-----|------------|-----|------------|
| Urban | REF | REF        | REF | REF        | REF | REF        |
| Rural | 0.7 | (0.3, 1.6) | 0.8 | (0.3, 1.9) | 0.9 | (0.1, 3.1) |

**Geographic Region**

|           |     |            |     |            |     |             |
|-----------|-----|------------|-----|------------|-----|-------------|
| Northeast | REF | REF        | REF | REF        | REF | REF         |
| Midwest   | 1.8 | (0.7,4.7)  | 1.5 | (0.5, 4.5) | 5.2 | (0.7, 38.2) |
| South     | 0.7 | (0.3, 1.7) | 0.6 | (0.2, 1.5) | 2.3 | (0.3, 19.1) |
| West      | 0.9 | (0.3, 2.4) | 0.8 | (0.3, 2.5) | 2.1 | (0.4, 11.2) |

**Social Support Scale**

|     |            |     |            |     |            |
|-----|------------|-----|------------|-----|------------|
| 1.0 | (1.0, 1.0) | 1.0 | (1.0, 1.1) | 1.0 | (0.9, 1.1) |
|-----|------------|-----|------------|-----|------------|

**Relationship Status**

|                    |     |            |     |            |     |             |
|--------------------|-----|------------|-----|------------|-----|-------------|
| Married/Cohabiting | REF | REF        | REF | REF        | REF | REF         |
| Widowed            | 0.6 | (0.2, 1.9) | 1.0 | (0.2, 4.5) | 0.2 | (0.0, 2.5)  |
| Divorced           | 2.0 | (1.1, 3.8) | 2.1 | (1.1, 4.2) | 2.3 | (0.3, 16.2) |
| Separated          | 2.8 | (1.1, 7.1) | 3.5 | (1.3, 9.7) | N/A | N/A         |
| Never Married      | 2.4 | (1.3, 4.5) | 2.7 | (1.4, 5.3) | 2.1 | (0.2, 5.7)  |

**Religiosity/Spirituality**

|                      |     |            |     |            |     |              |
|----------------------|-----|------------|-----|------------|-----|--------------|
| Very important       | REF | REF        | REF | REF        | REF | REF          |
| Somewhat important   | 1.6 | (0.9, 2.9) | 1.3 | (0.6, 2.7) | 2.9 | (0.8, 2.5)   |
| Not very important   | 1.1 | (0.4, 3.1) | 1.1 | (0.4, 3.6) | 1.0 | (0.1, 10.9)  |
| Not important at all | 2.2 | (0.9, 5.4) | 2.1 | (0.7, 5.8) | 2.5 | (0.1., 67.5) |

**Stressful Life Events**

|      |     |             |     |             |     |             |
|------|-----|-------------|-----|-------------|-----|-------------|
| None | REF | REF         | REF | REF         | REF | REF         |
| 1-2  | 1.3 | (0.6, 2.5)  | 1.4 | (0.6, 3.0)  | 1.0 | (0.3, 3.6)  |
| 3+   | 3.8 | (2.0, 7.0)* | 3.5 | (1.8, 6.8)* | 6.6 | (1.1, 40.0) |

**Any Past-Year DSM-5 Anxiety**

**Disorder**

|     |     |            |     |            |     |             |
|-----|-----|------------|-----|------------|-----|-------------|
| No  | REF | REF        | REF | REF        | REF | REF         |
| Yes | 1.8 | (1.0, 3.3) | 1.6 | (0.8, 3.2) | 4.8 | (1.1, 21.3) |

**Any Past-Year DSM-5 Mood**

**Disorder**

|     |     |             |     |             |     |             |
|-----|-----|-------------|-----|-------------|-----|-------------|
| No  | REF | REF         | REF | REF         | REF | REF         |
| Yes | 3.2 | (1.6, 6.2)* | 3.4 | (1.6, 7.0)* | 2.1 | (0.3, 13.6) |

**Goodness of Fit Test**

P<0.001

P<0.001

P<0.001

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*Notes.* DSM-5, Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; TUD, Tobacco Use Disorder. \*P<0.01