Associations of Sexual Identity and Gender Identity With Multiple Cannabis Use Outcomes in Young Adulthood

Cannabis
2026
© Author(s) 2026
researchmj.org
10.26828/cannabis/2026/000351
Volume 9, Issue 3

Paul W. Martines[1,2,3], Junhan Cho[1,2], Dae-Hee Han[10,11], Evan A. Krueger[5], Alyssa F. Harlow[1,2], Jessica L. Barrington-Trimis[1,2], Nikki S. Jafarzadeh[1,2], Brigid Mariko Conn[2,3,6,7], Carolyn F. Wong[2,6,7], Mark A. Prince[2,8], Gabriel Robles[2,9], Adam M. Leventhal[1,2,4], & Dayoung Bae[1,2]

[1]Department of Population and Public Health Sciences, University of Southern California Keck School of Medicine
[2]Institute for Addiction Science, University of Southern California
[3]Department of Psychology, University of Southern California
[4]USC Norris Comprehensive Cancer Center, University of Southern California
[5]School of Social Work, Tulane University
[6]Division of Adolescent and Young Adult Medicine, Children's Hospital Los Angeles
[7]Department of Pediatrics, University of Southern California Keck School of Medicine
[8]Department of Psychiatry and Behavioral Sciences, University of Southern California Keck School of Medicine
[9]Suzanne Dworak-Peck School of Social Work, University of Southern California
[10]Department of Behavioral, Social, and Health Education Sciences, Emory University
[11]Winship Cancer Institute of Emory University

ABSTRACT

Objective: Broadly, young adults who identify as sexual or gender minorities use cannabis at disproportionately high rates. However, it is unclear whether disparities differ across sexual or gender identities (e.g., gay/lesbian, bisexual, pansexual, non-binary), or across the wide range of cannabis products and modes of consumption. **Method:** Data were from a prospective cohort of young adults, originally recruited from 10 Southern California high schools (N = 2,706). Individuals were digitally surveyed four times as young adults (ages 18–23) from 2019 to 2022. Past 30-day frequency of five cannabis products (combustible cannabis, cannabis vapes, edibles, blunts, and concentrated cannabis products) and number of products used in the past 30 days were compared across seven sexual identities (heterosexual, asexual, bisexual, gay/lesbian, pansexual, queer or other identity, and questioning) and four gender identities (cisgender female, cisgender male, non-binary, and transgender) using time-varying contemporaneous associations after adjusting for sociodemographic factors (age, race/ethnicity, education, employment status, and financial status). Some sexual and gender identity groups had small sample sizes, which may limit the precision of estimates. **Results:** Compared to heterosexual participants, most sexual identities (except for asexual) reported more frequent use of cannabis products. For example, gay/lesbian participants exhibited a higher past 30-day cannabis use frequency across all five cannabis products, while bisexual participants exhibited a higher past 30-day cannabis use frequency across 4 out of 5 cannabis products. Among gender minority participants, transgender participants exhibited higher estimated frequencies of past 30-day cannabis use across 4 out of 5 cannabis products. **Conclusions:** Inclusive measurement of sexual and gender identity in research may aid in more precise identification of cannabis use disparities.

Key words: cannabis; disparities; sexual identity; gender identity; young adulthood

Sexual (i.e., bisexual, lesbian/gay, and queer individuals) and gender (i.e., transgender, non-binary, gender diverse) minority (SGM) individuals in the United States (U.S.) are a

Corresponding Author: Paul W. Martines, MPH, Department of Psychology, University of Michigan, 2232 East Hall, 530 Church St., Ann Arbor, MI, 48109. Phone: (203) 257-5883. Email: pwmart@umich.edu

rapidly growing population (Gallup, 2024). Between 2012 and 2024, prevalence of self-identification as lesbian, gay, bisexual, transgender, or queer (LGBTQ+) among U.S. adults increased from 3.5% to 9.3% (Gallup, 2024). While identification with any sexual or gender minority group has held relatively steady in older populations, it has sharply risen among young adults–the percentage of Generation Z (born between 1997 and 2006) who identify as LGBTQ+ has more than doubled (from 10.5% to 23.1%) between 2017 and 2024 (Gallup, 2024). When looking more closely at gender identity, 5.1% of U.S. adults under 30 years old identify as trans or non-binary compared to only 1.6% of adults 30 to 49 years old and only 0.3% of adults over 50 years old identifying as a gender minority (Pew Research Center, 2022). This notable rise in identification as a sexual and gender minority among younger generations in the U.S. is partly driven by increased identification as bisexual among adults under 30, with over half of LGBTQ+ Gen Z (59%) and millennial (52%) adults identifying as bisexual (Gallup, 2024). Still, this trend can also be reflective of changing societal norms and increased acceptance of the LGBTQ+ population over the decades.

Young adults who identify with any sexual or gender minority group often encounter social stigma, bullying, minority stress, violence, and discrimination throughout their lifespan (Duncan & Hatzenbuehler, 2014; Kosciw et al., 2012; Meyer, 2003), which are observed to contribute to stark health inequities in the short term like increased stress, mental health disorders, and substance use, and in the long term like higher rates of suicidality, housing insecurity, and chronic health conditions (Hatzenbuehler et al., 2013; Meyer, 2003). Specifically, young adults who identify as a sexual or gender minority have disproportionately high rates of substance use and psychiatric problems as compared to heterosexual or cisgender young adults (Goldbach et al., 2014; The Trevor Project, 2019).

Alongside the rapid expansion of medical and recreational cannabis legalization in the U.S. in recent years, cannabis use among young adults has increased–approximately 30% of U.S. young adults (19–30 years) reported past 30-day cannabis use in 2021, a 71% increase from 2011 (Patrick et al., 2022). Most current evidence suggests that identifying with a sexual or gender minority group is associated with increased risk of past 30-day cannabis use (Kerr et al., 2015; Liautaud et al., 2021), more frequent cannabis use (Gonzales, 2020; Schofield et al., 2023), and elevated risk for cannabis use disorder (CUD), highlighting disproportionately high rates of cannabis use compared to heterosexual or cisgender individuals (Dyar, 2022; Parent et al., 2021).

A 2020 U.S. national study reported that 29.4% of sexual minority adults used cannabis in the past 30 days while only 10.7% of their heterosexual counterparts reported past 30-day cannabis use (SAMHSA, 2022). A 2023 study that recruited young adult participants (18–34 years) from six metropolitan areas in the U.S. revealed that rates of past 30-day cannabis use were up to 54% for sexual minority-identifying (bisexual, gay/lesbian, or another non-heterosexual identity) women, compared to 32.7% for heterosexual women (Romm et al., 2023). Similarly, the proportion of current cannabis use was 45% for gay young adult men and 58% for bisexual young adult men, relative to 37% for heterosexual men (Romm et al., 2023).

It is important to note that increased cannabis use amongst sexual and gender minority individuals should not be interpreted as inherent to LGBTQ+ identities. Instead, minority stress theory argues that disparities in substance use amongst sexual and gender minority individuals are a function of increased exposure to discrimination, stigma, and marginalization, which may increase psychological distress and reliance on substances as a means of coping (Hatzenbuehler, 2009; Meyer, 2003). Consistent with this minority stress framework, prior research suggests that cannabis use disparities amongst LGBTQ+ young adults are reflective of unequal social environments and in-group substance use norms rather than individual-level pathology (Dyar, 2022; Mereish et al., 2017).

Most prior studies have predominantly examined cross-sectional associations of sexual or gender identity at one point in time, even though sexual and gender identities may change over time, particularly among adolescents and young adults (Srivastava et al., 2022). Importantly, observed changes in self-reported sexual and gender identity frequently reflect normative developmental processes such as identity exploration, increased self-awareness, and the

coming out process, rather than true instability or fluctuation in underlying identity (Srivastava et al., 2022).

Also, while mode of cannabis consumption can vary a great deal among young people (e.g., smoking/vaping, eating, drinking, topical) (Cloutier et al., 2022; Swan et al., 2021), most prior studies have not distinguished between different varieties of cannabis products (Corliss et al., 2010; Ford & Jasinski, 2006), limiting our knowledge of how use of a wide range of cannabis products differs across diverse sexual or gender identities. Understanding the use of a wide range of cannabis products is critically important as different cannabis products confer different risks, with higher product potency being linked to increased risks of dependence, CUD symptoms, and negative health effects (Arterberry et al., 2019; Freeman & Winstock, 2015; Simpson et al., 2021). As an example, a narrative review examining the risks of cannabis flower, concentrates, and edibles found that use of concentrates may be associated with increased risk for CUD compared to other product types, but also acknowledges other unique health risks associated with product types, such as increased respiratory concerns (asthma, COPD, etc.) being associated with cannabis flower and edibles being associated with increased hospitalizations due to accidental over-ingestion (Inman & Cservenka, 2024).

Using repeated observations from a longitudinal cohort of young adults in Southern California, we examined associations between sexual identity, gender identity, and past 30-day cannabis use frequencies across different cannabis products between 2019 and 2022. Given that specific sexual identity and gender identity differences may result in different cannabis use patterns (Gonzales, 2020; Liautaud et al., 2021; Philbin et al., 2019; Romm et al., 2023; Schuler & Collins, 2020), this study differentiated various identities (sexual: heterosexual, asexual, bisexual, gay/lesbian, pansexual, questioning, queer/another identity; gender: male/masculine, female/feminine, transgender, non-binary). Examining various identity groups may provide insights into potential heterogeneity in cannabis use patterns that could be obscured when diverse sexual and gender minority identities are collapsed into broader categories. We present the past 30-day use frequency prevalence of different cannabis products (combustible, vaping, edible, blunt, concentrates, number of cannabis products used) across each sexual and gender identity. Analyses examining associations between sexual identity, gender identity, and cannabis product use frequencies were exploratory and conducted without a priori hypotheses.

METHODS

Participants and Procedures

Participants were enrolled in an ongoing prospective cohort study on mental health and health behaviors originally recruited as students in 10 Southern California high schools in 2013 (Leventhal et al., 2015). The study sample includes participants who completed the surveys via web questionnaires conducted after high school graduation and provided valid data for sexual identity and gender identity at any of the four survey waves (T1[Spring 2019]–T4 [Spring 2022]). Information on accrual and inclusion in this study's analytic sample (N = 2,706) is depicted in Figure S1 in the Online Supplemental Materials. All participants provided written informed consent before data collection. The research was approved by the University of Southern California

Measures

Sexual identity and gender identity. At each time point, participants completed survey items assessing sexual identity (heterosexual, asexual, bisexual, gay, lesbian, pansexual, queer, questioning or unsure, another identity [fill in response], prefer not to disclose) and gender identity (response categories: male/masculine, female/feminine, transgender male, transgender female, gender variant/non-binary, additional/other gender identity [fill in response], or prefer not to disclose).

For our descriptive analyses, sexual and gender identities were reported as non-collapsed categories. In regression analyses, some identities were collapsed due to small cell sizes or due to similarity in identity constructs (Harlow et al., 2024). For sexual identity, "gay" and "lesbian" identities were collapsed into a single category that represents monosexual identities (sexual or romantic attraction to only one gender identity);

"queer" and "additional/other sexual identity" were combined into a single category since many of the write-in responses for "another sexual identity" included identities, like "demisexual" and "omnisexual" that differ from other categories, and because queer is often used as an identity for those who feel that other LGBTQ+ identities do not fully represent their experiences with sexual identity (Worthen, 2023). For gender identity, we collapsed "transgender male" and "transgender female" identities; we also used a single non-binary gender category that included those who identified as "gender variant/non-binary" and "additional/other gender identity" since many of these write-in responses were identities that did not conform to the gender binary, like "genderqueer" and "genderfluid."

We additionally created variables of sexual identity change and gender identity change to identify participants who reported their sexual identity and gender identity differently across four survey waves. Participants with one or more changes in their responses over time were coded by any changes (= 1) vs. no changes (= 0).

Past 30-day cannabis use. At each survey wave, participants reported their past 30-day use frequency of cannabis products using questions derived from validated national survey items (Eaton et al., 2010; Johnston et al., 2015). Cannabis products included "(1) combustible cannabis (e.g., pot, weed, hash, reefer, or bud) [combustible cannabis]; (2) electronic device to vape cannabis or hash oil (e.g., liquid pot, weed pen) [vaped cannabis]; (3) cannabis or THC food or drinks (e.g., pot brownies, edibles, butter, oil) [edible cannabis]; (4) blunts (i.e., cannabis rolled in tobacco leaf or cigar casing) [blunts]; and (5) dabbing (e.g., wax, shatter, budder, butane hash oil, BHO) [cannabis concentrate]." The original response categories (response options: 0, 1–2, 3–5, 6–9, 10–19, 20–29, all 30 days) were transformed into quantitative count variables by taking the mean integer value of each ordinal past 30-day frequency variable: 0, 2, 4, 8, 15, 25, and 30 (Islam et al., 2023). In addition, the number of cannabis products used was created by summing the number of cannabis products used in the past 30 days (range = 0–5) [number of cannabis products used].

Sociodemographic characteristics. Sociodemographic characteristics including age, race/ethnicity (Hispanic, Asian, African American, White, or Other [including American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, or Multiethnic/Multiracial]), degree program enrollment (yes or no), employment status (full-time/part-time vs. not currently working), and perceived financial status (living comfortably vs. other) were assessed with self-report questionnaires to investigator-defined fixed categories at baseline (for detailed response categories, see Table 1).

Statistical Analyses

We first examined the distribution of sexual identity and gender identity, cannabis use, and sociodemographic covariates. To describe differences in past 30-day cannabis use frequencies across sexual identity and gender identity groups, we estimated unadjusted negative binomial regression models and derived model-based predicted means with 95% confidence intervals. In the primary analyses, we tested time-varying associations of sexual identity and gender identity with past 30-day cannabis use frequencies over time. Sexual identity and gender identity were modeled as categorical variables using dummy-coded indicators, with heterosexual identity and cisgender female identity specified as the reference groups. Given that sexual identity and gender identity status can change over time, a series of random-effect repeated-measures regression models were conducted to examine contemporaneous time-varying associations between sexual identity and gender identity (i.e., time-varying regressors) and each past 30-day cannabis use outcome after adjusting for other covariates (time-invariant = age, race/ethnicity; and time-varying = financial status, degree program enrollment, employment status) and a survey wave time variable (coded by 1–4). Negative binomial regression models were performed to estimate rate ratios (RRs) with 95% confidence intervals (95% CIs) for count outcomes of past 30-day use frequencies. In supplemental analyses, we tested additional interaction models to further examine potential heterogeneity in these associations: (1) sexual identity × gender identity interactions, (2) interactions between identity status and identity change across waves, and (3) identity × survey wave interactions to assess potential time moderation. Statistical significance was set at .05 (two-tailed). All

analyses were conducted using Mplus version 8 (Muthén & Muthén, 2017). Full information maximum likelihood estimation was used to account for missing data.

RESULTS

Sample Characteristics

Sample characteristics at each time point and in pooled observations across the four survey waves are presented in Table 1. Of the 2,706 participants contributing 10,824 observations across the four survey waves, 77.6% identified as heterosexual, 2.5% as asexual, 9.6% as bisexual, 2.9% as gay/lesbian, 1.9% as pansexual, 1.0% identified as queer or another non-heterosexual identity, 2.7% as questioning, and 1.7% preferred not to disclose their sexual identity. For gender identity, 57.2% identified as female/feminine, 39.7% as male/masculine, 0.4% as transgender, 1.7% as non-binary or another non-conforming identity, and 1.0% preferred not to disclose their gender identity.

Table 1. *Descriptive Statistics of Study Variables*[a]

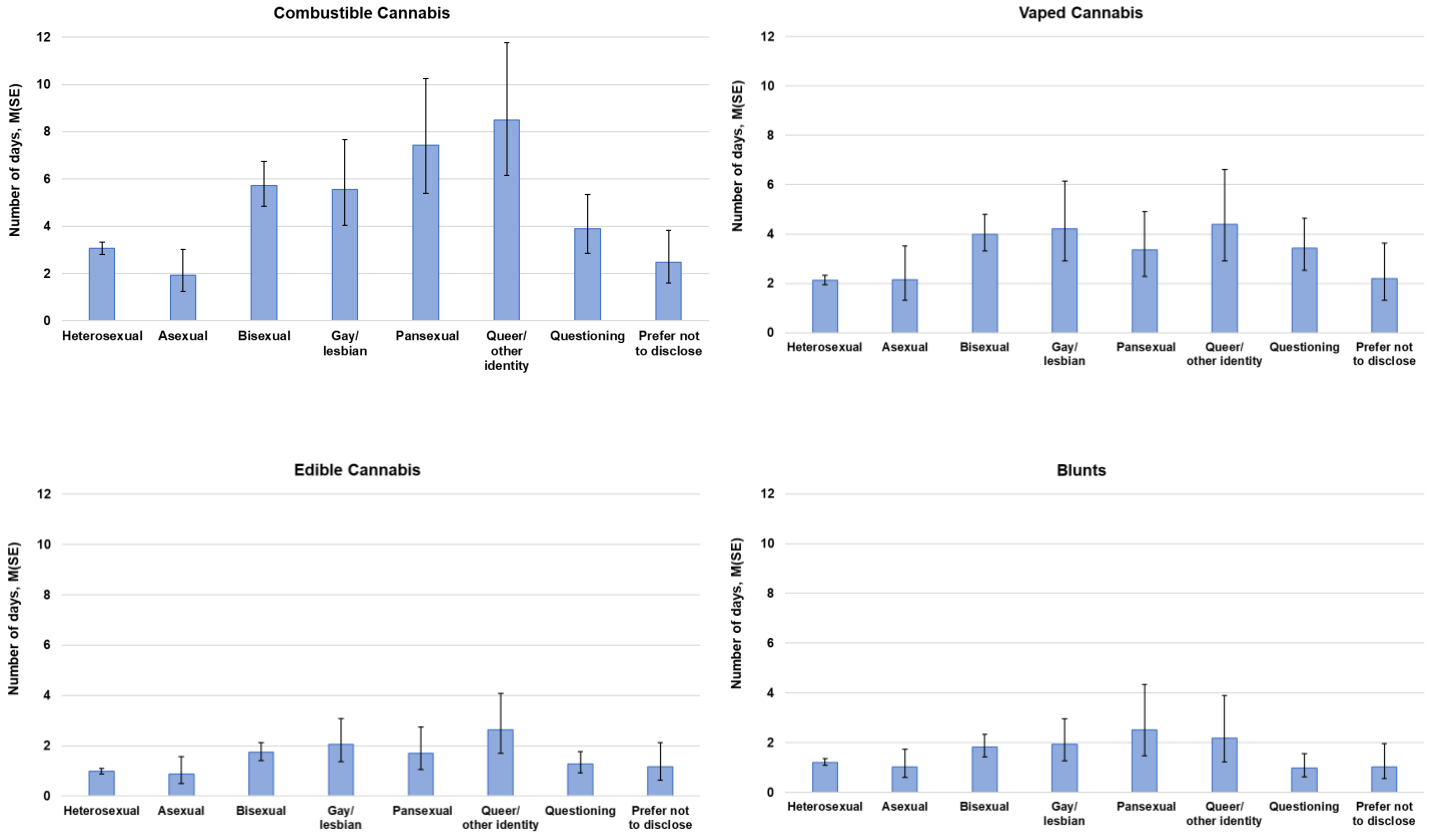
	T1	T2	T3	T4	Pooled
	N (%) or M (*SD*)	N (%) or M (*SD*)	N (%) or M (*SD*)	N (%) or M (*SD*)	N (%) or M (*SD*)
Sexual identity, N (%)					
Heterosexual	1,939 (80.7)	1,831 (77.7)	1,646 (75.9)	1,648 (75.7)	7,064 (77.6)
Asexual	64 (2.7)	61 (2.6)	60 (2.8)	40 (1.8)	225 (2.5)
Bisexual	200 (8.3)	223 (9.5)	213 (9.8)	235 (10.8)	871 (9.6)
Gay/lesbian	62 (2.6)	68 (2.9)	66 (3.0)	69 (3.2)	265 (2.9)
Pansexual	38 (1.6)	45 (1.9)	51 (2.4)	40 (1.8)	174 (1.9)
Queer or other identity[b]	20 (0.8)	26 (1.1)	23 (1.1)	26 (1.2)	95 (1.0)
Questioning	42 (1.7)	63 (2.7)	73 (3.4)	72 (3.3)	250 (2.7)
Prefer not to disclose	37 (1.5)	40 (1.7)	36 (1.7)	46 (2.1)	159 (1.7)
Change in sexual identity, N (%)					328 (12.1)
Gender identity, N (%)					
Female/feminine	1,369 (56.5)	1,357 (57.3)	1,259 (57.8)	NA	3,985 (57.2)
Male/masculine	994 (41.0)	941 (39.7)	831 (38.2)	NA	2,766 (39.7)
Transgender[c]	10 (0.4)	7 (0.3)	12 (0.6)	NA	29 (0.4)
Non-binary[d]	23 (0.7)	37 (1.6)	57 (2.6)	NA	117 (1.7)
Prefer not to disclose	27 (1.1)	27 (1.1)	19 (0.9)	NA	73 (1.0)
Change in gender identity, N (%)					120 (4.4)
Age, M (SD)	19.75 (0.45)	21.19 (0.40)	21.84 (0.40)	22.64 (0.41)	21.30 (1.15)
Race/ethnicity, N (%)					
Hispanic	1,263 (47.5)	1,122 (47.1)	1,164 (47.5)	1,038 (47.2)	4,587 (47.3)
Asian	480 (18.0)	446 (18.7)	443 (18.1)	410 (18.7)	1779 (18.4)
African American	128 (4.8)	111 (4.7)	116 (4.7)	109 (5.0)	464 (4.8)
White	441 (16.6)	393 (16.5)	400 (16.3)	356 (16.2)	1590 (16.4)
Other[e]	348 (13.1)	309 (13.0)	326 (13.3)	285 (13.0)	1268 (13.1)
Enrolled in degree program, N (%)	1,561 (69.3)	1,465 (64.7)	1,309 (62.1)	920 (43.4)	5,255 (60.1)
Employment status, N (%)[f]	NA	NA	1,323 (60.9)	1,666 (76.5)	2,989 (68.7)
Perceived financial status, N (%)[g]	1,081 (45.2)	1,055 (44.9)	865 (42.2)	800 (36.8)	3,801 (42.4)
Past 30-day cannabis use, M (SD)					
Combustible cannabis	3.17 (7.49)	3.88 (8.54)	3.59 (8.12)	3.60 (8.12)	3.56 (8.07)
Vaped cannabis	2.26 (6.14)	2.31 (6.45)	2.65 (6.78)	2.75 (6.91)	2.48 (6.56)
Edible cannabis	0.93 (3.83)	1.26 (4.21)	1.22 (3.92)	1.13 (3.51)	1.13 (3.88)
Blunts	1.71 (5.15)	1.32 (4.37)	1.16 (3.99)	1.05 (3.78)	1.32 (4.38)
Cannabis concentrates	0.83 (3.81)	1.92 (6.09)	1.42 (5.32)	1.22 (4.86)	1.34 (5.09)
Number of products used[h]	0.96 (1.56)	1.02 (1.60)	1.05 (1.60)	1.09 (1.62)	1.03 (1.60)

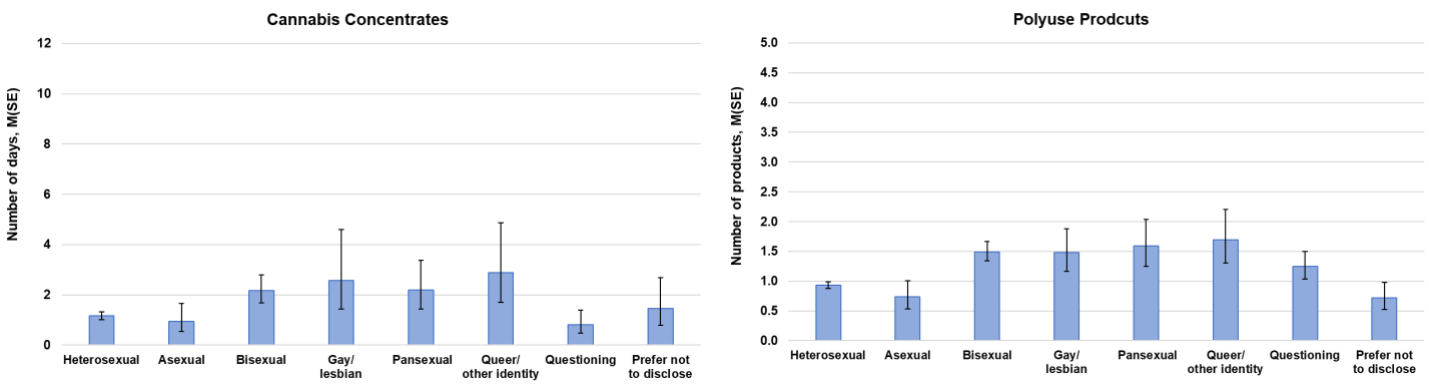
Note.
[a] Analytic sample N = 2,706. Valid %s were calculated from the pooled data (Total observation N across 4 time points = 10,824).
[b] Includes 'queer' and 'other sexual minority identities'.
[c] Includes 'transgender males' and 'transgender females'.
[d] Includes 'non-binary' and another 'non-conforming identity'.
[e] Includes 'American Indian/Alaskan Native', 'Native Hawaiian/Pacific Islander', or 'Multiethnic/Multiracial'.
[f] Working full-time (≥ 35 hours/week) or part-time (≥ 15 hours/week).
[g] Live comfortably vs. Other (Meet needs with a little left, Meet basic expenses, or Do not meet basic expenses).
[h] Number of cannabis products (i.e., combustible cannabis, vaped cannabis, edible cannabis, blunts, and cannabis concentrates) used in past 30 days (Range = 0-5).

Cannabis Use Frequency Across Sexual and Gender Identity Groups

Figure 1 displays model-based predicted means of past 30-day cannabis use frequencies across sexual identity groups. For most cannabis products, bisexual, gay/lesbian, pansexual, and queer/another identity participants reported higher predicted mean frequencies of past 30-day use than their heterosexual peers; sexual minority (vs. heterosexual) participants also typically reported use of a greater number of products in the past 30 days. Across gender identities (Figure 2), transgender and non-binary participants also tended to report higher predicted mean frequencies of past 30-day use for most cannabis products and use of a greater number of cannabis products compared to cisgender participants (female/feminine and male/masculine categories). Cohen's *d* effect sizes comparing all sexual identity groups within each time point are presented in Table S3, and corresponding comparisons across gender identity groups are presented in Table S4.

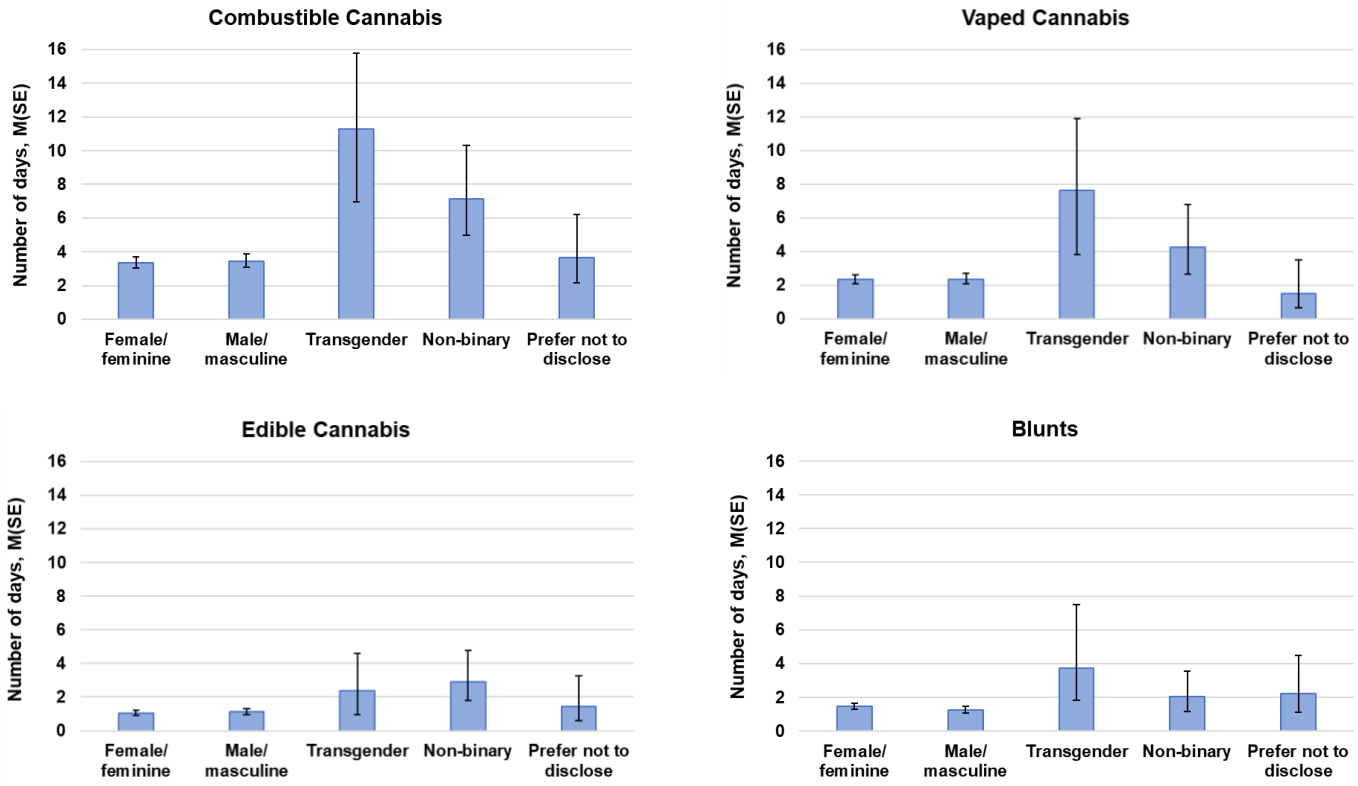
Figure 1. *Past 30-Day Use Frequency of Cannabis Use Outcomes Stratified by Sexual Identity Groups*

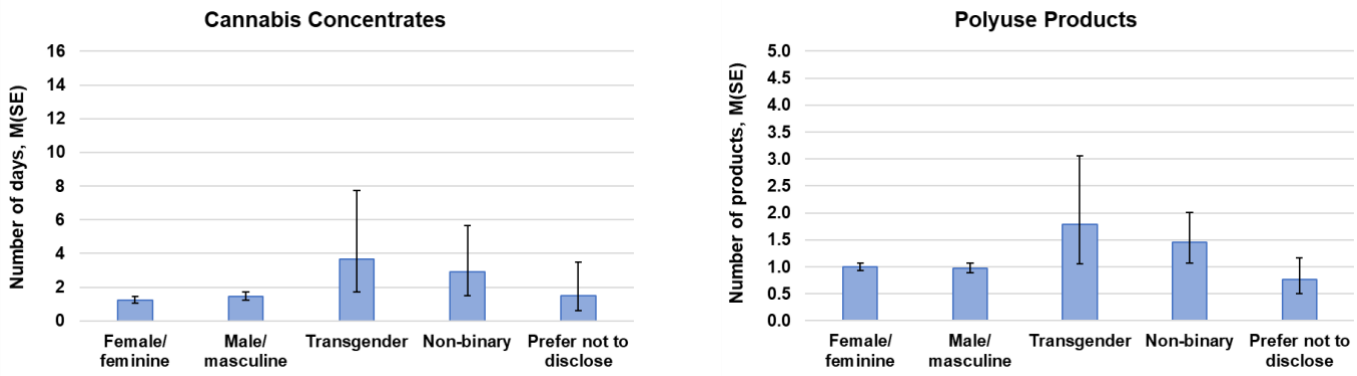




Note. X-axis = Sexual identity groups; Y-axis = Predicted means of past 30-day cannabis use frequencies or number of cannabis products used with 95% confidence intervals.

Figure 2. *Past 30-Day Use Frequency of Cannabis Use Outcomes Stratified by Gender Identity Groups*





Note. X-axis = Gender identity groups; Y-axis = Predicted means of past 30-day cannabis use frequencies or number of cannabis products used with 95% confidence intervals.

Association of Sexual Identity and Gender Identity With Cannabis Use

In Table 2, associations of sexual identity and gender identity groups with each past 30-day cannabis use outcome and number of cannabis products used over four time points are provided (see Table S1 for model intercepts and covariate estimates). In general, gay/lesbian, bisexual, pansexual, and queer individuals used cannabis more frequently than their heterosexual counterparts. For example, gay/lesbian (vs. heterosexual) participants had a statistically significantly greater frequency of past 30-day cannabis use for all products [combustible cannabis (RR = 1.93, 95% CI [1.44, 2.60]), vapes (RR = 1.95, 95% CI [1.35, 2.81]), edibles (RR = 2.00, 95% CI [1.24, 3.22]), blunts (RR = 1.61, 95% CI [1.04, 2.48]), concentrates (RR = 2.28, 95% CI [1.25, 4.19])], and reported use of a greater number of products (RR = 1.51, 95% CI [1.24, 1.85]). Bisexual (vs. heterosexual) participants reported a statistically significantly greater frequency of past 30-day use for all cannabis products (RRs ranged from 1.32 to 1.66) except for blunts, where the RR was elevated but not significant. Participants identifying as queer or another identity (vs. heterosexual) also reported a greater frequency of past 30-day use for all cannabis products, with significantly elevated RRs observed for combustible, edible, and cannabis concentrates (RRs ranged from 1.91 to 2.31; *p*s < .05), and elevated, nonsignificant RRs observed for vapes and blunts, and for the number of products used. Questioning participants (vs. heterosexual) reported use of a greater number of products (RR = 1.24, 95% CI [1.04, 1.48]), but no difference in frequency of individual product use was found. Asexual respondents and those who did not disclose their sexual identity did not significantly differ from heterosexual respondents in frequency of cannabis use for any product, nor in number of products used (*p*s > .05).

Table 2. *Associations of Sexual/Gender Identity With Past 30-Day Cannabis Use Outcomes*[a]

Regressors	Past 30-day use outcomes[b]											
	Combustible cannabis[f]		Vaped cannabis[f]		Edible cannabis[f]		Blunts[f]		Cannabis concentrates[f]		Number of cannabis products used[g]	
	RR (95% CI)	*p*	RR (95% CI)	*p*	RR (95%CI)	*p*	RR (95% CI)	*p*	RR (95% CI)	*p*	RR (95% CI)	*p*
Sexual identity												
Heterosexual	REF	--	REF	--	REF	--	REF	--	REF	--	REF	--
Asexual	0.83 (0.57, 1.19)	.30	0.95 (0.63, 1.42)	.80	1.07 (0.61, 1.89)	.80	0.97 (0.54, 1.73)	.92	0.92 (0.51, 1.64)	.76	0.84 (0.66, 1.06)	.18
Bisexual	1.50 (1.23, 1.85)	< .001	1.44 (1.15, 1.79)	.001	1.57 (1.20, 2.07)	.002	1.30 (0.96, 1.76)	.08	1.66 (1.18, 2.32)	.003	1.32 (1.17, 1.50)	< .001
Gay/lesbian	1.93 (1.44, 2.60)	< .001	1.95 (1.35, 2.81)	< .001	2.00 (1.24, 3.22)	.004	1.61 (1.04, 2.48)	.03	2.28 (1.25, 4.19)	.005	1.51 (1.24, 1.85)	< .001
Pansexual	2.02 (1.48, 2.75)	.001	1.68 (1.14, 2.48)	.01	1.39 (0.83, 2.36)	.21	1.28 (0.68, 2.43)	.44	1.53 (0.85, 2.73)	.15	1.31 (1.04, 1.66)	.02
Queer or other identity[c]	1.91 (1.32, 2.75)	.003	1.53 (0.96, 2.43)	.07	2.31 (1.39, 3.85)	.003	1.67 (0.98, 2.85)	.06	2.20 (1.28, 3.77)	.04	1.26 (0.97, 1.64)	.08
Questioning	1.24 (0.94, 1.65)	.13	1.36 (0.98, 1.88)	.06	1.25 (0.86, 1.81)	.25	0.82 (0.50, 1.32)	.41	0.65 (0.33, 1.26)	.20	1.24 (1.04, 1.48)	.01
Prefer not to disclose	1.01 (0.69, 1.46)	.96	1.08 (0.74, 1.56)	.69	1.19 (0.68, 2.07)	.52	0.73 (0.37, 1.45)	.37	1.16 (0.59, 2.31)	.65	0.93 (0.73, 1.17)	.53
Gender identity												
Female/feminine	REF	--	REF	--	REF	--	REF	--	REF	--	REF	--
Male/masculine	1.03 (0.71, 1.63)	.73	0.86 (0.42, 1.66)	.60	0.94 (0.54, 1.64)	.82	0.84 (0.50, 1.42)	.52	0.78 (0.41, 1.48)	.44	0.89 (0.41, 1.58)	.47
Transgender[d]	2.82 (1.15, 7.09)	.01	2.96 (1.43, 6.12)	.003	2.73 (0.77, 9.70)	.12	2.92 (1.14, 7.46)	.01	2.22 (1.16, 4.25)	.02	2.30 (1.19, 4.45)	.02
Non-binary[e]	2.59 (1.42, 4.73)	.002	2.32 (1.27, 4.21)	.01	2.01 (0.96, 4.19)	.06	1.28 (0.60, 2.72)	.53	1.87 (0.85, 4.08)	.11	1.91 (0.87, 4.19)	.11
Prefer not to disclose	0.90 (0.65, 1.24)	.54	0.82 (0.51, 1.63)	.75	1.95 (0.74, 5.18)	.19	2.21 (1.25, 3.91)	.01	1.22 (0.40, 3.77)	.73	1.26 (0.40, 3.97)	.68

Note.

[a] Analytic sample $N = 2{,}706$.

[b] Negative binomial random-effect repeated-measure regression models for individual cannabis use outcomes. Time-varying associations of sexual/gender identity with each outcome are separately tested adjusting for age, race/ethnicity, financial status, degree program enrollment, employment status, and time. Rate ratios (RR) with 95% confidence interval (95% CI) were calculated.

[c] Includes 'queer' and 'other sexual minority identities'.

[d] Includes 'transgender males' and 'transgender females'.

[e] Includes 'non-binary' and another 'non-conforming identity'.

[f] Past 30-day use frequency (i.e., number of days; Range = 0-30).

[g] Number of cannabis products (i.e., combustible cannabis, vaped cannabis, edible cannabis, blunts, and cannabis concentrates) used in past 30 days (Range = 0-5).

For the associations of gender identity with cannabis use, transgender (vs. cisgender female) participants had higher past 30-day cannabis use frequency for all products, with statistically significant associations observed for combustible cannabis (RR = 2.82, 95% CI [1.15, 7.09]), vapes (RR = 2.96, 95% CI [1.43, 6.12]), blunts (RR = 2.92, 95% CI [1.14, 7.46]), concentrates (RR = 2.22, 95% CI [1.16, 4.25]), and number of cannabis products used (RR = 2.30, 95% CI [1.19, 4.45]), and an elevated but non-statistically significant association for cannabis edibles (RR = 2.73, 95% CI [0.77, 9.70]). Non-binary participants (vs. cisgender female) had significantly elevated associations for frequency of combustible cannabis (RR = 2.59, 95% CI [1.42, 4.73]) and vaped cannabis (RR = 2.32, 95% CI [1.27, 4.21]), and elevated, but nonsignificant associations were observed for edible cannabis, cannabis concentrates, and for number of cannabis products used (RRs ranged from 1.87 to 2.01).

Supplemental Analyses

P-values for interaction analyses are reported in supplemental material (Table S2). No interaction of sexual identity with gender identity was observed for any outcome (p-interactions > .05). Effects of sexual identity did not differ for those who did (vs. did not) report an identity change across the study period for any outcome (p-interactions > .05). A significant gender identity × identity change interaction was observed for vaping cannabis (but not for other outcomes). Among non-binary and transgender participants, those who reported a gender identity change (vs. those who did not) reported higher vaping cannabis frequency; no associations of gender identity change with frequency of cannabis vaping were observed for females or males. Statistically significant interactions of sexual identity with time (i.e., survey wave) were observed for blunts and cannabis concentrates. The association of gender identity with cannabis use outcomes did not differ by survey wave (i.e., no interaction was observed).

DISCUSSION

This study of young adults aged 18–23 from Southern California assessed whether variation in sexual and gender identities was associated with different patterns of cannabis product use. In general, young adults identifying as a sexual or gender minority identity reported more frequent use of cannabis products compared to their heterosexual and cisgender counterparts. While our findings are consistent with previous findings of high prevalence of cannabis use among LGBTQ+ young adults (Marshal et al., 2008; Yockey & Barnett, 2023), prior studies on this topic have mainly focused on the cross-sectional relationship of SGM status with cannabis use patterns (Kerr et al., 2015; Liautaud et al., 2021; Romm et al., 2023), and different types of cannabis products were not generally distinguished (Corliss et al., 2010; Ford & Jasinski, 2006). This study used repeated observations from a longitudinal cohort to examine associations between sexual and gender identity and cannabis product use frequencies. Some sexual and gender identity groups were represented by relatively small numbers of participants, and estimates for these groups should therefore be interpreted with caution.

Two theories may explain the elevated frequency of cannabis use among SGM young adult groups (Dyar, 2022)–minority stress theory and social learning theory. According to the minority stress theory, increased substance use among SGM individuals may be attributable to chronic exposure to stressors related to the stigmatization of nonheterosexuality and gender diversity (i.e., homophobia and transphobia), such as discrimination and internalized stigma (Meyer, 2003). These minority stressors include reduced access to effective coping resources (e.g., family and social support) among SGM people, leading them to be more likely to cope by using substances (Hatzenbuehler, 2009). For example, a prior study among LGB adolescents (aged 12–17) found that certain distal factors like living at home and being in school were associated with a reduction in marijuana use, which demonstrates how strong family and social support may be a protective factor for substance use (Goldbach et al., 2015). In addition, social learning theory stipulates that more permissive substance use norms among SGM people can contribute to elevated cannabis use (Mereish et al., 2017). Indeed, compared to heterosexual young people, sexual minority young people are more likely to perceive that their close friends use substances, and that their parents and

friends are likely to approve of substance use (Mereish et al., 2017).

With regard to sexual identity, participants identifying as gay/lesbian, bisexual, pansexual, or queer tended to report higher frequencies of past 30-day cannabis use across several cannabis products relative to heterosexual participants, with particular disparities present among gay/lesbian participants who exhibited high past 30-day cannabis use frequency across all five cannabis products and bisexual participants who exhibited high past 30-day cannabis use frequency across 4 out of 5 cannabis products. Participants identifying as asexual did not differ in cannabis use relative to heterosexual participants, which may indicate that asexuality may not be as closely associated with increased cannabis use compared to other sexual identities. Prior studies have shown that substance use rates among individuals who identify as asexual are similar or are reduced compared to their heterosexual counterparts (Harlow et al., 2024; Wheldon et al., 2018). Some previous research suggests that asexuals do not differ from non-asexuals in their sense of connection to the LGBTQ+ community (Rothblum et al., 2020), while other research found that those identifying as asexual may feel less connected to the broader SGM population (Mollet & Lackman, 2018). One hypothesis is that this lack of connection may function as somewhat of a protective factor since substance use may be more visible within certain LGBTQ+ social contexts (Scroggs et al., 2025).

Thus, the findings suggest that there may be a relationship between identification as certain sexual minority identities, and not others, and increased consumption of cannabis products. These findings support previous research that has shown substance use disparities among individuals identifying as a sexual minority and emphasize the need for further research into the unique use patterns of each sexual minority identity rather than generalization of the community (Marshal et al., 2008).

With regard to gender identity, there were no significant differences in past 30-day cannabis use frequency among all cannabis products between cisgender male and cisgender female participants. Transgender participants exhibited higher estimated frequencies of past 30-day cannabis use across 4 out of 5 cannabis products relative to cisgender female participants, while non-binary participants exhibited higher estimated past 30-day cannabis use frequencies across 2 out of 5 cannabis products compared to cisgender female participants. This suggests a potential relationship between gender minority identity and cannabis use, indicating that individuals who identify as a gender minority might engage in higher levels of cannabis use across a wide range of products relative to the cisgender female reference group. This disparity in cannabis use among individuals who identify as a gender minority may be linked to unique experiences, stressors, and interpersonal factors faced by members of this community as discussed in previous research (Gonzalez et al., 2017). However, given the relatively small number of participants identifying as transgender or non-binary in the current sample, these findings should be interpreted cautiously and warrant replication in larger samples. Further research is necessary to fully understand the mechanisms leading to increased cannabis product use among individuals who identify as a gender minority (Mereish et al., 2017), though aspects of gender minority stress such as internalized stigma may influence likelihood of coping through cannabis use. Our supplemental analysis shows nonsignificant interactions with survey wave, meaning that the positive association between transgender and non-binary identities and combustible cannabis frequency does not change over time; consistent prevention or intervention for transgender and non-binary individuals may be needed. While there were no significant interactions related to changes in SGM identities, prior research has found that changes in sexual identity from heterosexual to LGBQ+ status resulted in increased alcohol, tobacco, cannabis, and other drug use (Krueger et al., 2022; Krueger et al., 2024).

This study has several limitations that should be considered. First, the present analyses examined contemporaneous associations using repeated observations from a longitudinal cohort. Accordingly, the study does not address developmental changes or whether changes in sexual or gender identity predict subsequent changes in cannabis use over time. Future research specifically designed to examine identity transitions longitudinally may be better suited to evaluate these lagged relationships. Second, some identity groups were represented by relatively

small sample sizes, which may limit the precision of estimates and the generalizability of findings for these groups. However, we decided to retain disaggregated sexual and gender identity categories to preserve potentially meaningful heterogeneity in cannabis use patterns that may be obscured when distinct categories are combined. Reporting findings for these groups separately also contributes disaggregated estimates to the existing literature that can inform future research and be incorporated into meta-analyses examining specific identity groups. Additionally, cannabis use frequency was measured using an ordinal response scale, which may reduce variability and precision in participant responses compared with continuous measures of use. Lastly, the second wave of data collection was conducted in 2020 during the height of the COVID-19 pandemic, a period that may have temporarily altered cannabis use behaviors due to elevated stress, social restrictions, and changes in routine. In sensitivity analyses including an indicator for the primary COVID-19 shutdown period, results were largely unchanged; therefore, data are not shown. Nevertheless, pandemic-related factors may limit the generalizability of findings from this wave to non-pandemic conditions.

Conclusions

In this prospective cohort study of young adults from Southern California, several sexual and gender minority identity groups reported more frequent use of cannabis products compared to their heterosexual and cisgender counterparts. As a minoritized population experiencing greater health disparities, more research among SGM populations is necessary to identify risk for increased use and potential abuse of cannabis products. In an effort to further identify and better understand disparities, inclusive measurement that reflects the diversity of SGM identities may facilitate more precise identification of disparities in cannabis use across specific identity groups and cannabis product types. In addition, future research should explore the potential mechanisms and pathways that may contribute to not only the disparities in cannabis use between minoritized SGM groups and non-SGM groups, but it should also explore reasons why the disparities within the SGM population may exist with certain minoritized identities experiencing higher risk in cannabis use than others.

REFERENCES

Arterberry, B. J., Treloar Padovano, H., Foster, K. T., Zucker, R. A., & Hicks, B. M. (2019). Higher average potency across the United States is associated with progression to first cannabis use disorder symptom. *Drug and Alcohol Dependence, 195*, 186–192. https://doi.org/10.1016/j.drugalcdep.2018.11.012

Cloutier, R. M., Calhoun, B. H., & Linden-Carmichael, A. N. (2022). Associations of mode of administration on cannabis consumption and subjective intoxication in daily life. *Psychology of Addictive Behaviors, 36*(1), 67–77. https://doi.org/10.1037/adb0000726

Corliss, H. L., Rosario, M., Wypij, D., Wylie, S. A., Frazier, A. L., & Austin, S. B. (2010). Sexual orientation and drug use in a longitudinal cohort study of U.S. adolescents. *Addictive Behaviors, 35*(5), 517–521. https://doi.org/10.1016/j.addbeh.2009.12.019

Duncan, D. T., & Hatzenbuehler, M. L. (2014). Lesbian, gay, bisexual, and transgender hate crimes and suicidality among a population-based sample of sexual-minority adolescents in Boston. *American Journal of Public Health, 104*(2), 272–278. https://doi.org/10.2105/AJPH.2013.301424

Dyar, C. (2022). A review of disparities in cannabis use and cannabis use disorder affecting sexual and gender minority populations and evidence for contributing factors. *Current Addiction Reports, 9*(4), 589–597. https://doi.org/10.1007/s40429-022-00452-5

Eaton, D. K., Kann, L., Kinchen, S., Shanklin, S., Ross, J., Hawkins, J., Harris, W. A., Lowry, R., McManus, T., Chyen, D., Lim, C., Whittle, L., Brener, N. D., Wechsler, H., & Centers for Disease Control and Prevention. (2010). Youth risk behavior surveillance—United States, 2009. *MMWR Surveillance Summaries, 59*(5), 1–142.

Ford, J. A., & Jasinski, J. L. (2006). Sexual orientation and substance use among college students. *Addictive Behaviors, 31*(3), 404–413. https://doi.org/10.1016/j.addbeh.2005.04.018

Freeman, T. P., & Winstock, A. R. (2015). Examining the profile of high-potency cannabis and its association with severity of cannabis dependence. *Psychological Medicine, 45*(15), 3181–3189. https://doi.org/10.1017/S0033291715001178

Gallup. (2024). LGBTQ+ identification in U.S. rises to 9.3%. https://news.gallup.com/poll/328645/lgbt-identification-rises.aspx

Goldbach, J. T., Tanner-Smith, E. E., Bagwell, M., & Dunlap, S. (2014). Minority stress and substance use in sexual minority adolescents: A meta-analysis. *Prevention Science, 15*(3), 350–363. https://doi.org/10.1007/s11121-013-0393-7

Goldbach, J. T., Schrager, S. M., Dunlap, S. L., & Holloway, I. W. (2015). The application of minority stress theory to marijuana use among sexual minority adolescents. *Substance Use & Misuse, 50*(3), 366–375. https://doi.org/10.3109/10826084.2014.980958

Gonzales, G. (2020). Differences in 30-day marijuana use by sexual orientation identity: Population-based evidence from seven states. *LGBT Health, 7*(1), 60–67. https://doi.org/10.1089/lgbt.2018.0236

Gonzalez, C. A., Gallego, J. D., & Bockting, W. O. (2017). Demographic characteristics, components of sexuality and gender, and minority stress and their associations with excessive alcohol, cannabis, and illicit (noncannabis) drug use among a large sample of transgender people in the United States. *The Journal of Primary Prevention, 38*(4), 419–445. https://doi.org/10.1007/s10935-017-0469-4

Harlow, A. F., Liu, F., Young, L. E., Coreas, S. I., Rahman, T., Unger, J. B., Leventhal, A. M., Barrington-Trimis, J. L., & Krueger, E. A. (2024). Sexual and gender identity disparities in nicotine and tobacco use susceptibility and prevalence: Disaggregating emerging identities among adolescents from California, USA. *Nicotine & Tobacco Research, 26*(2), 203–211. https://doi.org/10.1093/ntr/ntad131

Hatzenbuehler, M. L. (2009). How does sexual minority stigma "get under the skin"? A psychological mediation framework. *Psychological Bulletin, 135*(5), 707–730. https://doi.org/10.1037/a0016441

Hatzenbuehler, M. L., Phelan, J. C., & Link, B. G. (2013). Stigma as a fundamental cause of population health inequalities. *American Journal of Public Health, 103*(5), 813–821. https://doi.org/10.2105/AJPH.2012.301069

Inman, A., & Cservenka, A. (2024). Cannabis flower, concentrates, and edibles: A narrative review comparing prevalence of use, methods of consumption, and cannabis use disorder outcomes. *Journal of Addictive Diseases*, 1–11. https://doi.org/10.1080/10550887.2024.2418225

Islam, T., Eckel, S., Liu, F., Barrington-Trimis, J., Harlow, A. F., Benowitz, N., Leventhal, A., McConnell, R., & Cho, J. (2023). Effects of dual use of e-cigarette and cannabis during adolescence on cigarette use in young adulthood. *Tobacco Control, 33*(5), 628–635. https://doi.org/10.1136/tc-2022-057542

Johnston, L. D., O'Malley, P. M., Miech, R. A., Bachman, J. G., & Schulenberg, J. E. (2015). *Monitoring the future national survey results on drug use, 1975–2014: Overview, key findings on adolescent drug use*. University of Michigan, Institute for Social Research.

Kerr, D., Ding, K., Burke, A., & Ott-Walter, K. (2015). An alcohol, tobacco, and other drug use comparison of lesbian, bisexual, and heterosexual undergraduate women. *Substance Use & Misuse, 50*(3), 340–349. https://doi.org/10.3109/10826084.2014.980954

Kosciw, J. G., Greytak, E. A., Bartkiewicz, M. J., Boesen, M. J., & Palmer, N. A. (2012). *The 2011 National School Climate Survey: The experiences of lesbian, gay, bisexual and transgender youth in our nation's schools*. GLSEN. https://www.glsen.org/research/2011-national-school-climate-survey

Krueger, E. A., Bishop, M. D., Mallory, A. B., Srivastava, A., & Russell, S. T. (2024). Sexual identity continuity and change in a U.S. national probability sample of sexual minority adults: Associations with mental health and problematic substance use. *American Journal of Psychiatry, 181*(8), 753–760. https://doi.org/10.1176/appi.ajp.20230458

Krueger, E. A., Repati, M. L., Harlow, A. F., Unger, J. B., Lee, J. O., Pedersen, E. R., Conn, B. M., Wong, C., Young, L. E., Barrington-Trimis, J. L., & Leventhal, A. M. (2022). Changes in sexual identity and substance use during young adulthood. *Drug and Alcohol*

Dependence, *241*, 109674. https://doi.org/10.1016/j.drugalcdep.2022.109674

Leventhal, A. M., Strong, D. R., Kirkpatrick, M. G., Unger, J. B., Sussman, S., Riggs, N. R., Stone, M. D., Khoddam, R., Samet, J. M., & Audrain-McGovern, J. (2015). Association of electronic cigarette use with initiation of combustible tobacco product smoking in early adolescence. *JAMA, 314*(7), 700–707. https://doi.org/10.1001/jama.2015.8950

Liautaud, M. M., Barrington-Trimis, J. L., Liu, F., Stokes, A., Krueger, E. A., McConnell, R., & Pang, R. D. (2021). E-cigarette, cigarette, and cannabis use patterns as a function of sexual identity in a sample of Southern California young adults. *Addictive Behaviors Reports*, *13*, 100338. https://doi.org/10.1016/j.abrep.2021.100338

Marshal, M. P., Friedman, M. S., Stall, R., King, K. M., Miles, J., & Gold, M. A. (2008). Sexual orientation and adolescent substance use: A meta-analysis and methodological review. *Addiction, 103*(4), 546–556. https://doi.org/10.1111/j.1360-0443.2008.02149.x

Mereish, E. H., Goldbach, J. T., Burgess, C., & DiBello, A. M. (2017). Sexual orientation, minority stress, social norms, and substance use among racially diverse adolescents. *Drug and Alcohol Dependence, 178*, 49–56. https://doi.org/10.1016/j.drugalcdep.2017.04.013

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin, 129*(5), 674–697. https://doi.org/10.1037/0033-2909.129.5.674

Mollet, A. L., & Lackman, B. R. (2018). Asexual borderlands: Asexual collegians' reflections on inclusion under the LGBTQ umbrella. *Journal of College Student Development, 59*(5), 623–628. https://doi.org/10.1353/csd.2018.0058

Muthén, L. K., & Muthén, B. O. (2017). *Mplus user's guide* (8th ed.). Muthén & Muthén. Parent, N., Coulaud, P. J., Amirie, M., Ferlatte, O., & Knight, R. (2021). Cannabis use and mental health among young sexual and gender minority men: A qualitative study. *International Journal of Drug Policy, 91*, 102980. https://doi.org/10.1016/j.drugpo.2021.102980

Patrick, M. E., Schulenberg, J. E., Miech, R. A., Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (2022). *Monitoring the Future Panel Study annual report: National data on substance use among adults ages 19 to 60, 1976–2021*. Institute for Social Research, University of Michigan. https://doi.org/10.7826/ISR-UM.06.585140.002.07.0001.2022

Pew Research Center. (2022, June 7). About 5% of young adults in the U.S. say their gender is different from their sex assigned at birth. https://www.pewresearch.org/short-reads/2022/06/07/about-5-of-young-adults-in-the-u-s-say-their-gender-is-different-from-their-sex-assigned-at-birth/

Philbin, M. M., Mauro, P. M., Greene, E. R., & Martins, S. S. (2019). State-level marijuana policies and marijuana use and marijuana use disorder among a nationally representative sample of adults in the United States, 2015–2017: Sexual identity and gender matter. *Drug and Alcohol Dependence, 204*, 107506. https://doi.org/10.1016/j.drugalcdep.2019.06.009

Romm, K. F., Cohn, A. M., Beebe, L. A., & Berg, C. J. (2023). Disparities in cannabis use outcomes, perceived risks and social norms across sexual orientation groups of U.S. young adult women and men. *Health Education Research, 38*(6), 513–526. https://doi.org/10.1093/her/cyad038

Rothblum, E. D., Krueger, E. A., Kittle, K. R., & Meyer, I. H. (2020). Asexual and Non-Asexual Respondents from a U.S. Population-Based Study of Sexual Minorities. *Archives of Sexual Behavior*, *49*(2), 757–767. https://doi.org/10.1007/s10508-019-01485-0

Schofield, K., Cuttler, C., Conner, B. T., Prince, M. A., & Addictions Research Team (ART). (2023). Pot at the end of the rainbow: Cannabis use among sexual minorities. *Cannabis and Cannabinoid Research, 8*(5), 942–948. https://doi.org/10.1089/can.2022.0240

Schuler, M. S., & Collins, R. L. (2020). Sexual minority substance use disparities: Bisexual women at elevated risk relative to other sexual minority groups. *Drug and Alcohol Dependence, 206*, 107755.

https://doi.org/10.1016/j.drugalcdep.2019.107755

Scroggs, B., Love, H. A., Torgerson, C., & Rosenberger, J. G. (2025). Substance Use in Sexual Minority Emerging Adults: Insights Into Use by Pansexual and Asexual Individuals. Psychology of Sexual Orientation and Gender Diversity, 12(1), 165–172. https://doi.org/10.1037/sgd0000647

Simpson, K. A., Cho, J., & Barrington-Trimis, J. L. (2021). The association of type of cannabis product used and frequency of use with problematic cannabis use in a sample of young adult cannabis users. *Drug and Alcohol Dependence*, *226*, Article 108865. https://doi.org/10.1016/j.drugalcdep.2021.108865

Srivastava, A., Winn, J., Senese, J., & Goldbach, J. T. (2022). Sexual orientation change among adolescents and young adults: A systematic review. *Archives of Sexual Behavior, 51*(7), 3361–3376. https://doi.org/10.1007/s10508-022-02394-5

Substance Abuse and Mental Health Services Administration. (2022). *2020 NSDUH: National Survey on Drug Use and Health*. https://www.samhsa.gov/data/

Swan, C., Ferro, M. A., & Thompson, K. (2021). Does how you use matter? The link between mode of use and cannabis-related risk. *Addictive Behaviors, 112*, 106620. https://doi.org/10.1016/j.addbeh.2020.106620

The Trevor Project. (2019). *National survey on LGBTQ youth mental health 2019*. https://www.thetrevorproject.org/survey-2019/

Wheldon, C. W., Kaufman, A. R., Kasza, K. A., & Moser, R. P. (2018). Tobacco use among adults by sexual orientation: Findings from the Population Assessment of Tobacco and Health Study. *LGBT Health, 5*(1), 33–44. https://doi.org/10.1089/lgbt.2017.0175

Worthen, M. G. F. (2023). Queer identities in the 21st century: Reclamation and stigma. *Current Opinion in Psychology, 49*, 101512. https://doi.org/10.1016/j.copsyc.2022.101512

Yockey, R. A., & Barnett, T. E. (2023). Past-year blunt smoking among youth: Differences by LGBT and non-LGBT identity. *International Journal of Environmental Research and Public Health, 20*(6), 5304. https://doi.org/10.3390/ijerph20065304

Funding and Acknowledgements: This work did not receive funding. The authors have no conflicts of interest relevant to this work.

Copyright: © 2026 Authors et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction, provided the original author and source are credited, the original sources is not modified, and the source is not used for commercial purposes.

Issue Date: November 12, 2026

Citation: Martines, P. W., Cho, J., Han, D.-H., Krueger, E. A., Harlow, A. F., Barrington-Trimis, J. L., Jafarzadeh, N. S., Conn, B. M., Wong, C. F., Prince, M. A., Robles, G., Leventhal, A. M., & Bae, D. (2026). Associations of sexual identity and gender identity with multiple cannabis use outcomes in young adulthood. *Cannabis, 9*(3), 146–160.
https://doi.org/10.26828/cannabis/2026/000351