Drug and Alcohol Dependence 274 (2025) 112762

Contents lists available at ScienceDirect

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep

Cannabis use, risk of cannabis use disorder, and anxiety and depression among bisexual patients: A comparative study of sex and sexual identity differences in a large health system

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ARTICLE INFO

Keywords:
Cannabis use
Cannabis use disorder
Sexual minority
Primary care
Health system
Mental health

ABSTRACT

This study used electronic health record (EHR) data from 9869 sexual minority patients aged 18 and older who had a primary care visit within a Los Angeles university health system (June 2020–May 2023). Sexual minority patients, defined as lesbian, gay, or bisexual, were screened for cannabis use and risk of cannabis use disorder (CUD) during annual wellness visits. Mental health diagnoses were extracted from patients' EHR. Multivariable regression models were used to assess associations between sexual identity, sex, and cannabis-related outcomes, including cannabis use, risk of CUD, mental health diagnoses among individuals reporting cannabis use, and cannabis use for symptom management among those with a corresponding diagnosis. All models controlled for age and race/ethnicity. Bisexual patients had higher adjusted odds of cannabis use compared to gay/lesbian patients (AOR females: 1.67; males: 1.47). Bisexual males had greater odds of risk of CUD (AOR: 1.48) and depression diagnosis (AOR:1.86) compared to gay males. Bisexual males with a diagnosis for depression had higher odds of cannabis use for managing depression or sadness symptoms (AOR: 2.44) compared to gay males. Bisexual females had higher odds of a severe stress diagnosis compared to gay/lesbian females (AOR: 2.44). These findings emphasize the importance of developing targeted primary care approaches that address both cannabis use and mental health concerns among bisexual patients.

Purpose: While the prevalence of cannabis use is higher among sexual minorities as compared to their heterosexual counterparts, few studies have examined the differences in cannabis use across sex and sexual identity among sexual minority individuals, especially in the context of health care. This study examines the association of sexual identity and sex with cannabis use, risk of cannabis use disorder (CUD), symptoms managed with cannabis use, and mental health diagnoses among sexual minority primary care patients.

Methods: We conducted a cross-sectional study using electronic health record (EHR) data from 9869 patients $\geq$ 18 years of age who identified as sexual minority, defined as lesbian, gay, or bisexual, and had a primary care visit between June 2020 and May 2023 within a university-based health system in Los Angeles, CA. Routine screening for past 3-month cannabis use and risk of CUD was based on the Alcohol Substance Involvement Screening Test (ASSIST) and was conducted as part of all annual wellness visits. Patients were asked to report symptoms for which they used cannabis, and mental health diagnoses were extracted from patients' EHR. Diagnoses meeting clinical threshold criteria were identified based on the International Classification of Diseases, Tenth Revision (ICD-10) codes and included anxiety disorders (ICD-10 F41), depressive disorders (ICD-10 F33), and severe stress (ICD-10 F43).

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https://doi.org/10.1016/j.drugalcdep.2025.112762
Received 20 January 2025; Received in revised form 11 June 2025; Accepted 13 June 2025
Available online 20 June 2025

Differences in the prevalence of cannabis use by sociodemographic characteristics were stratified by sex and compared across sexual identity using chi-squared tests for categorical variables and Wilcoxon rank-sum tests for continuous variables. Multivariable regression models were used to assess associations between sexual identity, sex, and cannabis-related outcomes, including cannabis use in the past 3 months, risk of CUD, mental health diagnoses among individuals reporting cannabis use, and cannabis use for symptom management among those with a corresponding diagnosis. All models controlled for age and race/ethnicity.

Results: Among the 9869 patients included in this study, 30.7 % reported cannabis use in the past 3 months. Bisexual patients had higher adjusted odds of cannabis use in comparison to gay/lesbian patients in both females and males (female adjusted odds ratio (AOR):1.67; 95 % Confidence Interval (CI) 1.46, 1.92; male AOR: 1.47; 95 % CI 1.24, 1.73). Among males reporting cannabis use, bisexual individuals had greater odds of risk of CUD (AOR: 1.48; 95 % CI: 1.14, 1.93) and depression diagnosis (AOR: 1.86; 95 % CI: 1.34, 2.56) compared to gay males. Bisexual males with a diagnosis for depression had higher odds of cannabis use for managing depression or sadness symptoms (AOR: 2.44; 95 % CI: 1.34, 4.52) compared to gay males. Among females reporting cannabis use, bisexual patients had higher odds of a severe stress diagnosis compared to gay/lesbian females (AOR: 2.44; 95 % CI: 1.45, 4.35).

Conclusions: These findings highlight the need for primary care providers to consider the unique experiences of bisexual patients, particularly regarding mental health and cannabis use. Increased odds of cannabis use among bisexual patients, coupled with their higher odds of mental health disorders, reinforces the importance of integrating mental health support and addressing cannabis use in routine healthcare.

1. Introduction

With a growing body of evidence describing cannabis use in the United States (US), studies have shown that in comparison to heterosexual adults, sexual minority populations including those who identify as gay, lesbian, bisexual or another non-heterosexual identity, experience stark disparities in cannabis use (Gonzales, 2020; Parent et al., 2021). In 2020, based on US national household data, 41.3 % of sexual minority adults reported using cannabis in the past year in comparison to 18.7 % of the overall adult population (Substance Abuse and Mental Health Services Administration, 2023; Substance Abuse Center for Behavioral Health Statistics and Quality, 2021). These disparities in the prevalence of cannabis use are especially pronounced among young people, with data indicating that young adults who identify as sexual minority individuals are more likely to report cannabis use in the past month, report more days of cannabis use, and have significantly higher rates of dual tobacco and cannabis use relative to the their heterosexual counterparts (Dunbar et al., 2022; Gonzales, 2020; Liautaud et al., 2021; Schofield et al., 2023).

Recent community-based studies have revealed variations in cannabis use not only between sexual minority and heterosexual populations, but also within different subgroups of sexual minority populations. Data among men are somewhat inconsistent, but a number of studies suggest that gay and bisexual men are more likely to use cannabis as compared to heterosexual men, with no differences when comparing gay to bisexual men (Gonzales, 2020; Liautaud et al., 2021; Schuler and Collins, 2020). Among women, sexual minority women report higher levels of substance use compared to their heterosexual counterparts, and bisexual women have higher levels of substance use, including cannabis use, when compared to lesbian/gay women (Hughes, Wilsnack and Kantor, 2016; Kerr et al., 2015; Philbin et al., 2019; Schuler and Collins, 2020; Substance Abuse and Mental Health Services Administration, 2023).

Based on data from a nationally representative survey on drug use among civilian, non-institutional populations in the US, past-year cannabis use was reported by 10.3 % of heterosexual women, 26.1 % of lesbian/gay women, and 40.0 % of bisexual women, with differences remaining even after adjusting for factors such as age, race/ethnicity, and socioeconomic status (Schuler and Collins, 2020). While household surveys and similarly framed samples are valuable for providing a population-level lens, they may not fully capture the nuances of cannabis use behaviors and related health outcomes in clinical contexts. Clinical samples, in contrast, focus on individuals actively seeking healthcare, offering insights into cannabis use behaviors such as symptoms managed by cannabis use, mental health diagnoses associated with cannabis use, and cannabis use disorder. There is a paucity of research among clinical samples examining these behaviors, especially across levels of both sex and sexual identity—factors that are critical to informing and improving clinical care.

Sexual minority individuals may engage in higher rates of cannabis use due to increased social and environmental stressors. In particular, sexual minority individuals are more likely to face stressors such as discrimination and stigma, which in turn may result in both mental health conditions and coping-related substance use (Bränström and Pachankis, 2018; Hatzenbuehler, 2009; Meyer and Frost, 2013). While existing literature has explored psychosocial factors—such as stress, discrimination, and mental health symptoms—associated with cannabis use in sexual minority individuals, most studies are focused on non-clinical samples. Our study explores how cannabis use relates to health needs and outcomes in a clinical sample, with a focus on clinically diagnosed mental health conditions. This approach emphasizes the importance of considering the interplay between social stressors, substance use, and mental health within healthcare settings to inform tailored care and intervention strategies (Dyar et al., 2021; Feinstein and Newcomb, 2016; Mereish et al., 2017).

This study aims to assess the prevalence and correlates of cannabis use among sexual minority patients, specifically focusing on differences by sexual identity and sex. As one of the few known studies to examine both sexual identity and cannabis use in a large clinical sample, the findings of this research offer valuable input on factors associated with cannabis use among sexual minority patients, including mental health conditions among those reporting cannabis use and symptoms managed with cannabis use among those with a corresponding diagnosis. The characterization of cannabis use across groups of sexual identity and sex can assist primary care providers in recognizing and addressing specific considerations essential to the care of sexual minority patients.

2. Methods

2.1. Study setting and design

This was a secondary analysis of data from a large, university-based health system in Los Angeles, which includes four hospitals and over 200 primary care clinics (Javanbakht et al., 2022). Data were collected using both electronic health records (EHR) and an EHR-based questionnaire assessing tobacco and cannabis use. Beginning in June 2020, patients were prompted to complete a self-administered tobacco and cannabis questionnaire (TCQ) prior to their visit, which was sent out to all primary care patients as part of a pre-visit set of questionnaires through the online EHR portal. The TCQ measured past 3-month cannabis use and

risk of cannabis use disorder based on the Alcohol Substance Involvement Screening Test (ASSIST) (Humeniuk et al., 2008).

Eligibility criteria for completing the TCQ included: (1) being 18 years of age or older; and (2) having a new visit or annual exam visit through a primary care clinic within the system. For this analysis, we included patients who were screened between June 2020 and May 2023, completed the TCQ, identified as sexual minority—defined as lesbian, gay, or bisexual, and were male or female based on their EHR. Patients with missing sex, age, or sexual orientation data were excluded from the analysis. The study was approved by the institutional review board at the University of California, Los Angeles and the need for informed consent was waived by the ethics committee.

2.2. Data collection and measures

Demographic characteristics, including age, race/ethnicity, sex, sexual identity, and employment, were extracted from patient EHRs. These factors were collected for all new patients through the patient portal. For patients who did not complete their pre-visit questionnaires, the health system implemented a clinic workflow at visit registration to remind and assist them to complete questionnaires prior to seeing their provider.

For the purpose of this research, race/ethnicity categories with small sample sizes, including American Indian or Alaska Native and Middle Eastern or North African, were merged into a single race/ethnicity category (other). Other race/ethnicity also included those who reported other, multiple races or do not identify with any race. Sex was ascertained from patient EHR data. For sexual identity, patients were asked whether they identify as Lesbian or Gay, Straight, Bisexual, Other, Something else, or Choose not to disclose. For this study, those who reported being Lesbian or Gay or Bisexual were included in the analysis.

Cannabis use data were collected using the TCQ, which uses questions based on the World Health Organization's (WHO) validated Alcohol Substance Involvement Screening Test (ASSIST V3.0) (Humeniuk et al., 2008; WHO ASSIST Working Group, 2002) as modified by The National Institute on Drug Abuse (NIDA) (NIDA, 2012). The questionnaire takes up to 5 min to complete and was designed to be used in healthcare settings. It has been validated for use in various groups and has demonstrated high test-retest reliability (McNeely et al., 2014; Spear et al., 2016). Patients were asked how often they used cannabis in the past 3 months. The subsequent questions focused on identifying risky use of cannabis, including the desire to use cannabis, problems associated with cannabis use, and efforts to control or stop using. Patients were also asked whether they used cannabis to manage a range of symptoms including pain, nausea, stress, sleep, depression or sadness, and worry or anxiety (Gelberg et al., 2024). This analysis focused on symptoms related to mental health, including stress, depression or sadness, and worry or anxiety.

The medical conditions included for analysis were based on diagnoses listed in the EHR and associated with the visit in which cannabis use was assessed. Analyses focused on mental health conditions, specifically those meeting the clinical threshold diagnoses based on International Classification of Diseases, Tenth Revision (ICD-10) for: anxiety disorders (ICD-10 F41), depressive disorders (ICD-10 F33), and severe stress (ICD-10 F43).

2.3. Analytic strategy

The main outcome of interest was any cannabis use in the past 3 months. Differences in the prevalence of outcome of interest by sociodemographic characteristics were assessed and compared across sexual identity using Wilcoxon rank-sum tests and chi-squared tests as appropriate.

To assess the relationship between sexual identity and cannabis use, logistic regression models were used to test for an interaction between sexual identity and sex. A significant interaction supported stratifying analyses by sex. Sex-stratified multivariable logistic regression models were then conducted to evaluate the association between sexual identity and cannabis use, adjusting for age and race/ethnicity based on their known associations with both the exposure and outcome.

Separate multivariable logistic regression models were used to examine the odds of moderate- to high-risk cannabis use disorder (CUD) among bisexual versus gay/lesbian patients. Moderate-to-high CUD risk was based on a modified ASSIST scoring algorithm that differentiates those who are at no-, low- (score 1–7), moderate- (score 8–26), and high-risk (score 27 +) for cannabis use disorder (WHO ASSIST Working Group, 2002). For use in our clinical settings, the scoring system was modified in consultation with the ASSIST developers to increase the cut-off for moderate risk of cannabis use from 4 to 8, with the intention of accounting for patients who experienced social or health consequences related to cannabis use in addition to identifying patients with high frequency of cannabis use.

Multivariable logistic regression models were also used to examine associations between sexual identity and diagnosed mental health conditions among those with cannabis use, as well as symptoms managed with cannabis use among those with a corresponding diagnosis. All regression models included a sex by sexual identity interaction term and were adjusted for age and race/ethnicity. When the interaction term was not statistically significant, we reported the overall main effect of sexual identity from the full model including age, sex, and sexual identity. All analyses were conducted using R (version 4.3.2) (R Development Core Team).

3. Results

3.1. Overall sample demographic characteristics

Among the eligible 9869 sexual minority patients, 30.7 % reported cannabis use in the past 3 months (Table 1). The median age was 36 (min, max: 18, 98) years, and the sample was evenly split by sex (50.2 % male, 49.8 % female). The largest racial/ethnic group identified as Other race (36.4 %), followed by White (28.9 %) and Hispanic (16.6 %). In terms of sexual identity, 61.9 % identified as lesbian or gay and 38.1 % identified as bisexual. Only 10.2 % of the sample were unemployed.

Table 1
Sociodemographic Characteristics Among Adult, Lesbian, Gay, and Bisexual Primary Care Patients, June 2020-January 2023.

	n (%)
Total	9869
Age, years, median (min, max)	36 (18, 98)
Sex	
Male	4952 (50.2)
Female	4917 (49.8)
Race/Ethnicity	
Asian	964 (9.8)
African American/Black	372 (3.8)
Hispanic	1635 (16.6)
Other*	3595 (36.4)
White	2857 (28.9)
Sexual identity	
Lesbian or Gay	6104 (61.9)
Bisexual	3765 (38.1)
Unemployed	1008 (10.2)
Cannabis Use	3031 (30.7)

min = minimum, max = maximum

* Other race/ethnicity includes those who selected American Indian or Alaska Native, Middle Eastern or North African, other, multiple races, or do not identify with a race.

3.2. Demographic characteristics by sex and sexual identity

Among sexual minority females reporting cannabis use (n = 1679), 28.2 % identified as lesbian or gay and 71.8 % identified as bisexual (Table 2). Bisexual females were younger (median: 28) compared to lesbian or gay females (median: 34) (W=373,080, p-value <0.001). Among sexual minority males reporting cannabis use (n = 1352), 76.3 % identified as gay and 23.7 % identified as bisexual. Gay males were generally older (median: 37) compared to bisexual males (median: 30) (W=211,168, p-value <0.001).

3.3. Multivariable logistic regression results for association between sexual identity and cannabis use

A multivariable logistic regression with an interaction term between sex and sexual identity was tested to determine whether the association between sexual identity and cannabis use differed by sex. The interaction was found to be significant (adjusted odds ratio (AOR): 1.23; 95 % confidence interval (CI): 1.00,1.53), prompting stratification by sex for further analysis (Table 3). Based on multivariable analyses among females, those who identified as bisexual had 1.67 times the odds of cannabis use as compared to lesbian or gay females (AOR: 1.67; 95 % CI: 1.46, 1.92) after adjusting for age and race/ethnicity. Bisexual males had 1.47 times the odds of cannabis use compared to gay males (AOR: 1.47; 95 % CI: 1.24, 1.73).

3.4. Multivariable logistic regression results for association between sexual identity and moderate-to-high risk of cannabis use disorder

A multivariable logistic regression with an interaction term between sex and sexual identity was tested to determine whether the association between sexual identity and moderate-to-high risk of CUD differed by sex. The interaction was statistically significant (AOR: 0.65; 95 % CI: 0.46, 0.92), and the models were subsequently stratified by sex (Table 3). Among males, the odds of moderate-to-high risk of CUD in bisexual males reporting cannabis use was 1.48 (95 % CI: 1.14, 1.93) times the odds of CUD in gay males reporting cannabis use, adjusted for age and race/ethnicity. There was no difference in moderate-to-high risk of CUD between bisexual and lesbian or gay females reporting cannabis use (AOR: 0.89; 95 % CI: 0.71, 1.13).

3.5. Multivariable logistic regression results for association between sexual identity and mental health diagnosis among those reporting cannabis use

A multivariable logistic regression with an interaction term between sex and sexual identity was tested to determine whether the association between sexual identity and depression diagnosis differed by sex. The interaction was statistically significant (AOR: 0.65; 95 % CI: 0.43, 0.99), and the models were further stratified by sex (Table 3). Among bisexual males reporting cannabis use in the past 3 months, the odds of depression diagnosis was 1.86 (95 % CI: 1.34, 2.56) times the odds among gay males reporting cannabis use in the past 3 months, adjusting for age and race/ethnicity. There was no difference in depression diagnosis between bisexual and lesbian or gay females reporting cannabis use (AOR: 1.25; 95 % CI: 0.95, 1.65).

The interaction term between sex and sexual identity was not statistically significant in the model assessing the association between sexual identity and anxiety diagnosis (AOR: 1.05; 95 % CI: 0.74, 1.48). In the main effects model (excluding the interaction term), the odds of anxiety diagnosis among bisexual patients reporting cannabis use was 1.26 (95 % CI: 1.06, 1.50) times the odds among lesbian or gay patients, adjusting for sex, age, and race/ethnicity.

In the model evaluating the association between sexual identity and severe stress diagnosis, the sex and sexual identity interaction term was statistically significant (AOR: 2.71; 95 % CI: 1.29, 6.01), prompting stratification by sex (Table 3). Among bisexual females reporting cannabis use in the past 3 months, the odds of severe stress diagnosis was 2.44 (95 % CI: 1.45, 4.35) times the odds among lesbian or gay females reporting cannabis use in the past 3 months, adjusting for age and race/ethnicity. There was no difference in severe stress diagnosis between bisexual and gay males reporting cannabis use (AOR: 0.99; 95 % CI: 0.54, 1.71).

3.6. Multivariable logistic regression results for association between sexual identity and mental health symptoms managed with cannabis use

A multivariable logistic regression model including an interaction term between sex and sexual identity was used to assess whether the association between sexual identity and reporting cannabis use for depression or sadness symptoms differed by sex. The interaction was statistically significant (AOR: 0.49; 95 % CI: 0.27, 0.87), and models were stratified by sex for further analysis (Table 3). Among bisexual males, the odds of reporting cannabis use for depression or sadness symptoms was 2.44 times the odds among gay males (95 % CI: 1.34, 4.52), adjusting for age and race/ethnicity. There was no difference in

Table 2
Prevalence of Cannabis Use Among Adult, Lesbian, Gay, and Bisexual Primary Care Patients, June 2020-January 2023, by Sociodemographic Characteristics, Stratified by Sex and Sexual Identity.

	Cannabis Use (past 3 months)					
	Female (n = 1679)			Male (n = 1352)		
	Lesbian or Gay (n = 473; 28.2 %) n (%)	Bisexual (n = 1206; 71.8 %) n (%)	p-value	Gay (n = 1032; 76.3 %)	Bisexual (n = 320; 23.7 %)	p-value
Age, years, median (IQR)	34 (26, 47)	28 (24, 34)	< 0.001[a]	37 (30, 52)	31 (25,40)	< 0.001[a]
Race/Ethnicity			0.27[b]			0.66[b]
Asian	29 (6.1)	101 (8.4)		74 (7.2)	23 (7.2)	
African American/Black	20 (4.2)	58 (4.8)		41 (4.0)	11 (3.4)	
Hispanic	69 (14.6)	203 (16.8)		167 (16.2)	56 (17.5)	
Other	189 (40.0)	477 (39.6)		417 (40.4)	138 (43.1)	
White	146 (30.9)	327 (27.1)		298 (28.9)	79 (24.7)	
Unemployed						
Yes	55 (11.6)	155 (12.9)	0.55[b]	100 (9.7)	44 (13.8)	0.05[b]

IQR=Interquartile range
*Other race/ethnicity includes those who selected American Indian or Alaska Native, Middle Eastern or North African, other, multiple races, or do not identify with a race.
[a] p-value represents results from Wilcoxon rank-sum test comparing medians across groups of sexual identity
[b] p-value represents results from chi-squared test comparing distribution of frequencies of variables across groups of sexual identity

Table 3
Multivariable logistic regression models assessing the relationship between sexual identity and sex on cannabis use, moderate-to-high risk[a] of cannabis use disorder, mental health diagnoses, and symptoms managed with cannabis use among lesbian, gay, and bisexual primary care patients, June 2020–January 2023.

	Sex*Sexual Identity Interaction OR (95 %CI)	p-value for Interaction	Bisexual vs. Gay Male OR (95 % CI)	Bisexual vs. Lesbian/Gay Female OR (95 % CI)	Bisexual vs. Lesbian/Gay Main Effect OR (95 % CI)
Cannabis Use, past 3 months	1.23 (1.00–1:53)	0.05	1.47 (1.24, 1.73)	1.67 (1.46, 1.92)	-
Moderate-to-high risk[a] of Cannabis Use Disorder	0.65 (0.46, 0.92)	0.02	1.48 (1.14, 1.93)	0.89 (0.71, 1.13)	-
Mental Health Diagnoses					
Depression	0.65 (0.43, 0.99)	0.04	1.86 (1.34, 2.56)	1.25 (0.95, 1.65)	-
Anxiety	1.05 (0.74, 1.48)	0.78	-	-	1.26 (1.06, 1.50)
Severe stress	2.71 (1.29, 6.01)	0.01	0.99 (0.54, 1.71)	2.44 (1.45, 4.35)	-
Mental Health Symptoms					
Depression or sadness	0.49 (0.27, 0.87)	0.01	2.44 (1.34, 4.52)	0.79 (0.47, 1.33)	-
Worry or anxiety	1.07 (0.63, 1.87)	0.82	-	-	1.09 (0.84, 1.40)
Stress	0.46 (0.07, 2.63)	0.32	-	-	1.96 (0.81, 4.81)

OR: Odds Ratio
CI: Confidence Interval

[a] moderate-to-high risk for cannabis use disorder is defined as a score of 8 or higher per the modified ASSIST scoring algorithm

reporting cannabis use for depression or sadness symptoms between bisexual and lesbian or gay females (AOR: 0.79; 95 % CI: 0.47, 1.33).

The interaction term between sex and sexual identity was not significant in the model assessing cannabis use for worry or anxiety symptoms (AOR: 1.07; 95 % CI: 0.63, 1.97) (Table 3). There was no difference in reporting cannabis use for worry or anxiety symptoms between bisexual and lesbian or gay patients (AOR: 1.09; 95 % CI: 0.84, 1.40).

The interaction term between sex and sexual identity was not significant in the model assessing cannabis use for stress symptoms (AOR: 0.46; 95 % CI: 0.07, 2.63). There was no difference in reporting cannabis use for stress symptoms between bisexual and lesbian or gay patients (AOR: 1.96; 95 % CI: 0.81, 4.81).

4. Discussion

Our findings show an increased odds of cannabis use among both female and male bisexual patients in comparison to lesbian or gay patients. Consistent with prior research in nonclinical samples, which has shown elevated levels of cannabis use among bisexual individuals compared to both heterosexual individuals and other sexual minority groups (Dyar et al., 2022; Schofield et al., 2023), our findings further underscore the heightened disparities in cannabis use among bisexual individuals relative to their lesbian and gay counterparts Prior research has found that stigma related to bisexuality contributes to problematic cannabis use, with individuals using cannabis as a coping mechanism to manage negative emotions associated with their experiences (Dyar et al., 2022). Our study also found that bisexual patients reporting cannabis use tended to be younger compared to their lesbian or gay counterparts, both among females and males. These findings align with prior research that shows cannabis use is more prevalent among younger patients (Gelberg et al., 2024), but further highlight differences in age by sexual identity. Specifically, younger bisexual individuals may face unique challenges related to identity development, which could contribute to their increased likelihood of using cannabis compared to their gay counterparts (Dyar et al., 2023).

Our study reveals significant differences in odds of cannabis use disorder between male bisexual and gay patients. These findings are consistent with another study (Schofield et al., 2023), which found that participants identifying as bisexual reported more severe symptoms of cannabis use disorder in comparison to those identifying as heterosexual. The greater odds of cannabis use disorder among bisexual males may be linked to experiences specific to this group. For example, a number of studies have demonstrated more negative attitudes toward bisexual males in comparison to bisexual females and other sexual minority groups, potentially contributing to internalized feelings of stigma, rejection, and identity confusion (Balsam and Mohr, 2007; Dodge et al., 2016; Dyar, 2022; Matsick and Rubin, 2018). Our study found a higher odds of diagnosed depression, a significant correlate of stigma (O'Donnell and Foran, 2024), among bisexual males who reported cannabis use. Furthermore, bisexual males had a greater odds of cannabis use for managing symptoms of depression or sadness compared to gay males. These results align with previous studies indicating that bisexual males experience higher levels of mental health symptoms and report greater cannabis use for coping compared to gay and heterosexual males (Ross et al., 2018; Schofield et al., 2023).

Notably, sexual minority females reported higher cannabis use overall, a pattern that contrasts with trends in the general population (Gelberg et al., 2024), but is consistent with prior research on sexual minority groups (Dyar, 2022; Mantey, Yockey and Lee, 2021). Studies suggest that this disparity may be due to heightened stress levels among sexual minority females, who face unique challenges at the intersection of gender and sexual orientation (Lehavot and Simoni, 2011). Furthermore, feelings of bisexual illegitimacy have been shown to increase cannabis use among bisexual females, who may face "double discrimination" from both heterosexual individuals and members of the lesbian or gay community (Ehlke et al., 2024; Velasco, Miranda-Tena and Sanmartín, 2024). Our results indicate that bisexual females have higher odds of severe stress disorders in comparison to gay females. However, when examining cannabis use for managing stress symptoms, the interaction between sex and sexual identity was not statistically significant; therefore, stratified results were not assessed. Instead, we reported the overall association between sexual identity and cannabis use for stress symptoms, which was not statistically significant. It is important to note that since cannabis use for symptom management was assessed only among individuals with a formal diagnosis, those experiencing subclinical mental health symptoms—not severe enough to meet diagnostic criteria—were not captured in our results. However, these individuals may still use cannabis as a coping mechanism for their symptoms. Additionally, patients with a formal diagnosis may be receiving treatment through other means, such as therapy or medication, which could reduce differences in cannabis use for symptom management.

Unlike prior research focused on nonclinical populations, our study provides direct evidence from clinical settings, demonstrating the relationship between mental health and increased cannabis use. Our findings support existing research showing the disproportionate levels of mental health and substance use disorders in sexual minority populations (Bränström and Pachankis, 2018). Furthermore, our study demonstrates that more bisexual patients in our sample experienced mental health issues compared to lesbian or gay patients. These findings emphasize the need for further investigation into cannabis use and mental health outcomes in healthcare settings, particularly among bisexual individuals.

Limitations of this study include the use of cross-sectional data regarding cannabis use, hindering our ability to determine whether the observed patterns of use accurately reflect patients' longitudinal behaviors. Establishing the directionality of cannabis use and mental health conditions is also challenging. However, the inclusion of data on symptoms managed with cannabis use, coupled with medical diagnoses from patient health records, strengthens our findings. Our analysis relies on self-reported cannabis use data which may be prone to recall errors, but using a 3-month recall period helps minimize this potential. Response bias is a concern when collecting sensitive data, but the use of self-administered computerized questionnaires helps minimize social desirability bias. Our results may not be generalizable to the broader Los Angeles population due to disparities in access to care across the region, nor to areas where cannabis use is not legalized. However, as more states legalize cannabis use, our results can inform primary care practices and healthcare systems across the country.

5. Conclusions

The findings of this study highlight notable differences in cannabis use in bisexual patients in comparison to lesbian and gay patients. Our findings make clear the need for primary care providers to be informed and prepared to identify cannabis use and address challenges related to cannabis use and cannabis use disorder in sexual minority patients, particularly within the context of mental health. Additionally, our results illustrate the heterogeneity in cannabis use, cannabis use disorder, symptoms managed by cannabis use, and mental health disorders across sexual minority groups, emphasizing the need for individualized primary care and innovative interventions tailored to this population.

Author disclosure statement

No competing financial interests exist. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

CRediT authorship contribution statement

Naira Setrakian: Writing – review & editing, Writing – original draft, Investigation, Formal analysis, Data curation, Conceptualization. **Lillian Gelberg:** Writing – review & editing, Project administration, Funding acquisition. **Julia Koerber:** Writing – review & editing, Conceptualization. **Pamina M Gorbach:** Writing – review & editing. **Marissa J Seamans:** Writing – review & editing. **Un Young Chung:** Formal analysis, Data curation. **Whitney N Akabike:** Writing – review & editing, Project administration. **Marjan Javanbakht:** Writing – review & editing, Supervision, Project administration, Funding acquisition. **Steven Shoptaw:** Writing – review & editing, Conceptualization. **Alison Cerezo:** Writing – review & editing.

Funding

This work was supported by the University of California Tobacco-Related Disease Research Program (TRDRP) grant number T29IR0277, NIH National Center for Advancing Translational Science (NCATS) UCLA CTSI grant number UL1TR001881 and California Department of Cannabis Control grant number DCC-93308.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

We would like to acknowledge with much appreciation the support of the following individuals, who contributed their wisdom and experience to implementation and collection of tobacco and cannabis screening in our health system (listed alphabetically, all with David Geffen School of Medicine at UCLA): Robert L. Ali, MBBS; Anne Marie Arikian, MD; Douglas Bell, MD, PhD; Michelle Bholat, MD; Ziva Cooper, PhD; Mary Eileen Cronin, PhD; Mark Grossman, MD, MBA; Timothy McCager Hall, MD, PhD; Bernard J. Katz, MD; Michael Ong, MD, PhD; Janet P. Pregler, MD; and Samuel A. Skootsky, MD. Drs Bell, Bholat, and Ong received financial compensation for their contributions; the other individuals named did not.

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