

Anabolic Steroid Misuse Among US Adolescent Boys: Disparities by Sexual Orientation and Race/Ethnicity

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Objectives. To examine the prevalence of anabolic steroid misuse among US adolescent boys as a function of sexual orientation and race/ethnicity.

Methods. We analyzed boys from the 2015 Youth Risk Behavior Survey ($n = 6248$; mean age = 16), a representative sample of US high school students. Lifetime prevalence of anabolic steroid misuse was dichotomized as never versus 1 or more times.

Results. Sexual minority boys reported elevated misuse compared with heterosexual boys, within each level of race/ethnicity. Black, Hispanic, and White sexual minority boys reported misuse at approximately 25%, 20%, and 9%, respectively.

Conclusions. Sexual orientation health disparities in anabolic steroid misuse disproportionately affect Black and Hispanic sexual minority adolescent boys, but more research is needed to understand the mechanisms driving these disparities. (*Am J Public Health*. 2017;107:319–321. doi:10.2105/AJPH.2016.303566)

Anabolic-androgenic steroids (AAS) are illicit drugs commonly used to build muscle and otherwise influence body shape for appearance- and performance-related reasons.¹ Chronic AAS misuse is associated with multisystemic dysfunction,² including, most notably, a 2-fold increase in cardiovascular morbidity and mortality.³ Recent data have indicated substantial health disparities in adolescent AAS misuse as a function of sexual orientation, with the prevalence of lifetime AAS misuse among sexual minority boys estimated at 21%, compared with 4% among heterosexual boys.⁴ Data on racial/ethnic disparities are scarce, although 1 recent nationally representative study found slight elevations of AAS misuse among Hispanic versus non-Hispanic adolescent boys.⁵ However, studies have not yet examined AAS misuse as a function of both sexual orientation and race/ethnicity, and the intersection of multiple minority identities in AAS misuse remains an important gap in the literature.

METHODS

We analyzed data from the 2015 Youth Risk Behavior Survey (YRBS),⁶ a nationally representative survey that examines the prevalence of health risk behaviors among 9th to 12th grade public and private school students ($n = 6248$). Sexual minority status was defined from responses to 2 items: (1) sexual identity and (2) sex of sexual partners, with sexual minorities denoted as participants who reported a nonheterosexual identity or reported sexual relations with a member of their own sex (a common approach in the field).⁷

Lifetime prevalence of AAS misuse was assessed with the following item: “During your life, how many times have you taken steroid pills or shots without a doctor’s prescription?” Responses were rated on a 6-point scale ranging from 0 to 40 or more times. To increase statistical power, responses were

dichotomized as 0 versus 1 or more times. The final sample was 6248 (sexual minority boys = 462; 7.4%).

White participants were defined as those who reported “no” to the Hispanic ethnicity item and marked only “White” to the race item. Similarly, Black participants were defined as those who reported “no” to the Hispanic ethnicity item and marked only “Black” to the race item. Hispanic participants were defined as those who endorsed a Hispanic ethnicity and thus included participants who endorsed only “Hispanic” and those who endorsed a Hispanic ethnicity in addition to a race. Sexual orientation (sexual minority as the referent), race/ethnicity (i.e., dummy-coded Black or Hispanic, with White as the referent), and 2-way interactions of sexual orientation by Black identity and sexual orientation by Hispanic identity were entered as independent variables in a logistic regression model. We used Complex Samples in SPSS version 24 (IBM, Somers, NY) to account for weighting, cluster, and stratification (see National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Division of Adolescent and School Health,⁸ for more details).

RESULTS

A significant main effect of sexual orientation ($F_{1,40} = 93.1$; $P < .001$; odds ratio [OR] = 5.6; 95% confidence interval

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This article was accepted November 7, 2016.

doi: 10.2105/AJPH.2016.303566

TABLE 1—Prevalence of Lifetime Anabolic Steroid Misuse in Adolescent Boys: 2015 Youth Risk Behavior Survey, United States

Sexual Orientation	Race/Ethnicity		
	Non-Hispanic White, % (95% CI)	Non-Hispanic Black, % (95% CI)	Hispanic, % (95% CI)
Heterosexual	3.1 (2.2, 4.2)	2.9 (1.6, 5.4)	2.6 (1.8, 3.7)
Sexual minority	9.3 (4.9, 17.4)	25.3 (15.7, 38.6)	19.5 (10.7, 32.7)

Note. CI = confidence interval. The sample size was $n = 6248$.

[CI] = 3.4, 9.4) was identified, with sexual minorities reporting greater AAS misuse (14.5%; 95% CI = 9.2%, 22.3%) compared with heterosexual boys (2.9%; 95% CI = 2.2%, 3.8%). However, this main effect was qualified by a significant 2-way interaction between sexual orientation and Black identity ($F_{1,40} = 9.4$; $P = .004$). To probe this significant interaction, we used simple slope analyses by exploring sexual orientation differences within each level of race/ethnicity.

Among Black participants, a main effect of sexual orientation was seen ($F_{1,34} = 68.0$; $P < .001$; OR = 11.3; 95% CI = 6.2, 20.6), with sexual minority boys reporting a higher prevalence of AAS misuse compared with heterosexual boys. Among Hispanic participants, a main effect of sexual orientation was seen ($F_{1,38} = 34.5$; $P < .001$; OR = 9.2; 95% CI = 4.3, 19.6), with sexual minority boys reporting a higher prevalence of AAS misuse compared with heterosexual boys. Among White participants, a main effect of sexual orientation was seen ($F_{1,40} = 10.1$; $P = .003$; OR = 3.3; 95% CI = 1.5, 7.0), with sexual minority boys reporting a higher prevalence of AAS misuse compared with heterosexual boys. These results indicate that sexual minority disparities in AAS misuse are more pronounced among Black and Hispanic boys than among White boys (Table 1).

To test racial/ethnic differences within each level of sexual orientation, we used additional simple slope analyses. Among sexual minority participants, a significant main effect of Black identity was seen ($F_{1,37} = 10.0$; $P = .003$; OR = 3.2; 95% CI = 1.5, 7.0), and a marginal effect was seen for Hispanic participants ($F_{1,37} = 3.3$; $P = .07$; OR = 2.3; 95% CI = 0.9, 5.8), with Black and Hispanic sexual minority boys reporting greater AAS misuse compared with

White sexual minority boys. Among heterosexual boys, neither the main effect of Black identity ($F_{1,40} = 0.02$; $P = .87$; OR = 0.9; 95% CI = 0.5, 1.7) nor the main effect of Hispanic identity ($F_{1,40} = 0.62$; $P = .43$; OR = 0.8; 95% CI = 0.5, 1.3) was significant. Results indicate that racial/ethnic disparities in AAS misuse exist only among sexual minority boys. Finally, we conducted sensitivity analyses that controlled for known covariates of AAS misuse (i.e., asthma diagnosis, sports team participation, and self-reported academic achievement); the same pattern of effects from the unadjusted model was found.

DISCUSSION

Across racial/ethnic groups, we found large sexual orientation differences; sexual minority boys reported significantly higher lifetime prevalence of AAS misuse compared with heterosexual boys. Although the prevalence (14.5%) among sexual minorities was lower than that in a past study (21%) that sampled participants in 2005 and 2007,⁴ the odds ratios were relatively equivalent in both studies, suggesting that the downward trend in AAS misuse over time likely does not vary by sexual orientation. We also found substantial sexual orientation health disparities when examining AAS misuse within each race/ethnicity. In all cases, sexual minority boys reported greater odds of misusing AAS. These disparities appear to be particularly concentrated among Black and Hispanic sexual minority boys, with about a quarter of Black and one fifth of Hispanic sexual minorities misusing AAS once or more in their lives. These findings are striking, given that individuals who are both racial/ethnic and sexual minorities typically report less illicit

substance misuse compared with White sexual minorities.⁹

The results from the current study suggest that misuse of AAS may be a common expression of muscularity-oriented body image concerns among Black and Hispanic sexual minority adolescent boys, and clinicians working with sexual minority boys may consider screening for AAS misuse as part of their evaluation process.

The current study had some limitations. Even though we used a large, nationally representative sample, sexual orientation disparities within other racial minorities could not be tested because of small cell sizes. Thus, it is not known if these disparities exist among all sexual minority boys of color. Additionally, the YRBS used a cross-sectional design, precluding the ability to test trajectories of AAS misuse across time.

PUBLIC HEALTH IMPLICATIONS

To date, no known AAS prevention programs targeting sexual minority males are available. Indeed, there is a general paucity of AAS prevention programs for males of any sexual orientation. Prevention programs are needed and may be particularly salient for sexual minority males.

The results from the current study also underscore the need for research and prevention programming that are responsive to how race/ethnicity, separately and in combination with sexual orientation, affect risk for AAS misuse. As reported in the current study, Black and Hispanic sexual minority boys may be at particularly elevated risk for AAS misuse, although more research is needed to understand the mechanisms driving these disparities. **AJPH**

CONTRIBUTORS

A. J. Blashill conceptualized the study, conducted the statistical analyses, and wrote the initial draft of the article. J. P. Calzo, S. Griffiths, and S. B. Murray provided intellectual feedback on the design of the study and assisted in drafting the article.

ACKNOWLEDGMENTS

Author time for A. J. Blashill was supported by the National Institute of Mental Health (grant K23MH096647). J. P. Calzo was supported by the National Institute on Drug Abuse (grant K01DA034753).

Note. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Mental Health or the National Institutes of Health.

HUMAN PARTICIPANT PROTECTION

Institutional review board approval was not required because the study used secondary, de-identified data.

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