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Suicidal planning and ideation among US Adolescents: Differences by sexual identity, 2023

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ABSTRACT

Introduction: Suicide is the third-leading cause of death among adolescents, with lesbian, gay, and bisexual (LGB+) youth facing a significantly higher risk of suicidal ideation and behaviors compared to their heterosexual peers. This study aims to explore differences in suicidal ideation and planning among adolescents in the U.S. by sexual identity.

Methods: A secondary analysis of the 2023 NSDUH was conducted, which assessed suicidal ideation and planning in adolescents ages 12–17, alongside sexual identity. Multivariable logistic regression models were used to examine the associations between sexual identity and suicide-related behaviors, adjusting for covariates including age, sex, race/ethnicity, and county type.

Results: The final sample included 8600 adolescents. Findings revealed that 12.2 % of adolescents reported suicidal ideation and 6.1 % made suicide plans in the past year. Bisexual adolescents had the highest odds of both suicidal ideation and planning, followed by those identifying as "other" sexual identities and those unsure of their sexual identity. Moreover, adolescents who identified as bisexual, another sexual identity, or were unsure of their sexual identity were at increased odds of planning suicide in the past year.

Discussion: This study highlights the heightened suicide risk faced by LGB + adolescents, particularly bisexual youth. The increased vulnerability is likely influenced by factors such as discrimination, family rejection, and lack of social support. Supportive environments, including inclusive schools and affirming families, are critical in mitigating these risks.

1. Introduction

Suicide is the third-leading cause of death among adolescents (15–19 years old) (Elfein, 2024) and disproportionately affects certain sub-populations, including those who identify as lesbian, gay, or bisexual (LGB+) (de Lange et al., 2022). National data indicate that LGB+ (lesbian, gay, and non-heterosexual sexual orientations) youth are four times more likely to attempt suicide than their heterosexual peers (Kann et al., 2011), a disparity consistently observed in longitudinal studies (Mustanski and Liu, 2013). Despite this extensive body of research, several critical gaps remain, particularly regarding the availability of nationally representative data that capture suicidal behaviors across a full spectrum of sexual identities. Most existing studies rely on regional samples or specific cohorts, limiting generalizability and the ability to inform national policy. Few large-scale, population-based datasets allow for the disaggregation of suicidal ideation and planning by sexual identity in adolescents—constraining efforts to identify trends, risk factors, and intervention targets at the national level (Russell and Fish, 2016).

This study addresses that gap by leveraging a large, nationally representative dataset, allowing for the first time a nuanced examination of suicidal ideation and planning among adolescents by sexual identity with broad generalizability. Unlike previous longitudinal research, which tracks change over time within specific groups, this approach enables timely national estimates, captures diversity across demographic subgroups, and enhances policy relevance. The present study

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therefore provides novel insights into current disparities in suicidality among U.S. adolescents and establishes a critical evidence base for developing equitable, data-driven mental health interventions.

2. Methods

A secondary analysis of the 2023 National Survey on Drug Use and Health (NSDUH) was conducted. The NSDUH is a nationally representative cross-sectional survey of noninstitutionalized individuals ages 12 and older conducted annually in the US assessing mental health, substance use, and behavioral health utilization (Substance Abuse and Mental Health Services Administration, 2024). Details of the NSDUH survey methodology are described elsewhere (Substance Abuse and Mental Health Services Administration, 2024). We chose to use the 2023 NSDUH, given that this was the first year sexual identity was assessed for youth ages 12–17 years old.

3. Measures

3.1. Sexual identity

Sexual identity was assessed with the question, "Which one of the following do you consider yourself to be?" Response options included: "Heterosexual, that is, straight," "Gay or lesbian," "Bisexual," "I use a different term," "I am not sure about my sexual identity," and "I do not know what this question is asking." Respondents who selected "I use a different term" were prompted with the follow-up question, "What term do you use to describe your sexual identity?" and could provide a written response of up to 50 characters.

3.1.1. Suicide ideation

Suicidal ideation was assessed with the question, "At any time in the past 12 months, that is from [DATEFILL] up to and including today, did you seriously think about trying to kill yourself?" Responses were Yes = 1 No = 0.

3.1.2. Suicide planning

Suicide planning was assessed with the question, "During the past 12 months, did you make any plans to kill yourself?" Responses were Yes = 1 No = 0.

3.1.3. Covariates

Adolescents' age (12–13, 14–15, 16–17), biological sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic African American, Non-Hispanic American Indian/Alaskan Native, Non-Hispanic Pacific Islander, Multiracial, and Hispanic), and county type (Metro, Non-Metro, and Rural).

4. Analysis

Weighted frequencies with 95 % confidence intervals were estimated to describe sample characteristics. NSDUH assigns each respondent a base weight based on their probability of selection, accounting for the complex, multi-stage sampling design. These weights are then adjusted to correct for nonresponse, helping to reduce bias from participants who did not complete the survey. Finally, the weights are calibrated (or post-stratified) to match known population totals from the U.S. Census, ensuring that survey estimates accurately represent the national population (Substance Abuse and Mental Health Services Administration, 2024). We used the multiple-imputed variables provided by NSDUH, when available, to limit the amount of missing data. Multivariable logistic regression models were estimated to determine associations between sexual identity with suicide planning and suicide ideation. All analyses were weighted and conducted in Stata (v 17.0) to account for the complex sampling design features of the NSDUH (Kolenikov, 2010; Substance Abuse and Mental Health Services Administration, 2024). A University of Mississippi Institutional Review Board (IRB# 26–300) approved the conduction of this study.

5. Results

The final analytic sample consisted of 8600 adolescents ages 12–17 years old, and most of the sample was male (54.4 %). An estimated 12.2 % ($n = 1114$) of the sample thought about suicide in the past year, while 6.12 % ($n = 632$) of adolescents planned suicide in the past year.

In a multivariate model adjusting for covariates (Table 1), adolescents identifying as gay/lesbian (aOR: 2.23, 95 % CI 1.18, 4.20), bisexual (aOR: 4.51, 95 % CI 3.10, 6.55), another sexual identity (aOR: 4.44, 95 % CI 2.70, 7.31), or unsure about their sexual identity (aOR: 1.90, 95 % CI 1.03, 3.50) had higher odds of suicidal ideation compared to heterosexual adolescents. Specifically, bisexual adolescents had the highest odds, followed by those with another sexual identity, gay/lesbian adolescents, and those unsure of their sexual identity.

Moreover, compared to heterosexual adolescents, and controlling for covariates, adolescents who identified as bisexual (aOR: 2.91, 95 % CI 1.90, 4.46), another sexual identity (aOR: 2.22, 95 % CI 1.24, 3.98), or were unsure of their sexual identity (aOR: 2.13, 95 % CI 1.13, 4.02) were at increased odds of planning suicide in the past year. No differences were found between heterosexual and gay/lesbian adolescents (Table 2) with regards to planning suicide within the past year (aOR: 1.31, 95 % CI 0.54, 3.19).

6. Discussion

This study sought to identify differences in suicidal ideation and planning between sexual identities using a large, national dataset. More than 1 in 10 adolescents thought about suicide in the past year, while more than 1 in 20 adolescents planned a suicide attempt in the past year. Compared to heterosexual adolescents, LGB + adolescents were at increased odds of suicidal planning and suicide ideation.

Reducing the suicide rate remains a long-term goal of the Healthy People 2030 initiative; however, little to no change in reducing the prevalence of suicide has been made (US Department of Health and Human Services, n.d). National data from the Youth Risk Behavior Surveillance Survey (YRBSS) estimated that in 2023, 9 % of adolescents in high school in the US attempted suicide in the past year and 16 % made a suicide plan (Gaylor, Krause, Welder et al., 2021). Further, from 2007 to 2021, deaths from suicide among adolescents and young adults in the US increased 62 % (Curtin and Garnett, 2023).

Among these groups, bisexual adolescents face unique risks due to the dual marginalization experienced within both heterosexual and LGB + communities, leading to heightened vulnerability for distress (Ross et al., 2018). Furthermore, evidence indicates that bisexual youth report lower levels of family and peer support compared to gay and lesbian youth, compounding their risk for poor mental health outcomes (Nesmith et al., 1999). Studies show that internalized stigma, low family support (Nesmith et al., 1999), and peer victimization contribute to higher rates of suicidality among LGB + adolescents. However, supportive social contexts—such as accepting families, inclusive schools, and affirming peer groups—can reduce these risks and promote

Table 1
Odd of past-year suicidal ideation by sexual identity among adolescents in the US.

Sexual Identity	aOR	[95 % CI]
Heterosexual	Ref	Ref
Gay/Lesbian	**2.23**	**[1.18, 4.20]**
Bisexual	**4.51**	**[3.10, 6.55]**
Other	**4.44**	**[2.70, 7.31]**
I am not Sure	**1.90**	**[1.03, 3.50]**

*Models controlled for biological sex, age, race/ethnicity, and county. Bolded values indicate $p < .05$.

Table 2
Odds of past-year suicidal planning by sexual identity among adolescents in the US.

Sexual Identity	aOR	[95 % CI]
Heterosexual	Ref	Ref
Gay/Lesbian	1.31	[0.54, 3.19]
Bisexual	**2.91**	**[1.90, 4.46]**
Other	**2.22**	**[1.24, 3.98]**
I am not Sure	**2.13**	**[1.13, 4.02]**

*Models controlled for biological sex, age, race/ethnicity, and county. Bolded values indicate $p < .05$.

healthier coping mechanisms (Marraccini et al., 2022; Rimes et al., 2019).

6.1. Limitations

Several limitations of the present study should be noted. First, the NSDUH does not assess gender identity (e.g., transgender, cisgender), which limits the ability to examine differences in suicide behaviors across gender-diverse groups. Given known disparities in suicide risk by gender identity (Manges et al., 2024), future research should include measures of gender identity to better understand these patterns. Second, although our findings showed that gay and lesbian adolescents were significantly more likely than their straight peers to report suicidal ideation, they were not more likely to report suicide planning. This discrepancy may suggest that while ideation is elevated among sexual minority youth, it does not necessarily translate into planned behavior, potentially due to protective factors, differing help-seeking behaviors, or methodological issues such as underreporting. Further investigation is needed to understand the mechanisms underlying this incongruence. Finally, continued research is needed to further clarify the complex relationship between at-risk youth, sexual identity, and suicide behaviors.

7. Conclusion

Suicide remains a critical global health issue for youth (Abraham and Sher, 2017; Kim et al., 2024), with LGB + youth facing disproportionately high risks of engaging in suicidal behaviors. One intervention that could be beneficial is the implementation of school-based programs that focus on increasing LGB + inclusivity and mental health support. Programs like the "Gender Sexuality Alliances" (GSA) (Wright et al., 2022), which have been shown to create safe and supportive environments for LGB + students, can play a pivotal role in fostering a sense of belonging and reducing feelings of isolation. These findings highlight the need for continued investment in policies and programs that address the specific challenges faced by LGB + youth.

CRediT authorship contribution statement

R. Andrew Yockey: Writing – review & editing, Writing – original draft, Supervision, Formal analysis, Conceptualization. **Catherine Drane:** Writing – review & editing, Writing – original draft. **Dylan Barker:** Writing – review & editing, Writing – original draft, Conceptualization. **Timothy Grigsby:** Writing – review & editing, Writing – original draft. **Robert Coulter:** Writing – review & editing, Writing – original draft. **Rachel Hoopsick:** Writing – review & editing, Writing – original draft, Conceptualization.

Declaration of competing interest

The authors declare no conflicts of interests or competing interests.

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