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Original article

Repeated Changes in Reported Sexual Orientation Identity Linked to Substance Use Behaviors in Youth

Miles Q. Ott, M.P.H., S.M. [a], David Wypij, Ph.D. [b,c,d], Heather L. Corliss, M.P.H., Ph.D. [d,e,f], Margaret Rosario, Ph.D. [g], Sari L. Reisner, M.A. [h,i], Allegra R. Gordon, M.P.H. [h], and S. Bryn Austin, Sc.D. [d,e,f,h,*]

[a] *Center for Statistical Sciences, Brown University, Providence, Rhode Island*
[b] *Department of Cardiology, Boston Children's Hospital, Boston, Massachusetts*
[c] *Department of Biostatistics, Harvard School of Public Health, Boston, Massachusetts*
[d] *Department of Pediatrics, Harvard Medical School, Boston, Massachusetts*
[e] *Division of Adolescent and Young Adult Medicine, Boston Children's Hospital, Boston, Massachusetts*
[f] *Channing Laboratory, Department of Medicine, Brigham and Women's Hospital, and Harvard Medical School, Boston, Massachusetts*
[g] *City College and Graduate Center, City University of New York, New York, New York*
[h] *Department of Society, Human Development and Health, Harvard School of Public Health, Boston, Massachusetts*
[i] *Fenway Institute, Boston, Massachusetts*

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A B S T R A C T

Purpose: Previous studies have found that sexual minority (e.g., lesbian, gay, bisexual) adolescents are at higher risk of substance use than heterosexuals, but few have examined how changes in sexual orientation over time may relate to substance use. We examined the associations between change in sexual orientation identity and marijuana use, tobacco use, and binge drinking in U.S. youth.
Methods: Prospective data from 10,515 U.S. youth ages 12–27 years in a longitudinal cohort study were analyzed using sexual orientation identity mobility measure M (frequency of change from 0 [no change] to 1 [change at every wave]) in up to five waves of data. Generalized estimating equations were used to estimate substance use risk ratios and 95% confidence intervals; interactions by sex and age group were assessed.
Results: All substance use behaviors varied significantly by sexual orientation. Sexual minorities were at higher risk for all outcomes, excluding binge drinking in males, and mobility score was positively associated with substance use in most cases ($p < .05$). The association between mobility and substance use remained significant after adjusting for current sexual orientation and varied by sex and age for selected substance use behaviors. This association had a higher positive magnitude in females than males and in adolescents than young adults.
Conclusions: In both clinical and research settings it is important to assess history of sexual orientation changes. Changes in reported sexual orientation over time may be as important as current sexual orientation for understanding adolescent substance use risk.

IMPLICATIONS AND CONTRIBUTION

Repeated changes in reported sexual orientation in adolescence and young adulthood is positively associated with substance use, independent of current sexual orientation, and is more pronounced in females than males and in adolescents than young adults. Repeated changes in reported sexual orientation may indicate underlying distress and substance use risk.

Mr. Ott conducted the statistical analyses, contributed to data interpretation, drafted portions of the manuscript, and critically reviewed the manuscript. Dr. Wypij oversaw statistical analyses, contributed to data interpretation, and critically reviewed the manuscript. Dr. Corliss and Dr. Rosario contributed to data interpretation and critically reviewed the manuscript. Mr. Reisner and Ms. Gordon drafted portions of the manuscript and critically reviewed the manuscript. Dr. Austin oversaw statistical analyses, contributed to data interpretation, drafted portions of the manuscript, and critically reviewed the manuscript.
Conflict of interest: None of the authors has a conflict of interest with this manuscript.

* Address correspondence to: S. Bryn Austin, Sc.D., Division of Adolescent and Young Adult Medicine, Children's Hospital, 300 Longwood Ave. Boston, MA 02115.
E-mail address: bryn.austin@childrens.harvard.edu (S.B. Austin).

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Substance use among U.S. adolescents continues to be an area of critical concern [1,2]. Research in the past decade has found disparities in adolescent substance use by sexual orientation, suggesting that sexual minority adolescents (e.g., those who identify as lesbian, gay, or bisexual or who report same-sex attractions and/or relationships) are at disproportionate risk of substance use compared to heterosexual peers [3]. Sexual minority adolescents are more likely than heterosexuals to report smoking tobacco, drinking heavily, misusing prescription drugs, and using marijuana, cocaine, and other illicit drugs, although findings are mixed and differences by subgroup remain under-researched [4–10]. A recent Institute of Medicine report called for redoubled efforts to reduce such disparities through improved research [11], underscoring the urgent need to understand the factors that heighten the vulnerability of sexual minority adolescents.

Most studies of sexual orientation and substance use rely on static assessments of sexual orientation identity that do not incorporate changes in sexual orientation identification over time. Reported sexual identity, attraction, and behavior have been shown to change substantially across adolescence and young adulthood [12–16]. Yet a dearth of research has examined the relationship between reported sexual orientation identity change and health-related behaviors. Even fewer studies have examined whether the effects of reported sexual orientation identity on substance use differ across subgroups of adolescents (e.g., male and female, younger and older adolescents). Prior research has found sexual orientation disparities in substance use to be larger in girls than boys and in younger than older adolescents [4,5].

Changes in sexual orientation identity, like many components of identity development, can be a crucial part of positive transformation and growth during adolescence [17,18]. Yet, in the case of sexual orientation identity, such change can also be destabilizing when stigma and discrimination result in loss of community, family support, and/or social status. Such losses are well-documented in relation to movement toward a sexual minority identity [19,20]. Thus, changes in self-reported sexual orientation may be an indicator of psychological stress, which can heighten risk of maladaptive coping behaviors [21].

The potential links between stress processes and sexual orientation identity change can be considered in several ways. One, greater change in sexual orientation identity may increase exposure to social stressors including antigay or antibisexual prejudice. According to Minority Stress Theory [22,23], these stressors disproportionately affect those with or moving toward sexual minority identities. Two, change in identity for youth moving toward bisexuality or heterosexuality is not inherently stress-free [17,21]. Such change could be associated with loss of sexual minority community, increasing stress, and decreasing access to social or emotional resources [24]. This area remains undertheorized but can be informed by the extensive literature on multiracial identity development, demonstrating that bi/multiracial youth frequently face the monoracial expectations and demands of peers, teachers, and strangers; thus, while being multiracial carries no inherent harm, these social pressures can require additional coping resources on the part of youth [25]. Youth with a sexual orientation identity that is mobile or otherwise does not fit expectations of a fixed sexual identity at one end of the spectrum may similarly be subject to negative social reactions. Moreover, because adolescents have yet to develop the coping resources of adults, they may be particularly vulnerable to such social stressors [26] and thus at elevated risk of engaging in substance use as a coping strategy. Three, identity change may be a proxy for intrapersonal factors, such as underlying psychological distress that may independently drive substance use behaviors.

The primary aim of this study was to describe the associations between substance use and change in self-reported sexual orientation identity, measured as *mobility* and *trajectory*, in a national sample of over 8,000 adolescents. *Mobility* ("M") is used to quantify the occurrence of change in a particular characteristic—in this case, reported sexual orientation identity—within a population over time. *Trajectory* is used to describe the direction of changes in self-reported sexual orientation identity over time. We hypothesized that adolescents with more mobility in reported sexual orientation identity would be more likely to engage in substance use than those with fewer changes in self-reported sexual orientation. We also hypothesized that adolescents who changed their sexual orientation reports in a single direction (either toward heterosexual or toward homosexual) would be more likely to engage in substance use than those who reported the same sexual orientation for each wave. As this is an emerging field and there is scant literature to indicate whether direction of trajectory could be linked with health outcomes, we designed our analysis to estimate effects separately for each category of trajectory. We further hypothesized that youth who changed in a single direction would be less likely to engage in substance use than those who changed their self-reported sexual orientation multiple times and in no clear direction. We also hypothesized that the associations between both measures of mobility and health risk behavior would be of higher magnitude in females versus males and in younger versus older youth.

Methods

Study sample

The Growing Up Today Study (GUTS) is a longitudinal cohort of the children of women participating in the Nurses' Health Study II, a prospective cohort study of over 116,000 female registered nurses. Invitations were sent to mothers in Nurses' Health Study II to enroll their children ages 9 to 14 years into the GUTS cohort. In 1996 the children were sent a questionnaire encompassing a broad range of health topics, which they were asked to return if they wanted to participate in the study. At the beginning of the study 7,843 boys and 9,039 girls throughout the U.S. were enrolled into the GUTS cohort [27]. Participants in the GUTS cohort are 93.3% white, 1.5% Asian, .9% African-American, 1.5% Hispanic, .8% American Indian, and 2.2% of other ethnicity.

GUTS began collecting sexual orientation identity information biennially in 1999. For the present study, adolescent and young adult males and females were included if they reported sexual orientation identity in three or more of five waves of data collection (1999, 2001, 2003, 2005, and 2007). Participants included in analyses ranged in age from 12 (1999 wave) to 27 (2007 wave) years at the time of questionnaire return. The institutional review board at Brigham and Women's Hospital approved the study.