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Disparities in Cannabis Use among Female and Male Sexual Minority Young Adults in the US: The Role of Parenting Behaviors

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ABSTRACT

Introduction. Despite cannabis use disparities among sexual minority (SM; vs. heterosexual) young adults (SMYAs), little research has explored social influences contributing to these disparities. This study examined sexual identity subgroup differences in parenting behaviors and associations among parenting behaviors and cannabis use behaviors among YA subgroups. **Methods.** Participants were female (*N*=416; 44.7% bisexual, 7.2% lesbian) and male (*N*=228; 11.0% bisexual, 13.2% gay) YAs (ages 18-29) recruited via social media from 6 US cities. Bivariate analyses examined differences in perceived parenting (psychological control, behavioral control, knowledge, autonomy support, warmth, communication, cannabis disapproval), any past-month (current) cannabis use, and current cannabis use frequency across sexual identity subgroups. Multivariable regression examined associations among sexual identity and parenting behaviors with cannabis use outcomes. **Results.** Among female YAs, bisexual (vs. heterosexual) YAs had greater odds of cannabis use, reported more frequent use, and reported greater parental psychological control and less behavioral control, autonomy support, warmth, and communication; greater psychological control was associated with both outcomes; less autonomy support was associated with current use; and less warmth and communication were associated with use frequency. Among male YAs, gay and bisexual (vs. heterosexual) YAs had greater odds of current use and reported more frequent use and greater psychological control; gay (vs. heterosexual) YAs reported greater behavioral control and less autonomy support, warmth, and communication; and greater psychological control and less warmth and communication were associated with both outcomes. **Conclusions.** Cannabis prevention/cessation programs should target specific parenting behaviors that differentially impact cannabis use outcomes among specific SMYA subgroups.

Key words: = sexual identity; young adults; cannabis use; parenting behaviors

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Cannabis is the most commonly used federally illicit substance within the US, particularly during young adulthood (NIDA, 2022), which involves significant life changes (e.g., increased independence) and increased risk for substance use initiation (Arnett, 2005, 2015; Barroso et al., 2019; Schulenberg et al., 2021). Past-month cannabis use rates have increased from 17% in 2011 to 29% in 2021 among those ages 19-30 (Patrick et al., 2022), corresponding with expansion of medical and recreational cannabis legalization in the US (DISA Global Solutions, 2022). Despite cannabis' potential medical utility (e.g., treating chronic pain; NASEM, 2017), negative behavioral and health implications include motor vehicle crashes, mental health problems, and subsequent or current use of other substances, such as tobacco and alcohol (Memedovich et al., 2018; NASEM, 2017).

Certain groups of young adults (YAs), including sexual minority (SM) YAs (SMYAs; i.e., bisexual, gay/lesbian, or another non-heterosexual identity) report disproportionately high rates of cannabis use (Dunbar et al., 2022; Gonzales, 2020; Kerr et al., 2015; Liautaud et al., 2021; Philbin et al., 2019; Schuler & Collins, 2020). Recent national data suggest that 29.4% of SM adults reported past-month cannabis use relative to only 10.7% of heterosexual adults (NSDUH, 2020). These disparities may be especially pronounced during young adulthood, a particularly vulnerable time for SM individuals who may be acknowledging, accepting, struggling with, or disclosing their sexual identity, which may be associated with greater coping-related cannabis use (Meyer, 1995, 2003, 2013; Pollitt et al., 2017; Russell et al., 2014; Tierney & Ward, 2017). Among YAs, specifically, SMYAs are at greater risk for engaging in past-month cannabis use (Dunbar et al., 2022; Kerr et al., 2015; Liautaud et al., 2021) and report more days of cannabis use (Dunbar et al., 2022; Gonzales, 2020; Schofield et al., 2023) relative to heterosexual YAs. Moreover, important differences exist with regard to specific sexual identity and sex, with bisexual female YAs displaying higher rates of (Kerr et al., 2015) and more frequent (Parnes et al., 2017) past-month cannabis use relative to both lesbian and heterosexual female YAs. Research among male SMYAs is less consistent, with some findings suggesting that gay and bisexual (vs. heterosexual) male YAs are more likely to use cannabis (Gonzales, 2020), some findings suggesting that bisexual (vs. gay and heterosexual) male YAs report more frequent past-month use (Parnes et al., 2017), and others suggesting no differences (Liautaud et al., 2021).

Limited research has examined factors that contribute to cannabis use disparities among SMYA subgroups. Greater cannabis-specific parenting behaviors (e.g., rules about use, parental disapproval of use) have been shown to reduce likelihood for cannabis use among YAs generally (Dorius et al., 2004; Ramer et al., 2021; Vermeulen-Smit et al., 2015; Yang et al., 2022). General parenting behaviors, such as autonomy support, which promotes YAs' independence in making their own decisions, or psychological control, in which parents use guilt and emotional manipulation (Barber et al., 2011), also have known implications for cannabis use among YAs. For instance, research has shown that positive parenting behaviors (i.e., behavioral control [Graves et al., 2005; King et al., 2015; Kokotovič et al., 2022; Prins et al., 2021; Ruybal & Crano, 2020; Vermeulen-Smit et al., 2015], knowledge of adolescent/YAs' behaviors [Cardenas et al., 2022; Vermeulen-Smit et al., 2015], autonomy support [Liga et al., 2017; Vermeulen-Smit et al., 2015], warmth [King et al., 2015; Kokotovič et al., 2022; Ruybal & Crano, 2020], communication [Cardenas et al., 2022]) decrease risk for cannabis use, while negative behaviors (i.e., psychological control [Liga et al., 2017; Nelson & Padilla-Walker, 2013; Romm & Metzger, 2018, 2021; Romm et al., 2019]) increase risk for use, among adolescents and YAs.

According to Minority Stress Theory, SMYAs face unique stressors (e.g., discrimination, social rejection) related to the stigmatization of their non-heterosexual identity (Brooks, 1981; Hatzenbuehler, 2009; Meyer & Frost, 2013). Parents may be a source of this stress and discrimination for SMYAs, with over 70% of SM individuals reporting parental rejection after coming out to their parents (D'augelli et al., 2008). Parents who are more rejecting of their YA children's sexual identity may exhibit less positive (e.g., parental warmth) and greater negative (e.g., psychological control) parenting behaviors to minimize their interactions with their children, convey their disapproval, and attempt to control their children's sexual identity (Bebes et al., 2015; Fish et al., 2020; Mills-Koonce et al., 2018;

Montano et al., 2018). These parenting behaviors may in turn promote coping-related cannabis use among SMYAs. Thus, while all YAs experience some level of both positive and negative parenting behaviors, SMYAs may experience lower levels of positive and higher levels of negative parenting behaviors, which may partially explain documented cannabis use disparities among SM (vs. heterosexual) YAs.

Notably, existing research has focused primarily on SM-identifying adolescents and substance use broadly (i.e., cannabis, tobacco, alcohol, other illicit substance use aggregated). Findings suggest that SM (vs. heterosexual) adolescents report lower levels of parental knowledge and parent-child communication (Montano et al., 2018) along with greater parental rejection (Padilla et al., 2010) and psychological control (Kiekens et al., 2020), which were in turn, associated with greater substance use. Our prior work suggests that female SMYAs, particularly those who are bisexual, reported greater psychological control and lower parental knowledge, autonomy support, warmth, and communication, which were associated with greater tobacco use among bisexual versus heterosexual female YAs (Romm et al., 2023). Although male SMYAs, particularly gay YAs, reported greater negative and fewer positive parenting behaviors relative to heterosexual YAs, these parenting behaviors were not associated with tobacco use (Romm et al., 2023).

Virtually nothing is known about parental behaviors in relation to SMYAs' cannabis use. Existing research has focused on parental rejection after coming out (typically during adolescence) and suggests that SM adolescents who experience greater parental rejection are at greater risk for substance use (i.e., alcohol, illicit substance use aggregated [Fish et al., 2020; Needham & Austin, 2010; Ryan et al., 2009]) and related cravings (i.e., cannabis, nicotine, alcohol [Parnes et al., 2023]). In order to understand whether parenting behaviors may contribute to cannabis use disparities among SMYAs, the current study aimed to address gaps in previous research by examining associations between: 1) sexual identity (distinguishing bisexual, gay/lesbian, and heterosexual) and cannabis use outcomes (i.e., past-month [current] cannabis use, cannabis use frequency); 2) sexual identity and parenting behaviors (i.e., psychological control, behavioral control, knowledge, autonomy support, warmth, communication, cannabis-use disapproval); and 3) parenting behaviors and cannabis use outcomes among female and male YAs, separately.

METHODS

Study Design

This study analyzed Spring 2022 cross-sectional data among a subset of YAs who participated in a 2-year longitudinal study, the Vape shop Advertising, Place characteristics and Effects Surveillance (VAPES) study, addressing the vape retail environment and its impact on substance use among YAs (Berg et al., 2021). Participants were drawn from 6 metropolitan statistical areas (MSAs; Atlanta, Boston, Minneapolis, Oklahoma City, San Diego, Seattle) with varied cannabis legislative contexts (Public Health Law Center, 2020). The parent study aimed to examine multilevel determinants of e-cigarette and other tobacco product use over time. This study was approved by the George Washington University Institutional Review Board.

Participants & Recruitment

In Fall 2018, ads posted on Facebook and Reddit targeted eligible individuals: 1) residents of the 6 aforementioned MSAs (per home zip code); 2) English speaking; and 3) ages 18-34. Ads used indicators reflecting those eligible and used social media groups/pages and ad imagery relevant to the target population. After clicking an ad, individuals were directed to the consent form, and completed an online eligibility screener. Purposive, quota-based sampling ensured the sample represented sufficient numbers of individuals who used e-cigarettes and cigarettes, roughly equal numbers of female and male YAs, and 40% racial/ethnic minorities. Those eligible and allowed to advance to enrollment then completed the Wave 1 (W1) survey. Participants were prompted to confirm their participation via email 7 days later, and were officially enrolled and e-mailed their first incentive ($10 e-gift card).

Of the 10,433 individuals who clicked on ads, 9,847 consented, of which 2,751 (27.9%) were not allowed to advance because they were either: a)

ineligible (*N*=1,472) and/or b) excluded to reach subgroup target enrollment (*N*=1,279). Among the remaining 7,096 individuals, 48.8% (*N*=3,460) provided complete data, and 86.9% (*N*=3,006) confirmed participation.

The current study analyzed survey data collected in Spring 2022 among a subset of participants, selected to ensure representation across sexes, sexual identity, racial/ethnic backgrounds, and tobacco and cannabis use. Additionally, we targeted YAs under age 30 to capture those for whom parenting behaviors are most relevant (Padilla-Walker et al., 2013), as recent research suggests that parents continue to play a substantial role in YAs' lives (e.g., emotional, informational, tangible support) through age 29 (Minkin et al., 2024). Of the 1,147 participants targeted for this assessment, 942 (82.1%) provided complete data (and were compensated with a $10 Amazon e-gift card). In order to examine differences in parenting behaviors by sexual identity and associations between parenting behaviors and cannabis use, the current study analyzed data among 644 participants under the age of 30.

Measures

Primary Outcomes: Any Current Cannabis Use and Frequency of Past-month Cannabis Use

Participants reported the number of days they used cannabis in the past 30 days (0 to 30 days). Any current (past month) use was defined as ≥ 1 day of use; nonuse was defined as 0 days of use.

Primary Predictor: Sexual Identity by Sex Subgroup

Participants were asked, "How would you describe your sexual orientation? (select all that apply)" (heterosexual, gay, lesbian, bisexual, or another sexual identity [specify]). Participants were categorized as heterosexual (heterosexual only), gay/lesbian, or bisexual. Some participants selected multiple responses and were recoded: *N*=9 reported gay/lesbian and other [queer] and were recoded to gay/lesbian; and *N*=13 reported bisexual and other [queer] and were recoded to bisexual. Regarding sex, participants were asked, "What sex were you assigned at birth?" (female, male, other [specify], prefer not to answer). All participants reported either female or male sex.

Mechanisms of Interest: Parenting Behaviors

Participants completed assessments of parental *psychological control,* using Barber's (1996) Psychological Control Scale – Youth Self-Report (8 items; e.g., "My parent(s) changes the subject whenever I have something to say"; α=.92), *behavioral control,* using Kerr and Stattin's (2000) Parental Monitoring Scale (4 items; e.g., "My parent(s) tries to set rules about what I do with my free time"; α=.92), and *knowledge,* using Barber's Regulation Scale adapted for YAs (4 items; e.g., "My parent(s) knows what I do in my free time"; α=.90 [Padilla-Walker et al., 2008]); these scales used response options of 0=Not at all like him/her to 4=A lot like him/her. Participants also completed the Perception of Parents Scale which assesses parental *autonomy support* (7 items; e.g., "My parent(s) helps me to choose my own direction"; α=.74; [Robbins, 1995]) and *warmth* (6 items; e.g., "My parent(s) accepts me and likes me as I am"; α=.93; [Robbins, 1995]); response options were 1=Not at all true to 7=Very true. Finally, they reported on parental *communication,* assessed using the Family Communication subscale of the Youth Assets Scale (4 items; e.g., "Do you talk to your parent(s) about your problems?"; α=.85 [Cheney et al., 2015]), with response options of 0=Almost never to 3=Almost always. Mean scores were calculated for each measure of parenting behavior.

YAs also reported on their parents' cannabis-specific parenting behaviors, including parental encouragement to not use cannabis ("How often have your parents encouraged you to not use cannabis or marijuana?"; 1=Rarely or never to 7=Frequently) and parental disapproval of cannabis use ("Please rate the extent to which your parents disapprove of cannabis or marijuana use"; 1=Completely approve to 5=Completely disapprove). Given high correlations among the 2 cannabis-specific parenting items (r=.77, p<.001), these items were aggregated by calculating a mean score to create an overall measure of *parental disapproval of cannabis use*.

Sociodemographic Covariates

Participants reported their age (continuous variable), race (White, Black, Asian, Other), ethnicity (Hispanic vs. non-Hispanic), and MSA of residence. Due to limited racial and ethnic variability among specific sex-by-sexual minority subgroups (see Tables 1 and 2), participants were categorized as non-Hispanic White versus racial/ethnic minority for primary analyses. MSA of residence was used to code whether participants resided in a legalized (Boston, San Diego, Seattle) versus not legalized (Atlanta, Minneapolis, Oklahoma City) recreational cannabis context. Participants who had moved since Wave 1 were coded based on their current MSA of residence (*N*=119).

Data Analysis

All analyses were conducted among female and male YAs, separately, using Mplus 8.8. Bivariate analyses (i.e., Chi-square tests, one-way ANOVAs) examined associations between sexual identity and participant sociodemographic characteristics (i.e., age, race, ethnicity, legalized recreational cannabis context), parenting behaviors (psychological control, behavioral control, knowledge, autonomy support, warmth, communication, cannabis disapproval), current cannabis use, and frequency of current cannabis use (among those who report current use). Multivariable logistic and multivariable zero-inflated poisson regression examined associations among sexual identity and parenting behaviors with odds of current cannabis use and frequency of cannabis use, respectively, controlling for participant age, racial/ethnic minority status, and legalized recreational cannabis context.

RESULTS

Parenting Behaviors and Cannabis Use among Female YAs

Among female YAs (*N*=416), 44.7% identified as bisexual, 7.2% lesbian, and 48.1% heterosexual (Table 1). Regarding cannabis use, 40.1% reported current cannabis use; among those who reported current use, individuals reported using an average of 13.55 (*SD*=11.59) days of the past 30. A greater proportion of bisexual (53.8%) YAs reported current cannabis use relative to heterosexual YAs (27.0%). Among those who reported current cannabis use, bisexual YAs reported more days of cannabis use (*M*=14.40 [*SD*=11.79]) relative to heterosexual YAs (*M*=11.08 [*SD*=11.35]).

Bivariate analyses indicated that bisexual and lesbian (vs. heterosexual) female YAs reported less parental knowledge (Table 1). Bisexual (vs. heterosexual) YAs also reported greater parental psychological control and less autonomy support, warmth, and communication. There were no differences in behavioral control or parental cannabis disapproval based on sexual identity.

In multivariable regression analyses (Table 3, upper panel), bisexual (vs. heterosexual) identity, residing in a legalized recreational cannabis context, greater parental psychological control, and lower autonomy support were associated with greater odds of current cannabis use. Among those reporting current use, bisexual (vs. heterosexual) identity, residing in a legalized recreational cannabis context, greater parental psychological control, lower warmth, lower communication, and lower disapproval were associated with more frequent cannabis use.

Table 1. *Bivariate Analyses Characterizing Heterosexual, Lesbian, and Bisexual Female YAs, N=416*

Variables	Total *N*=416 (100.0%)	Heterosexual *N*=200 (48.1%)	Lesbian *N*=30 (7.2%)	Bisexual *N*=186 (44.7%)	*p*
Sociodemographics					
Age, *M (SD)*	25.02 (2.39)	24.95 (2.45)	24.83 (2.29)	25.12 (2.37)	.710
Race, *N* (%)					**.036**
White	296 (71.2)	132 (66.0)	26 (86.7)	138 (74.2)	
Black	18 (4.3)	10 (5.0)	1 (3.3)	7 (3.8)	
Asian	53 (12.7)	**36 (18.0)[a]**	**2 (6.7)**	**15 (8.1)[b]**	
Other race	49 (11.8)	22 (11.0)	1 (3.3)	26 (14.0)	

Hispanic, *N*(%)[a]	39 (9.4)	15 (7.7)	2 (6.9)	22 (11.8)	.343
Racial/ethnic minority, *N*(%)	152 (36.5)	82 (41.0)	7 (23.3)	63 (33.9)	.103
Legalized recreational context, *N*(%)					.801
No	174 (41.8)	83 (41.5)	11 (36.7)	80 (43.0)	
Yes	242 (58.2)	117 (58.5)	19 (63.3)	106 (57.0)	
Parenting Behaviors, *M (SD)*					
Psychological control[b]	1.47 (1.04)	**1.24 (0.91)[a]**	**1.49 (1.08)**	**1.69 (1.11)[b]**	**<.001**
Behavioral control[b]	0.65 (0.98)	0.63 (0.94)	0.58 (0.89)	0.68 (1.03)	.825
Knowledge[b]	2.22 (1.10)	**2.54 (0.96)[a]**	**2.01 (1.23)[b]**	**1.93 (1.13)[b]**	**<.001**
Autonomy support[c]	4.62 (1.15)	**4.84 (1.03)[a]**	**4.77 (1.10)**	**4.36 (1.23)[b]**	**<.001**
Warmth[c]	5.34 (1.58)	**5.74 (1.27)[a]**	**5.24 (1.53)**	**4.94 (1.78)[b]**	**<.001**
Communication[d]	1.57 (0.86)	**1.75 (0.76)[a]**	**1.54 (0.97)**	**1.38 (0.90)[b]**	**<.001**
Cannabis disapproval[e]	3.35 (1.56)	3.46 (1.49)	3.27 (1.47)	3.23 (1.65)	.375
Past-month Cannabis Use, *N*(%)	**167 (40.1)**	**54 (27.0)[a]**	**13 (43.3)**	**100 (53.8)[b]**	**<.001**
Days of Past-month Cannabis Use, *M (SD)*	13.55 (11.59)	**11.08 (11.35)[a]**	**13.70 (9.19)**	**14.40 (11.79)[b]**	**<.001**

Note. Bold values denote statistical significance at p<.05. *M*=mean, *SD*=standard deviation. [a]6 reported prefer not to answer for ethnicity. [b]Assessed on a scale of 1=Not at all like him/her to 4=A lot like him/her. [c]Assessed on a scale of 1=Not at all true to 7=Very true. [d]Assessed on a scale of 0=Almost never to 3=Almost always. [e]Aggregate of 2 items: parental encouragement not to use cannabis (1=Rarely or never, 7=Frequently) and parental disapproval of cannabis use (1=Completely approve, 5=Completely disapprove).

Parenting Behaviors and Cannabis Use among Male YAs

Among male YAs (*N*=228), 11.0% identified as bisexual, 13.2% gay, and 75.9% heterosexual (Table 2). Regarding cannabis use, 32.9% reported current cannabis use; among those who reported current use, individuals reported using an average of 11.73 (*SD*=10.82) days of the past 30. A greater proportion of bisexual (52.0%) and gay YAs (50.0%) reported current cannabis use relative to heterosexual YAs (32.9%). Among those who reported current cannabis use, bisexual (*M*=13.31 [*SD*=10.44]) and gay (*M*=13.93 [*SD*=10.60]) YAs reported more days of cannabis use relative to heterosexual YAs (*M*=10.31 [*SD*=10.91]).

Table 2. *Bivariate Analyses Characterizing Heterosexual, Gay, and Bisexual Male YAs, N=228*

Variables	Total *N*=228 (100.0%)	Heterosexual *N*=173 (75.9%)	Gay *N*=30 (13.2%)	Bisexual *N*=25 (11.0%)	*p*
Sociodemographics					
Age, *M (SD)*	25.08 (2.40)	24.88 (2.31)	25.67 (2.58)	25.92 (2.60)	.057
Race, *N*(%)					.128
White	160 (70.2)	115 (66.5)	22 (73.3)	22 (88.0)	
Black	5 (2.2)	5 (2.9)	0 (0.0)	0 (0.0)	
Asian	45 (19.7)	39 (22.5)	2 (10.0)	2 (8.0)	
Other race	20 (8.8)	14 (8.1)	5 (16.7)	1 (4.0)	
Hispanic, *N*(%)[a]	18 (7.9)	13 (7.6)	2 (6.7)	3 (12.0)	.717
Racial/ethnic minority, *N*(%)	83 (36.4)	68 (39.3)	9 (30.0)	5 (20.0)	.141
Legalized recreational context, *N*(%)					.965
No	106 (46.5)	81 (46.8)	14 (46.7)	11 (44.0)	
Yes	122 (53.5)	92 (53.2)	16 (53.3)	14 (56.0)	
Parenting Behaviors, *M (SD)*					
Psychological control[b]	1.01 (0.84)	**0.88 (0.78)[a]**	**1.48 (0.92)[b]**	**1.37 (0.90)[b]**	**<.001**
Behavioral control[b]	0.53 (0.83)	**0.44 (0.72)[a]**	**0.83 (1.04)[b]**	**0.77 (1.14)**	**.021**
Knowledge[b]	2.20 (0.99)	**2.31 (0.97)[a]**	**1.76 (0.97)[b]**	**2.04 (0.99)**	**.011**
Autonomy support[c]	5.03 (0.94)	**5.18 (0.85)[a]**	**4.43 (1.08)[b]**	**4.74 (1.01)**	**<.001**
Warmth[c]	5.79 (1.24)	**5.95 (1.15)[a]**	**5.17 (1.39)[b]**	**5.53 (1.40)**	**.003**
Communication[d]	1.63 (0.70)	**1.71 (0.69)[a]**	**1.38 (0.69)[b]**	**1.41 (0.71)**	**.013**
Cannabis disapproval[e]	3.55 (1.41)	3.52 (1.37)	3.52 (1.48)	3.74 (1.67)	.768

Past-month Cannabis Use, *N*(%)	75 (32.9)	**47 (27.2)[a]**	**15 (50.0)[b]**	**13 (52.0)[b]**	**.005**
Days of Past-month Cannabis Use, *M (SD)*	11.73 (10.82)	**10.31 (10.91)[a]**	**13.93 (10.60)[b]**	**13.31 (10.44)[b]**	**.044**

Note. Bold values denote statistical significance at $p<.05$. [a]1 reported prefer not to answer for ethnicity. [b]Assessed on a scale of 1=Not at all like him/her to 4=A lot like him/her. [c]Assessed on a scale of 1=Not at all true to 7=Very true. [d]Assessed on a scale of 0=Almost never to 3=Almost always. [e]Aggregate of 2 items: parental encouragement not to use cannabis (1=Rarely or never, 7=Frequently) and parental disapproval of cannabis use (1=Completely approve, 5=Completely disapprove).

Table 3. *Multivariable Logistic Regression Analyses Predicting Any Past-month Cannabis Use among Female (N=416) and Male (N=228) YAs and Zero-inflated Poisson Regression Predicting Days of Past-month Cannabis Use among Female (N=167) and Male (N=75) YAs Reporting Any Past-month Cannabis Use*

	Any Cannabis Use			Days of Cannabis Use		
Variable	**aOR**	**95% CI**	***p***	***B***	***SE***	***p***
Female						
Sexual identity (ref: heterosexual)						
Lesbian	1.74	0.77, 3.93	.185	-0.04	0.05	.419
Bisexual	**2.78**	**1.76, 4.38**	**<.001**	**0.30**	**0.09**	**.001**
Age	1.00	0.92, 1.10	.979	0.01	0.01	.297
Racial/ethnic minority	0.74	0.47, 1.16	.735	-0.08	0.05	.09
Legalized recreational context	**1.66**	**1.08, 2.54**	**.021**	**0.20**	**0.05**	**<.001**
Parenting behaviors						
Psychological control	**1.55**	**1.10, 2.20**	**.013**	**0.33**	**0.03**	**.029**
Behavioral control	0.99	0.74, 1.33	.989	-0.09	0.03	.329
Knowledge	0.93	0.70, 1.24	.628	-0.08	0.03	.09
Autonomy support	**0.87**	**0.76, 0.95**	**.027**	-0.03	0.04	.458
Warmth	1.06	0.80, 1.40	.679	**-0.16**	**0.03**	**<.001**
Communication	0.95	0.65, 1.40	.810	**-0.20**	**0.04**	**<.001**
Cannabis disapproval	0.92	0.80, 1.06	.257	**-0.20**	**0.01**	**.019**
Nagelkerke/Adjusted R^2		**.134**			--	
Male						
Sexual identity (ref: heterosexual)						
Gay	**2.74**	**1.11, 6.80**	**.03**	**0.28**	**0.1**	**.016**
Bisexual	**3.26**	**1.23, 8.61**	**.017**	**0.23**	**0.1**	**.019**
Age	**0.84**	**0.73, 0.96**	**.013**	-0.02	0.02	.118
Racial/ethnic minority	1.08	0.55, 2.11	.824	-0.14	0.08	.787
Legalized recreational context	**2.49**	**1.31, 4.73**	**.006**	**0.33**	**0.08**	**<.001**
Parenting behaviors						
Psychological control	**1.69**	**1.03, 3.05**	**.033**	**0.18**	**0.07**	**<.001**
Behavioral control	0.82	0.50, 1.36	.824	0.04	0.06	.52
Knowledge	0.87	0.60, 1.27	.478	-0.03	0.04	.503
Autonomy support	0.97	0.55, 1.71	.909	-0.37	0.06	.052
Warmth	**0.47**	**0.29, 0.93**	**.047**	**-0.21**	**0.05**	**<.001**
Communication	**0.61**	**0.34, 0.97**	**.027**	**-0.19**	**0.07**	**.004**
Cannabis disapproval	**0.82**	**0.65, 0.94**	**.034**	**-0.16**	**0.03**	**.042**
Nagelkerke/Adjusted R^2		**.192**			--	

Note. Bold values denote statistical significance at $p<.05$.

Bivariate analyses indicated that bisexual and gay (vs. heterosexual) male YAs reported greater parental psychological control (Table 2). Gay (vs. heterosexual) YAs also reported greater behavioral control and less parental knowledge, autonomy support, warmth, and communication.

In multivariable regression analyses (Table 3, lower panel), bisexual and gay (vs. heterosexual) identity, residing in a legalized recreational cannabis context, greater parental psychological control, lower warmth, lower communication, and lower cannabis disapproval were associated with greater odds of current cannabis use and more frequent cannabis use among those who reported current use.

DISCUSSION

The current study expands upon research aimed at identifying mechanisms contributing to disparate patterns of cannabis use among specific sexual identity-by-sex subgroups of YAs. Among female YAs, bisexual, but not lesbian, YAs displayed greater odds of current cannabis use and reported more frequent use relative to heterosexual YAs. This is consistent with previous research on cannabis use, as well as tobacco and other substance use (Kerr et al., 2015; Li et al., 2018, 2021; Parnes et al., 2017; Romm et al., 2022; Schuler & Collins, 2020). Among male YAs, both bisexual and gay YAs displayed greater odds of past-month cannabis use and reported more frequent past-month use than heterosexual male YAs, which is consistent with some prior work (Gonzales, 2020). Furthermore, findings indicated that SMYAs, particularly bisexual female and gay male YAs, reported fewer positive and greater negative parenting behaviors, which were associated with adverse cannabis use outcomes.

Research has generally suggested that bisexual, relative to lesbian female YAs, experience rejection from both the SM community and society at large, potentially contributing to elevated rates of substance use (Movement Advancement Project, 2016). Expanding upon this phenomenon, current findings suggest that bisexual (vs. heterosexual) female YAs reported significantly higher levels of parental psychological control and lower levels of parental knowledge, autonomy support, warmth, and communication, whereas lesbian (vs. heterosexual) female YAs reported lower levels of parental knowledge only. To interpret these findings, parents may be more likely to view bisexual versus lesbian identity as a phase (Scherrer et al., 2015) and thus, may engage in psychological control and limit autonomy support in order to control bisexual female YAs' sexual attraction or behaviors. Additionally, parents who disapprove of bisexual female YAs' sexual identity may withdraw and display less warmth, affection, and communication with their children (Montano et al., 2018).

Among females, greater psychological control and less autonomy support were associated with greater odds of past-month cannabis use, and greater psychological control, less warmth, communication, and cannabis disapproval were associated with more frequent past-month cannabis use. Bisexual female YAs may engage in cannabis use as a means of reasserting their autonomy in response to less autonomy support and greater psychological control (Barber et al., 2011). Because warmth and communication promote emotional well-being and protect against health-risk behavior engagement (Padilla-Walker et al., 2008), bisexual female YAs may use cannabis more frequently to cope with the absence of these relational behaviors.

Among male YAs, those identifying as gay reported higher levels of parental behavioral control along with lower levels of parental knowledge, autonomy support, warmth, and communication relative to those identifying as heterosexual; both bisexual and gay (vs. heterosexual) male YAs reported higher levels of psychological control. Findings are consistent with prior work suggesting that gay male YAs report lower levels of parental support relative to both heterosexual and bisexual male YAs (Needham & Austin, 2010).

Further, findings suggest that greater psychological control, less warmth, communication, and cannabis disapproval were associated with greater odds of cannabis use and more frequent use among male YAs. These findings vary from those related to tobacco, which suggest that these parenting behaviors were not associated with tobacco use among male YAs (Romm et al., 2023). Thus, SM (vs. heterosexual) male YAs, particularly gay YAs, may be engaging in greater cannabis use, specifically, rather than substance use broadly, to cope with experiencing greater negative and fewer positive behaviors from their parents.

Notably, despite associations between parental cannabis disapproval and lower odds of current cannabis use among male YAs and less frequent use among female and male YAs, we found no evidence for sexual identity differences in perceived parental cannabis disapproval. Findings might suggest that parents vary in their level of parenting behaviors that are more relational in nature, such as psychological control, autonomy support, warmth, and communication, based on their YA children's sexual identity, as these parenting behaviors may be used to minimize their interactions with their children, convey their disapproval, and attempt to control their children's sexual identity (Bebes et al., 2015;

Fish et al., 2020; Mills-Koonce et al., 2018; Montano et al., 2018). Cannabis-related parenting behaviors, however, are less relational in nature and thus may be less impacted by parents' reactions to SM children's sexual identity.

Taken together, findings have important implications for future research and practice. Parenting behaviors that might reflect parental reactions to YAs' sexual identity – such as psychological control, autonomy support, warmth, and communication – may have important implications for SMYAs' cannabis use. Cannabis prevention and cessation programs might benefit from focusing on reducing negative parenting behaviors and enhancing positive parenting behaviors among SMYAs, who experience greater levels of negative and lower levels of positive parenting behaviors. In particular, it may be beneficial to encourage autonomy promoting behaviors along with warmth and communication in efforts to prevent and reduce cannabis use among specific subgroups of SMYAs. Moreover, to further our understanding of the role of parenting behaviors and to inform interventions, future research should examine the potential impact of SM-specific parenting behaviors, including those both positive (e.g., parental support of SMYAs' sexual identity, parental education regarding sexual identity) and negative (e.g., parental heterosexism) as a factor promoting resilience or risk among SMYAs in response to other minority stress experiences (Meyer, 2015). Future research should also examine other minority stress factors, such as discrimination, LGBTQ+ community connectedness, and peer rejection that are most strongly associated with cannabis use among specific subgroups of SMYAs to inform prevention and intervention efforts.

Limitations

The current findings should be interpreted in light of several limitations. First, findings have limited generalizability to other US YAs given targeted recruitment of individuals who use tobacco (who may also be more likely to use cannabis [Dierker et al., 2018]) and thus, should not be interpreted as prevalence rates. Second, current analyses do not focus on gender identity. Given previously documented gender-related disparities in cannabis use (Dyar, 2022), future research should explore parenting behaviors as mechanisms contributing to cannabis use disparities among gender minority (vs. cisgender) YAs. Third, data were cross-sectional and thus, we are unable to examine bidirectional associations among parenting behaviors and cannabis use. It is possible that parenting behaviors may be influenced by knowledge of YAs' cannabis use. Fourth, we did not assess participants' report of maternal and paternal parenting, separately, or whether participants used cannabis for medical and/or recreational reasons. Finally, we had small sample sizes for certain sexual identity-by-sex subgroups (i.e., lesbian females, gay males, bisexual males), leading to limited analytic power.

Conclusions

As public health authorities strive to reduce disparities in cannabis use among vulnerable populations, including SMYAs, it is imperative to understand potential mechanisms driving disparities in use. Expanding upon previous research indicating that SMYAs display elevated rates of cannabis use and more frequent use, current findings suggest that bisexual relative to heterosexual female and both bisexual and gay relative to heterosexual male YAs display greater odds of current cannabis use and report more frequent cannabis use. Moreover, findings suggest that bisexual female and gay male YAs reported lower levels of positive parenting behaviors (knowledge, autonomy support, warmth, communication) and higher levels of negative parenting behaviors (psychological control), which were associated with greater odds of current cannabis use and more frequent use. Findings highlight potentially important targets for reducing cannabis-related disparities among SMYAs, while also emphasizing the need for large-scale interventions that can attend to the unjust social conditions that perpetuate stigma, likely related to negative parenting toward SMYAs.

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