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Mental Health Symptoms and Alcohol Counseling Among Young Adults: Implications for Equitable Preventive Care

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Abstract

Young adulthood is a critical period for preventing alcohol-related harm, as heavy drinking and mental health challenges often peak, yet preventive counseling remains underused. This study examined associations between depressive and anxious symptoms and receipt of alcohol-related advice from healthcare providers among U.S. young adults aged 18–29, with attention to differences across sexual identity groups. Data were drawn from the 2022 National Health Interview Survey, with a final analytic sample of participants aged 18–29 (N = 2256). Weighted logistic regressions estimated adjusted odds ratios (aORs) and 95% confidence intervals (CIs). Overall, 49.0% of participants reported receiving alcohol advice. Odds were higher among lesbian/gay participants (aOR = 1.81; 95% CI: 1.03–3.18) and those with severe anxiety symptoms (aOR = 2.10; 95% CI: 1.11–3.94). Interaction effects indicated disparities by sexual identity, with plurisexual males showing the lowest predicted probability of receiving advice when meeting the clinical threshold for anxiety (20.9% vs. 62.4% for monosexual individuals). The findings underscore the need to strengthen alcohol-related counseling and integrate mental health screening in preventive care for diverse young adult populations.

Keywords: alcohol counseling; young adults; depression; anxiety; sexual minorities; disparities

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1. Introduction

Young adulthood, including those aged 18 to 29, marks a pivotal developmental period for public health intervention when early identification and prevention can alter the trajectory of disease, reduce harm, and promote sustained wellbeing across the life course [1]. This age range is characterized by identity formation, increasing autonomy, and major life transitions, but also heightened vulnerability to alcohol misuse and mental health challenges. Heavy drinking, defined in the United States (U.S.) as more than 7 drinks per week for women and more than 14 drinks for men (with one drink equaling 14 g of pure alcohol: 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of spirits), peaks during this period, with 30 to 40% of young adults reporting heavy episodic drinking in the past month, the highest prevalence of any adult age group [2,3]. Anxiety and depressive disorders are also disproportionately common with roughly one in five young adults reporting problematic symptoms [4]. Young adults with mood or anxiety disorders have approximately twice the odds of developing an alcohol use disorder compared to those without such conditions [5] with psychological distress contributing to hazardous drinking patterns [6]. Early intervention during this life stage is critical to reducing current and future harms associated with alcohol misuse.

In the U.S., routine screening and counseling for problematic alcohol use remain underutilized in clinical medical practice, particularly for minoritized populations [7–9]. Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an evidence-based, low-cost, high-yield approach recommended by the U.S. Preventive Services Task Force (USPSTF) to identify and address risky drinking before more intensive treatment is required [10]. Brief interventions in primary care have been shown to reduce alcohol consumption by approximately three to four drinks per week and decrease episodes of heavy drinking [11,12]. Despite this demonstrated effectiveness, SBIRT delivery remains inconsistent; fewer than one in six U.S. adults report ever being asked about their drinking by a health professional [11], and screening rates are even lower among certain at-risk groups. Recent evidence suggests its success can vary significantly depending on the clinical setting, patient population, and delivery strategy [13,14]. This variability highlights ongoing challenges in equitably delivering this preventive care, particularly to minoritized and at-risk groups [15]. It remains unclear whether mental health symptom severity influences the likelihood of receiving alcohol-related counseling, and even less is known about how these patterns differ by sexual minoritized (SM) identity (lesbian, gay, bisexual, and other diverse identities [i.e., race/ethnicity]) [16].

Young adults with SM identities face disproportionately high rates of psychological distress and alcohol misuse [3,17]. The Minority Stress Model attributes these disparities to the cumulative effect of stigma, prejudice, and discrimination, which create hostile social environments and chronic stress that erode health and mental health over time [17,18]. Recent extensions of the model incorporate structural stigma and intersectional marginalization, which posits that identities like sexual orientation and gender identity can create compounding, unique forms of disadvantage, as key drivers of SM health disparities [19]. Within SM populations, plurisexual individuals (i.e., having sexual or romantic attraction to more than one gender), particularly bisexual women, are at elevated risk yet less likely to receive alcohol-related counseling than lesbian or gay peers, reflecting persistent healthcare bias and bisexual erasure [7,20–22]. Addressing these disparities at the point of care offers an opportunity to prevent escalation of risky drinking and mitigate downstream harm.

Previous research has also identified racial and ethnic disparities in preventive health counseling, with non-Hispanic Black, Hispanic, and multiracial adults less likely to receive alcohol screening or advice compared to non-Hispanic White peers [11,15]. These inequities reflect broader patterns of differential access, provider bias, and systemic barriers in healthcare delivery. Including race and ethnicity in the present analysis allows for a more comprehensive understanding of how intersecting sociodemographic factors shape the likelihood of receiving alcohol-related advice.

Although the severity of depressive and anxious symptomatology may influence healthcare providers' engagement in alcohol-related discussions, the interplay between mental health, SM identity, and other sociodemographic factors in shaping these clinical interactions remains poorly understood. The present study aimed to examine associations between depressive and anxious symptom severity and receipt of alcohol-related advice from healthcare providers among U.S. young adults aged 18–29. A secondary aim was to explore whether these associations differed by sexual identity. We hypothesized that (1) higher levels of depressive and anxious symptoms would be associated with greater likelihood of receiving alcohol-related counseling, and (2) disparities would emerge by sexual identity, with plurisexual males being less likely to receive alcohol-related advice compared to monosexual peers. The findings are intended to inform the development of equitable, evidence-based screening and intervention strategies tailored to the diverse needs of young adult populations at risk for alcohol use disorders.

2. Materials and Methods

2.1. Study Design and Data

This study used a cross-sectional, secondary data analysis design based on the 2022 National Health Interview Survey (NHIS), a nationally representative dataset collected by the National Center for Health Statistics (NCHS). The analysis examined associations between mental health symptom severity and receipt of alcohol-related advice from healthcare providers among U.S. young adults aged 18–29. The NHIS captures data from non-institutionalized individuals residing across the 50 U.S. states and the District of Columbia [23]. The NHIS employs a stratified, multistage probability sampling approach and was redesigned in 2019 to improve accuracy, relevance, and quality of the survey. Further details regarding survey procedures and sampling methodology can be found in official documentation [23]. This research was classified as exempt from institutional review board (IRB) oversight.

2.2. Measures

2.2.1. Health Provider Advice on Alcohol in the Past 12 Months

The outcome measure in this study examined the dichotomized response to the question "has a health provider given advice on alcohol in the past 12 months?" (yes/no) with refused, not ascertained, and do not know responses all coded as missing.

2.2.2. Sex Assigned at Birth and Sexual Identity

The sex assigned at birth variable (referred to as sex in this study) included male and female categories. Options for sexual identity in the NHIS included: (1) lesbian or gay; (2) straight, that is, not lesbian or gay; (3) bisexual; and (4) something else. We developed a sex X sexual identity variable for the interaction models to determine the predicted probabilities of the following 8 categories: (1) gay, male; (2) straight, male; (3) bisexual, male; (4) something else, male; (5) lesbian/gay, female; (6) straight, female; (7) bisexual, female; and (8) something else, female. As the number of categories produced small cell sizes, these identities were further reduced to monosexual, including those who identified as lesbian, gay, or straight, and plurisexual, bisexual males and bisexual females consistent with previous literature noting these terms and distinctions [24]. We excluded those identifying as something else due to small cell sizes in the collapsed models and the inability to ascertain their monosexual vs. plurisexual identity.

2.2.3. General Anxiety Disorder (GAD)-7 and Personal Health Questionnaire (PHQ)-8

For the first time since the beginning of the COVID-19 pandemic, the 2022 NHIS included a rotating core of questions assessing symptoms of anxiety and depression using the GAD-7 and PHQ-8 screening tools. Both are brief, 7- and 8-item measures, respectively, scored on a scale from 0 ("not at all") to 3 ("nearly every day"), yielding total scores ranging from 0 to 21 for the GAD-7 and 0–24 for the PHQ-8 [25,26]. The GAD-7 focuses on symptoms including excessive worry, restlessness, and difficulty relaxing (e.g., "How often do you feel anxious or nervous in the past two weeks?"), while the PHQ-8 screens for depressive symptoms like feeling down and a loss of interest or pleasure in activities (e.g., "How often do you feel down, depressed, or hopeless in the past two weeks?"). Scores are categorized as none/minimal, mild, moderate, or severe, reflecting clinical diagnostic thresholds. The internal consistency of the GAD-7 was high (Cronbach's $\alpha = 0.86$). The PHQ-

8 also demonstrated strong internal reliability (Cronbach's α = 0.90). These results indicate high inter-item correlations and support the use of summed scores for both measures.

2.2.4. Sociodemographic Variables

We included young adults aged 18 to 29, grouped into those aged 18–24 and 25–29. Race/ethnicity categories were collapsed into: non-Hispanic Black; Hispanic; non-Hispanic, other/multiracial; and non-Hispanic White. Marital status had three categories: widowed/divorced/separated, never married, married/member of an unmarried couple. Respondents reported if they were attending school (yes/no), their region of residence based on their address (North Central/Midwest, Northeast, South, West), and educational attainment (less than high school, graduated high school or general education degree [GED], some college, college graduate).

2.2.5. Health-Related Variables

Respondents reported if they have a usual place for medical care (yes/no) and their insurance status (private, public, other, uninsured). Health status was measured using a 5-point Likert scale ranging from poor to excellent and dichotomized as poor/fair and good/very good/excellent due to small cell sizes.

2.3. Statistical Analysis

We began by generating descriptive statistics, presenting weighted frequencies and percentages through cross-tabulations of all study variables. To assess associations between the independent variables and whether participants received alcohol-related advice from a medical provider, we conducted bivariate analyses using Rao-Scott chi-square tests for weighted proportions using the SURVEYFREQ procedure options in SAS to account for the complex survey design. Missing data were handled using listwise deletion; participants with missing responses on any of the GAD-7 or PHQ-8 items were excluded from the respective analyses. No imputation procedures were applied, as the proportion of missing data was minimal (<5%).

To further examine these relationships, we employed weighted logistic regression analyses using the SURVEYLOGISTIC procedure in SAS and reported adjusted odds ratios (aORs) and corresponding 95% confidence intervals (CIs). Sequential models were constructed to explore interaction effects, specifically assessing whether sex/SM identity moderated the likelihood of receiving alcohol-related medical advice. We used a p-value threshold of <0.05 to determine statistical significance. All analyses were performed in SAS version 9.4 (SAS Institute Inc., Raleigh-Cary, NC, USA).

3. Results

3.1. Prevalence of Medical Provider Advice on Alcohol

Among 2256 U.S. young adults aged 18–29, about half (49.0%) reported receiving alcohol-related advice from a medical provider in the past 12 months (Table 1). There were no significant differences by age or sex in receiving advice. However, racial/ethnic disparities were present: non-Hispanic Black (15.4% vs. 6.4%), Hispanic (23.0% vs. 19.5%), and non-Hispanic other/multiracial (9.6% vs. 8.3%) respondents had a lower prevalence of receiving advice compared to non-Hispanic White participants (52.0% vs. 65.8%; $p < 0.001$). SM identity also showed differences with lesbian/gay young adults experiencing higher prevalence of receiving advice (5.2% vs. 2.5%) compared to those who did not. Both anxiety and depressive symptom severity were significantly associated with receiving alcohol advice. Participants with severe anxiety (GAD-7 score 15–21) had a higher prevalence receiving advice (6.2% vs. 3.6%) compared to those with none/minimal symptoms (67.6% vs. 74.5%; $p = 0.007$). Severe depressive symptoms (PHQ-8 score 20–24) were associated with a higher prevalence of receiving advice (5.3% vs. 3.6%; $p = 0.047$). Education, region, usual place for medical care, insurance status, and anxiety/depression severity were also significantly associated with receiving advice.

Table 1. Weighted sample distribution of adults aged 18–29 and bivariate comparisons between those who did not receive advice on alcohol from a medical provider in the past 12 months vs. those who received advice, 2022 ($N = 2256$).

	Full Sample (N = 2256)		**No advice (n = 1150)**		**Advice (n = 1106)**		***p*-Value**
	n	%	n	%	n	%	
Age group (in years)							0.135
18 to 24	1061	55.3	562	57.0	499	53.4	
25 to 29	1195	44.7	588	43.0	607	46.6	
Race/ethnicity							<0.001
Non-Hispanic Black	234	11.1	162	15.4	72	6.4	
Hispanic	513	21.3	285	23.0	228	19.5	
Non-Hispanic, other/multiracial	238	9.0	129	9.6	109	8.3	
Non-Hispanic White	1271	58.6	574	52.0	697	65.8	
Sex							0.169
Male	1107	51.1	534	49.6	573	52.9	
Female	1149	48.9	616	50.4	533	47.1	
Sexual identity							0.035
Lesbian or gay	89	3.8	33	2.5	56	5.2	
Bisexual	205	9.1	103	8.8	102	9.4	
Something else	53	2.4	28	2.5	25	2.3	
Straight (not lesbian or gay)	1909	84.7	986	86.1	923	83.1	
Marital status							0.391
Widowed/divorced/separated	42	1.1	22	1.3	20	0.9	
Never married	1449	65.6	721	64.6	728	66.8	
Married/member of an unmarried couple	765	33.3	407	34.1	358	32.3	
In school							0.067
No	1676	71.0	822	69.2	854	73.1	
Yes	580	29.0	328	30.8	252	26.9	
Region							0.003
North Central/Midwest	530	22.6	235	19.4	295	26.2	
Northeast	329	17.1	170	16.7	159	17.7	
South	832	38.2	458	42.2	374	33.7	
West	565	22.1	287	21.8	278	22.4	
Educational attainment							<0.001
Less than high school	130	7.8	84	10.0	46	5.3	
Graduated high school or GED	611	30.0	335	31.5	276	28.2	
Some college	777	37.4	398	36.7	379	38.2	
College graduate	738	24.9	333	21.8	405	28.3	
Usual place for medical care							0.001
No	460	19.2	193	16.3	267	22.3	
Yes	1796	80.8	957	83.7	839	77.7	
Insurance status							0.001
Private	1498	65.1	715	61.0	783	69.6	
Public	364	17.1	224	20.1	140	13.9	
Other	82	2.7	46	2.9	36	2.6	
Uninsured	312	15.0	165	16.1	147	13.8	
Health status							0.687
Poor/fair	138	6.0	77	6.2	61	5.7	
Good/very good/excellent	2118	94.0	1073	93.8	1045	94.3	
General Anxiety Disorder-7 score							0.007
None/minimal (0–4)	1609	71.2	858	74.5	751	67.6	
Mild (5–9)	412	18.2	189	16.6	223	19.9	
Moderate (10–14)	137	5.7	62	5.2	75	6.3	
Severe (15–21)	98	4.8	41	3.6	57	6.2	
Personal Health Questionnaire-8 score							0.046
None/minimal (0–9)	1609	70.9	857	73.9	752	67.6	
Mild (10–14)	408	18.7	185	16.9	223	20.6	
Moderate (15–19)	142	6.0	66	5.6	76	6.4	
Severe (20–24)	97	4.4	42	3.6	55	5.3	

Note. *p*-value is the Rao-Scott chi-square tests for weighted proportions.

3.2. Logistic Regression Analyses of Medical Provider Advice on Alcohol

Non-Hispanic Black young adults had 64% lower odds of receiving advice on alcohol in the past 12 months (aOR = 0.36, 95% CI: 0.24–0.53) compared to non-Hispanic White individuals. Hispanic (aOR = 0.76, 95% CI: 0.59–0.99) and non-Hispanic other/multiracial (aOR = 0.70, 95% CI: 0.50–0.98) groups also had significantly lower odds than non-Hispanic White respondents (Table 2). Lesbian, gay, and those identifying as something else participants had higher odds of receiving advice (aOR = 1.81, 95% CI: 1.03–3.18) than straight peers. Severe anxiety symptoms were associated with more than double the odds of receiving advice (aOR = 2.10, 95% CI: 1.11–3.94) compared to none/minimal levels of anxiety. Not having a usual place for medical care was associated with higher odds of receiving advice (aOR = 1.53, 95% CI: 1.20–1.96). Other variables such as sex, school enrollment, region, insurance, health status, and depression symptoms were not significantly associated after controlling for other variables in the model.

Table 2. Weighted and adjusted odds of receiving advice on alcohol from a medical provider in the past 12 months among young adults aged 18–29, 2022 (N = 2256).

	aOR	95% CI	
		LL	UL
Age group (in years)			
18 to 24	0.80	0.64	1.00
25 to 29	Ref.		
Race/ethnicity			
Non-Hispanic Black	0.36	0.24	0.53
Hispanic	0.76	0.59	0.99
Non-Hispanic, other/multiracial	0.70	0.50	0.98
Non-Hispanic White	Ref.		
Sex			
Female	0.88	0.72	1.09
Male	Ref.		
Sexual identity			
Lesbian or gay	1.81	1.03	3.18
Bisexual	0.99	0.69	1.43
Something else	0.73	0.38	1.41
Straight (not lesbian or gay)	Ref.		
Marital status			
Widowed/divorced/separated	0.87	0.43	1.74
Never married	1.30	1.05	1.61
Married/member of an unmarried couple	Ref.		
In school			
No	1.21	0.96	1.54
Yes	Ref.		
Region			
North Central/Midwest	1.21	0.87	1.68
Northeast	1.05	0.72	1.53
South	0.84	0.63	1.13
West	Ref.		
Educational attainment			
Less than high school	0.48	0.29	0.78
Graduated high school or GED	0.78	0.58	1.05
Some college	0.94	0.73	1.21
College graduate	Ref.		

Table 2. *Cont.*

	aOR	95% CI	
		LL	UL
Usual place for medical care			
No	1.53	1.20	1.96
Yes	Ref.		
Insurance status			
Private	Ref.		
Public	0.75	0.56	1.01
Other	0.90	0.49	1.64
Uninsured	0.93	0.68	1.27
Health status			
Poor/fair	0.86	0.55	1.34
Good/very good/excellent	Ref.		
General Anxiety Disorder-7 score			
None/minimal (0–4)	Ref.		
Mild (5–9)	1.32	0.95	1.85
Moderate (10–14)	1.43	0.84	2.44
Severe (15–21)	2.10	1.11	3.94
Personal Health Questionnaire-8 score			
None/minimal (0–9)	Ref.		
Mild (10–14)	1.21	0.86	1.70
Moderate (15–19)	1.02	0.59	1.77
Severe (20–24)	1.04	0.52	2.10

Note. aOR = adjusted odds ratio; CI = confidence interval; LL = lower limit; UL = upper limit.

3.3. Moderation Effects of Sex/Sexual Identity on Medical Provider Advice on Alcohol

A significant interaction effect was observed by sex/SM identity and GAD-7 diagnostic category ($p < 0.001$), although the significance findings should be interpreted with caution as several categories with small sample sizes ($n \leq 7$) produced extreme values near 0 or 1, which may exaggerate differences (Figure 1). Among gay males, the probability was 55.7% for those with none/minimal anxiety, rising to 63.1% with mild anxiety, and reaching 100.0% among those with moderate and severe anxiety. Straight males exhibited probabilities of 48.5% (none/minimal), 48.0% (mild), 56.1% (moderate), and 66.8% (severe). For bisexual males, the probabilities declined with increasing severity: 47.2% (none/minimal), 39.9% (mild), 17.2% (moderate), and 23.8% (severe). Males identifying as "something else" had probabilities of 39.2%, 66.7%, 17.6%, and 27.0% in increasing order of anxiety severity, respectively. Among female respondents, lesbian/gay females showed probabilities of 50.0% (none/minimal), 69.7% (mild), 70.8% (moderate), and 91.0% (severe). Straight females had corresponding probabilities of 39.2%, 52.6%, 55.7%, and 61.1%. Bisexual females had probabilities of 49.6%, 60.9%, 46.5%, and 50.8%, while those identifying as something else females had probabilities of 41.2%, 35.2%, 53.8%, and 71.4% across the four anxiety categories.

A significant interaction effect was also observed by sex/sexual identity and PHQ-8 category ($p < 0.001$; Figure 2). Among gay males, the probability was 57.3% for those with none/minimal depressive symptoms, increased sharply to 80.6% for mild symptoms, declined to 65.5% for moderate, and peaked at 100.0% for severe depression. In contrast, straight males exhibited moderate and relatively flat probabilities across categories: 47.0% (none/minimal), 58.5% (mild), 49.0% (moderate), and 46.6% (severe). Bisexual males showed a decreasing trend, with probabilities of 53.4%, 28.1%, 17.4%, and 38.4% from none/minimal to severe depression. Males identifying as something else had probabilities of 51.3%, 18.9%, 0.0%, and 70.9%, respectively. Among female participants, lesbian/gay females had probabilities of 48.1% (none/minimal), 68.2% (mild), 75.7% (moderate), and 100.0% (severe). Straight females showed more modest variation: 41.6%, 46.5%, 57.6%, and 46.9% across depression severity levels. Bisexual females demonstrated 54.3%, 52.4%, 30.4%, and 64.0% in successive categories, while females identifying as something else had probabilities of 24.5%, 52.2%, 71.9%, and 47.7% from none/minimal to severe.

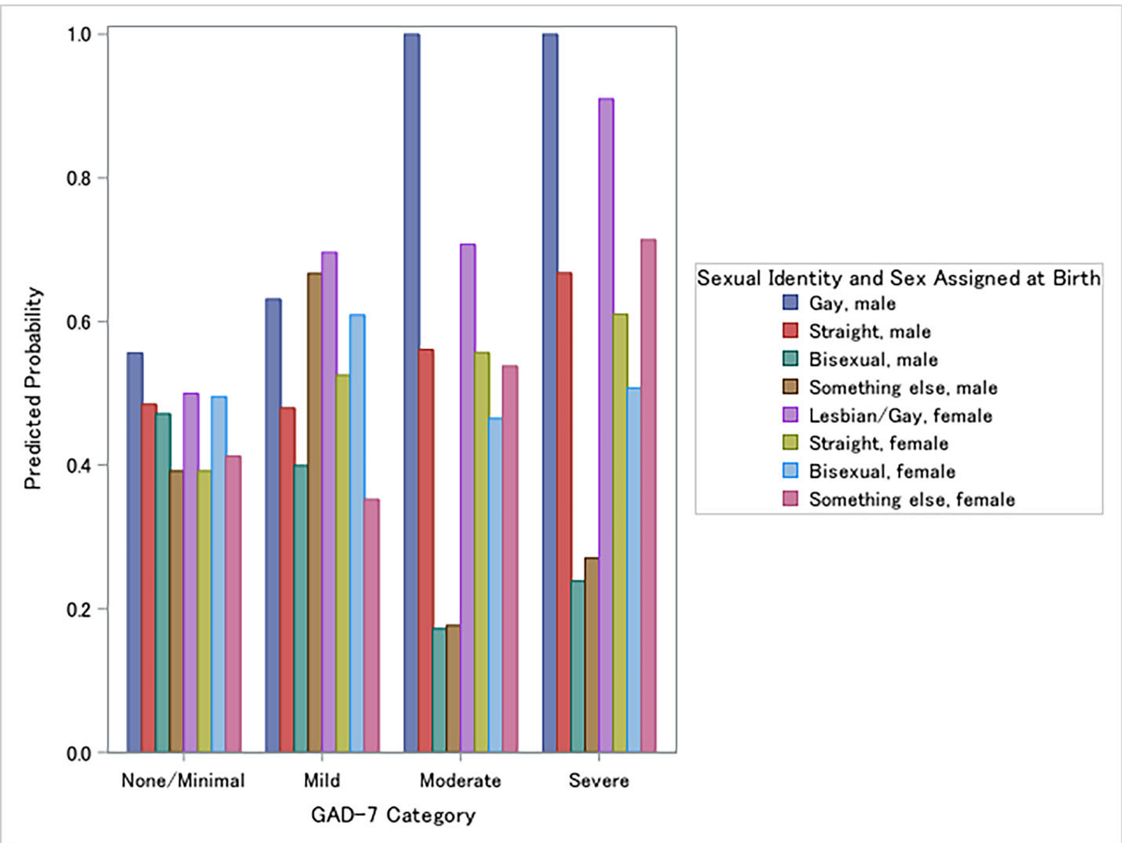

Figure 1. Predicted probabilities of receiving advice on alcohol from a medical provider in the past 12 months among young adults aged 18–29 by sexual identity, sex assigned at birth, and General Anxiety Disorder (GAD)-7 diagnostic category, 2022. Note. $p < 0.001$.

Subsequent models used the collapsed sexual identity variable to monosexual, plurisexual male, plurisexual female categories to produce more stable regression results for advice on alcohol. In Figure 3, the predicted probabilities of receiving advice on alcohol are shown predicted by the significant interaction of sexual identity and GAD-7 cutoff scores ($p = 0.039$). Among the "not clinical" participants, monosexual individuals had a predicted probability of 48.1%, plurisexual males lower at 43.3%, and plurisexual females highest at 54.1%. In the "clinical" category, the predicted probability was 62.4% for monosexual individuals, 20.9% for plurisexual males, and 48.5% for plurisexual females.

In Figure 4, the predicted probabilities of meeting the PHQ-8 clinical cutoff are presented across monosexual, plurisexual male, and plurisexual female groups for both "not clinical" and "clinical" categories for interpretation, although the interaction was not significant ($p = 0.296$). Among participants classified as "not clinical," monosexual individuals had a predicted probability of approximately 48.6%, plurisexual males had the lowest probability at 41.5%, and plurisexual females were the highest at 53.5%. In the "clinical" category, monosexual individuals had a probability of 56.4%, followed by plurisexual females at 49.2%, while plurisexual males exhibited the lowest probability of 30.7%.

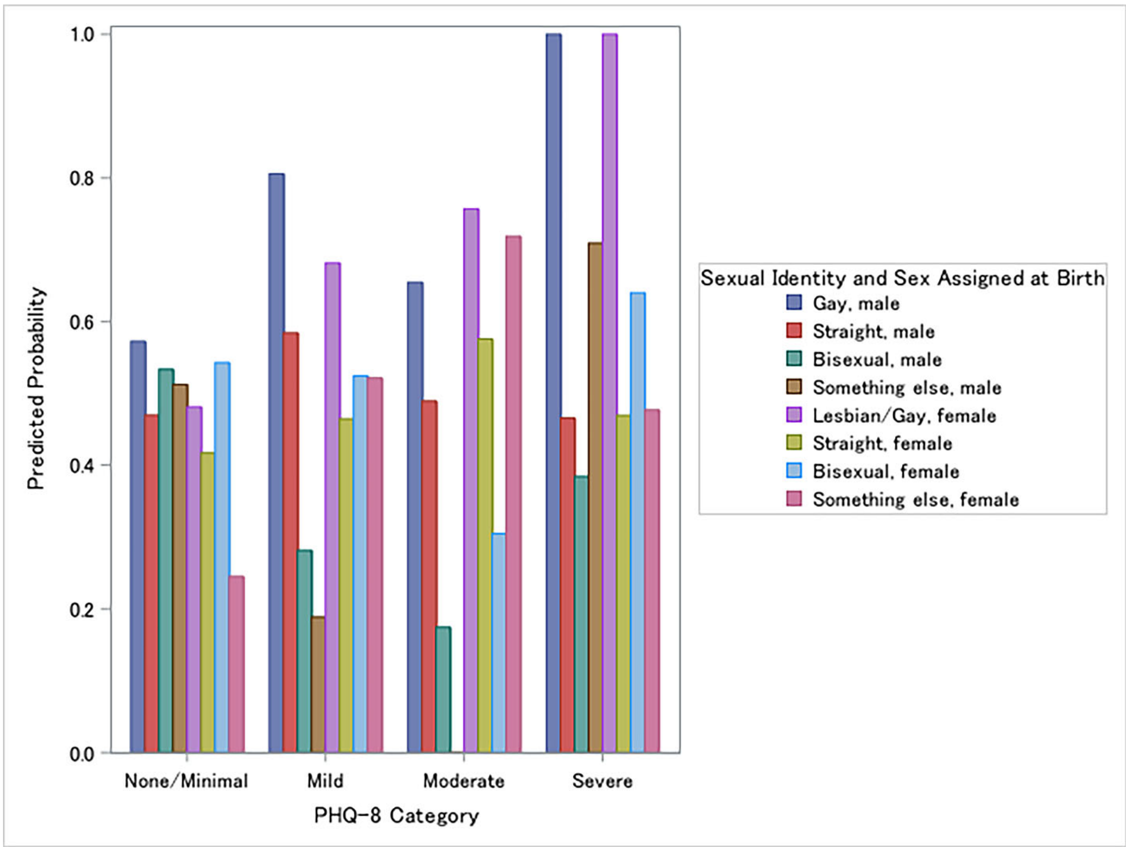

Figure 2. Predicted probabilities of receiving advice on alcohol from a medical provider in the past 12 months among young adults aged 18–29 by sexual identity, sex assigned at birth, and Personal Health Questionnaire (PHQ)-8 diagnostic category, 2022. Note. $p < 0.001$.

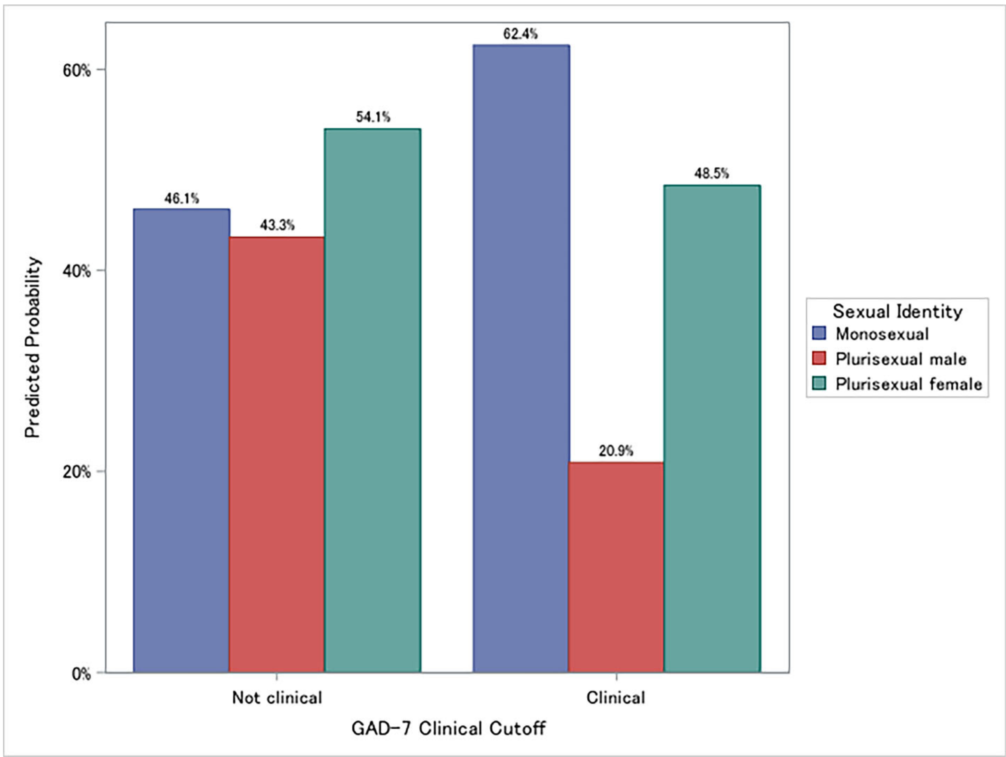

Figure 3. Predicted probabilities of receiving advice on alcohol from a medical provider in the past 12 months among young adults aged 18–29 by sexual identity and General Anxiety Disorder (GAD)-7 clinical cutoff threshold, 2022. Note. $p < 0.039$.

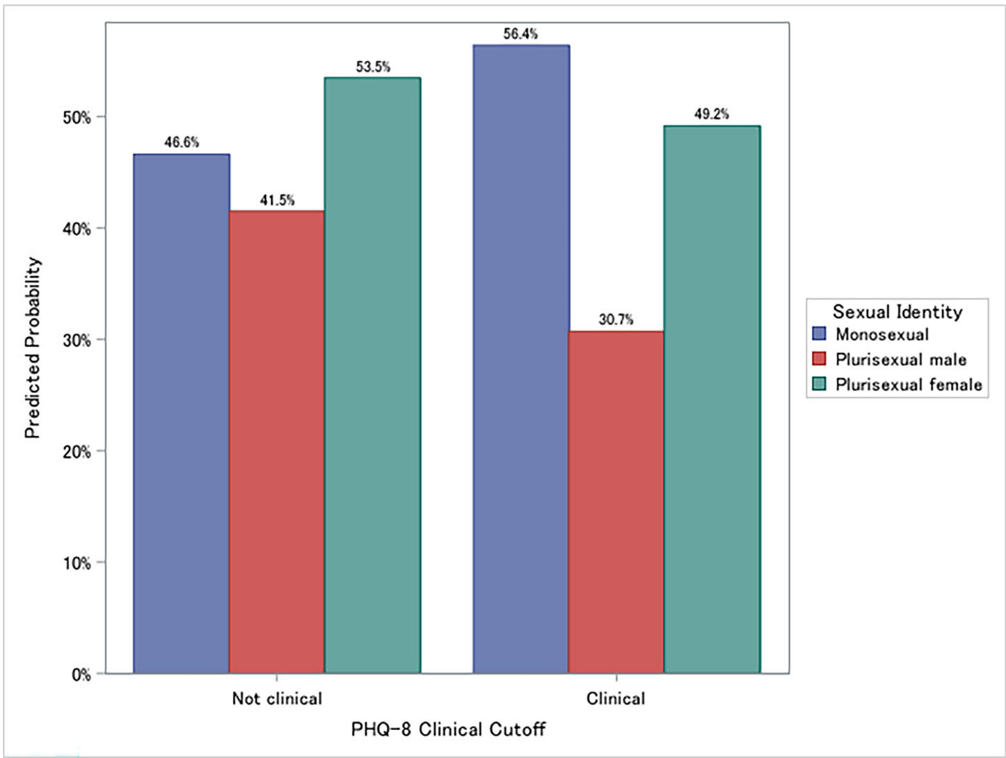

Figure 4. Predicted probabilities of receiving advice on alcohol from a medical provider in the past 12 months among young adults aged 18–29 by sexual identity and Personal Health Questionnaire (PHQ)-8 clinical cutoff threshold, 2022. Note. $p < 0.296$.

4. Discussion

This study examined how depressive and anxious symptomology influence patient-provider alcohol-related conversations among U.S. young adults, with particular attention to disparities across sexual identity groups, including plurisexual populations. Several important findings emerged. First, fewer than half of young adults reported receiving advice about alcohol use in the past year, despite elevated risks of alcohol misuse and co-occurring mental health conditions during this developmental stage. Second, racial and ethnic disparities persisted, with non-Hispanic Black, Hispanic, and multiracial/other young adults reporting significantly lower odds of receiving alcohol-related counseling compared to non-Hispanic White peers. Third, severe anxiety, but not depressive symptoms, was associated with greater odds of receiving advice, potentially because the more salient, externalizing symptoms of anxiety are more visible to providers in a clinical encounter than the internalizing symptoms of depression. Finally, moderation models found that plurisexual males consistently reported the lowest probabilities of receiving alcohol-related counseling, even when meeting clinical thresholds for anxiety or depression.

The literature points to bidirectional links between alcohol consumption and mental health outcomes and the importance of tailored interventions. A U.S. cross-sectional study found an "M-shaped" association between alcohol drinking frequency and depression, with moderate drinkers showing the lowest odds of depression and both abstainers and heavy drinkers at higher risk [27]. In the UK Biobank cohort, individuals with depression or anxiety were approximately twice as likely to report alcohol use disorders compared to those without mental health conditions [5]. A systematic review and meta-analysis protocol has been developed to examine mediators and moderators in the co-occurring anxiety and alcohol use relationship, aiming to clarify the underlying mechanisms and factors influencing this dual diagnosis in future research [28].

The recent literature also notes the challenges and opportunities of addressing unhealthy alcohol use in primary care. The first highlights the persistent gap between clinical guidelines recommending universal alcohol screening and the reality that most patients, especially younger adults, are rarely asked about their drinking [29]. Despite strong evidence for screening and brief interventions, competing priorities, time pressures, and lack of system-level support keep alcohol conversations marginalized in primary care. Another study across six urban clinics demonstrated the feasibility of electronic health record-integrated screening, with 72% of over 93,000 adult patients completing screening [30]. Screening at any visit compared to annual visit only yielded much higher coverage, and self-administered screening detected substantially more moderate- to high-risk alcohol use than provider-administered approaches.

While alcohol screening in primary care is achievable, it is most effective when broadly implemented. Patient-level factors, system-level barriers, and provider engagement continue to limit its impact. A review of factors related to implementation of integrated care identified organizational support, interprofessional communication, and shared care pathways as critical for success [31]. Elements of successful implementation also included the importance of leadership engagement, workforce training, and adaptable care models in primary care settings in another review [32]. Others highlight the contribution of social workers to interprofessional collaboration that helps bridge gaps between health and mental health services [33].

Our findings can be further understood through the lens of intersectionality and minority stress frameworks, which together elucidate how structural and provider-level biases converge to produce and maintain health disparities among marginalized groups. Intersectionality highlights that individuals with multiple minority identities, such as those defined by race/ethnicity, gender, and sexual orientation, experience overlapping systems of oppression that shape their health trajectories in unique and compounding ways [34,35]. Within the minority stress framework, these intersecting identities are associated with cumulative exposure to stigma, discrimination, and social exclusion, contributing to heightened psychological distress and barriers to care [36,37]. Research also indicates that intersectional minority stress processes extend beyond individual experiences to encompass institutional and structural domains, influencing both the accessibility and quality of affirming health services [38,39]. Applying these frameworks helps to contextualize the disparities observed in this study, emphasizing the need for multilevel interventions that address both systemic inequities and provider-level biases.

To enhance the applied relevance of these findings, it is essential to consider how clinicians and policymakers can operationalize these insights into practice. Clinically, adapting evidence-based frameworks such as SBIRT to be more culturally and structurally responsive could improve engagement and outcomes among diverse populations [40]. This may include integrating assessments of minority stress and intersectional stigma into screening protocols, as well as tailoring brief interventions to acknowledge clients' unique social contexts and identity-related stressors [41]. Provider training should also emphasize inclusive communication, implicit bias reduction, and affirming care practices to foster trust and safety in clinical encounters [42]. At the policy level, promoting equity-oriented workforce development, mandating inclusion and cultural humility training, and supporting the implementation of intersectional data systems could facilitate systemic change. Together, these strategies can help translate research findings into meaningful improvements in prevention and treatment for marginalized communities.

While collapsing sexual identity categories was necessary to ensure sufficient statistical power, this decision warrants further reflection regarding potential oversimplifications of identity diversity. Sexual orientation is a multidimensional construct encompassing identity, attraction, and behavior, and aggregating categories can obscure important within-group differences in experiences of stigma, minority stress, and health outcomes [16,24]. For example, bisexual and other non-monosexual individuals often report distinct stress processes and health risks compared to gay and lesbian populations, reflecting unique forms of invisibility and discrimination [21,22]. Although data constraints limited our ability to disaggregate these groups, we acknowledge that such simplification may mask heterogeneity and intersectional nuances across sexual minority subgroups.

The distinct disadvantages observed among plurisexual males may also be partly explained by the intersection of masculinity norms and provider perceptions of sexual identity. Traditional masculinity expectations often discourage emotional openness and help-seeking, which can heighten vulnerability to stress and reduce engagement with care. At the same time, provider biases and discomfort in discussing sexuality can contribute to inadequate assessment and support, particularly with men who do not identify exclusively as heterosexual or gay [43,44]. Subtle stereotypes about male sexual orientation may also influence how providers perceive credibility or risk, further shaping clinical interactions and access to resources [45]. Together, these dynamics illustrate how gendered and sexual identity norms intersect to reinforce inequities in health and service use among plurisexual men.

Future research should aim to include larger and more diverse samples that allow for the examination of these differences, thereby providing a more comprehensive understanding of how sexual identity diversity shapes health and healthcare experiences. An intersectional lens should also be applied to explore provider-level mechanisms, such as how the intersection of provider bias against plurisexuality and norms of masculinity may explain why plurisexual males are less likely to receive alcohol-related counseling. Longitudinal designs could clarify whether disparities in early intervention contribute to sustained disparities in alcohol misuse and related harms across the life course. Finally, additional analyses with larger sample sizes of plurisexual populations are needed to generate more stable estimates and ensure these findings are not due to small cell sizes.

4.1. Strengths and Limitations

This study has several notable strengths. Drawing on a nationally representative dataset, the findings are generalizable to U.S. young adults, a developmental period marked by heightened vulnerability to both alcohol misuse and mental health concerns. The use of validated measures of anxiety (GAD-7) and depression (PHQ-8) strengthens the reliability of mental health assessments, while the inclusion and disaggregation of SM address an important gap in the literature and counters persistent bisexual erasure. By examining interactions between mental health symptomology and sexual identity, this study provides novel insights into how intersecting vulnerabilities shape patient-provider conversations about alcohol.

There are also several important limitations to consider when interpreting the findings. First, the cross-sectional design of the 2022 NHIS data precludes any causal inference regarding the relationship between anxious and depressive symptom severity and receipt of alcohol-related advice in the past 12 months from medical providers. Temporal sequencing cannot be established, limiting conclusions about whether mental health symptoms influenced screening in this sample. Second, self-reported measures for both alcohol-related counseling and mental health symptoms may introduce recall and social desirability bias. Respondents may under- or overreport their experiences due to stigma or misunderstanding of questions, potentially affecting the accuracy of prevalence estimates. Third, although the NHIS is nationally representative, some subgroups had small sample sizes, notably within SM categories that we chose to expand to examine within group variation. This led to unstable estimates and extreme predicted probabilities in interaction analyses, reducing precision and generalizability for these groups although our findings are consistent with others noting the disadvantage for bisexual populations, for example. Fourth, the measure of alcohol-related advice was limited to a binary yes/no response about whether a provider gave any alcohol counseling in the past 12 months without detailed information on the content, quality, or frequency of the intervention. This item limits the ability to assess the quality or fidelity of the intervention and associated outcomes. Still, it provides an approximate assessment of the prevalence of these conversations with young adults and invites future research questions examining this intervention in greater detail, especially for those with no routine primary care. Fifth, the SM categories in NHIS do not capture the full complexity of sexual orientation, gender identity, or expression, potentially obscuring important nuances in healthcare experiences among transgender, nonbinary, and other individuals not captured in these categories due to the evolving refinement of these items in population survey research including the problematic use of the term "straight" for monosexual, heterosexual individuals.

4.2. Conclusions

This study provides novel evidence on disparities in patient-provider alcohol-related counseling among U.S. young adults, with a particular focus on the intersection of sexual identity and mental health. Despite being a high-risk group for alcohol misuse and co-occurring mental health conditions, fewer than half of young adults reported receiving alcohol-related advice in the past year. Non-Hispanic Black, Hispanic, and multiracial/other young adults exhibited significantly lower odds of receiving such counseling, while severe anxiety, but not depressive symptoms, was associated with a higher likelihood of provider engagement. Notably, plurisexual males consistently reported the lowest probabilities of receiving advice, even when experiencing clinical levels of mental health symptoms.

These findings highlight the social and public health importance of addressing inequities in preventive care delivery for young adults. By illuminating the overlooked intersection between sexual identity, mental health, and alcohol-related counseling, this study advances understanding of how structural and provider-level factors perpetuate disparities in care. Strengthening system-level supports, enhancing provider training in culturally responsive screening, and integrating tailored intervention models are critical next steps. Future research should investigate provider mechanisms and longitudinal pathways to inform sustainable, equity-focused strategies that promote the health and wellbeing of all young adults.

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