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Cannabis Use Companions' Gender and Sexual Orientation: Associations with Problematic Cannabis Use in a Sample of Sexual Minorities Assigned Female at Birth

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Abstract

Background: Sexual minority women (SMW) are at heightened risk for problematic cannabis use compared to heterosexual women. Social learning theory posits that characteristics of one's cannabis use companions influence problematic use. However, most research on cannabis use among sexual minorities has focused on minority stress and not social learning theory. As such, the current study tested whether characteristics of one's cannabis use companions (gender and sexual orientation) were associated with changes in problematic use among cisgender SMW and non-binary individuals assigned female at birth.

Methods: We utilized three waves of data (six-months between waves) from 321 cisgender SMW and sexual minority non-binary individuals assigned female at birth who participated in a larger study and reported using cannabis during at least one wave. We examined the prospective associations between using cannabis with five groups (SMW, sexual minority men, non-binary individuals, heterosexual women, and heterosexual men) and changes in problematic use six-months later. We also examined whether participant gender (cisgender woman vs. non-binary individual) moderated these associations.

Results: Among cisgender SMW and sexual minority non-binary individuals, using cannabis with SMW and non-binary individuals, but not with sexual minority men, heterosexual men, or heterosexual women, was associated with increases in problematic use six-months later. Gender did not moderate any associations between using cannabis with any group and problematic use.

Conclusions: Consistent with social learning theory, using cannabis with similar others was associated with increases in problematic use among cisgender SMW and sexual minority non-binary individuals. Future research should explore the mechanisms underlying these effects.

Keywords

cannabis use; sexual minorities; social learning theory

1. Introduction

Cannabis use (CU) disorders are more prevalent among sexual minorities (i.e., lesbian/gay, bisexual, and other non-heterosexual individuals) compared to heterosexuals (Boyd et al., 2020), and these disparities are particularly pronounced for sexual minority women (SMW; Boyd et al., 2020). While these elevated rates have been attributed to minority stress (Kidd et al., 2018), it has been proposed that social learning theory may also help to explain elevated rates of substance use among sexual minorities (Condit et al., 2011). Based on social learning theory, when people belong to groups for whom substance use is perceived to be normative, using substances with other members of those groups is more likely to contribute to problematic use (i.e., use associated with physical, psychological, and social consequences) than using substances with members of different groups (Condit et al., 2011; Mereish et al., 2017). Substance use is perceived to be more normative among SMW compared to heterosexual women (Hatzenbuehler et al., 2008; Litt et al., 2015). Given that perceptions of substance use norms among one's peers are strongly predictive of one's own use (Mereish et al., 2017; Neighbors et al., 2010), less restrictive substance use norms among sexual minorities are theorized to contribute to their higher rates of substance use (Condit et al., 2011).

We are not aware of any previous studies that have examined perceived CU norms or characteristics of CU companions in relation to problematic use among sexual minorities. However, previous research on drinking norms and companions can inform our understanding of these associations. Litt et al. (2015) found that SMW's perceptions of other SMW's drinking predicted increases in their own alcohol consumption, while their perceptions of heterosexual women's drinking did not. This suggests that, consistent with research on other populations (Lewis & Neighbors, 2007), the perceived norms of similar others have a stronger impact on SMW's own substance use than the perceived norms of dissimilar others.

Given that sexual minorities perceive heavier drinking to be more normative among sexual minorities compared to heterosexuals (Litt et al., 2015) and that people consume more alcohol when they drink with others who drink more heavily (Larsen et al., 2010), it would be expected that sexual minorities would consume more alcohol when they drink with other sexual minorities than with heterosexuals. The only longitudinal study to test this found partial support for this hypothesis. Dworkin et al. (2018) found that SMW drank more in mixed sexual orientation groups than in heterosexual groups, but they did not find significant differences between drinking in exclusively sexual minority versus exclusively heterosexual groups. That said, this study did not account for the genders of drinking companions, and social learning theory would predict that SMW's drinking would be most strongly influenced by peers who share the same sexual orientation *and* gender. Thus, the lack of examination of drinking companions' genders may explain why Dworkin and colleagues only found partial support for their hypothesis. Still, it remains unclear whether these alcohol use findings will generalize to CU.

Therefore, the goal of the current study was to examine whether the genders and sexual orientations of one's CU companions were prospectively associated with problematic CU in

a sample of sexual minorities assigned female at birth, inclusive of cisgender SMW and sexual minority non-binary individuals. Given that CU with similar others would be expected to have a stronger impact on one's own CU than use with dissimilar others, it is possible that CU with individuals of different genders and sexual orientations may be differentially associated with problematic use for cisgender SMW versus sexual minority non-binary individuals. Therefore, we examined the prospective associations between CU with five groups (SMW, sexual minority men, non-binary individuals, heterosexual women, heterosexual men) and changes in problematic use, and whether these associations differed for cisgender SMW versus sexual minority non-binary individuals. We hypothesized that: (1) among cisgender SMW, CU with other SMW would be associated with subsequent increases in problematic CU, while CU with other groups would not; and (2) among sexual minority non-binary individuals, CU with other non-binary individuals would be associated with subsequent increases in problematic CU, while CU with other groups would not.

2. Methods

2.1. Participants and Procedures

We used data from an ongoing longitudinal cohort study of minority stress, relationships, and health of sexual and gender minorities assigned female at birth (SGM-AFAB). To achieve a merged cohort, accelerated longitudinal design, SGM-AFAB from a prior cohort study of SGM (originally recruited 2007–2009) and a new cohort of SGM-AFAB were both recruited to the current study in 2016–2017 using venue-based recruitment, social media, and incentivized snowball sampling. At initial enrollment (2007–2009 or 2016–2017), participants were 16–20 years old, assigned female at birth, and identified as a sexual or gender minority or reported same-sex attractions or sexual behavior. Participants completed assessments at six-month intervals. See Whitton et al. (2019) for more information about the study.

The current analyses used data from Waves 3, 4, and 5, conducted 12-, 18-, and 24-months after Wave 1, because data on CU companions were not collected prior to Wave 3. Data for Waves 3–5 were collected between December 2017 and 2019. Retention rates for Waves 3–5 were 92.8%–94.9%. Participants who reported CU during at least one of these waves were included in analyses ($N=321$). Individuals who identified as women or with a non-binary gender (e.g., non-binary, genderqueer) were included in analyses, while those who identified as transgender men were excluded because there were too few to examine them separately ($n=35$). See Table 1 for demographics.

2.2. Measures

2.2.1. CU Companions.—At each wave, participants who reported CU in the past six months were asked about who they used cannabis with (“Which of the following best describe the people you usually use marijuana with?”). Response options included: women, men, non-binary individuals, none of the above, and I do not usually use marijuana with others. Participants were told that gender categories were inclusive of transgender individuals (e.g., women included cisgender and transgender women). For each gender group participants selected, they were asked, “Thinking of the [gender group] you usually

use marijuana with, what are their sexual orientations?” Response options included: heterosexual/straight, lesbian, gay, bisexual, queer, pansexual, or a different identity. Participants could select multiple response options for all items. Participants were categorized as not using cannabis (0) or using cannabis (1) with each of the following groups: SMW, sexual minority men, heterosexual women, heterosexual men, and non-binary individuals (of any sexual orientation). Non-binary CU companions were combined, regardless of sexual orientation, because of low endorsement of CU with this group.

2.2.2. Problematic CU.—The CUDIT-R (Saunders et al., 1993) assessed CU and problems in the past six months. The CUDIT-R includes 8 items rated on different scales. For example, the item “How often during the past 6 months did you fail to do what was normally expected from you because of using marijuana?” was rated from 0 (*never*) to 4 (*daily or almost daily*). Responses were summed ($\alpha=.77-.79$ across waves).

2.3. Analytic Plan

A total of 32 observations (3.0%) were missing. Within completed assessments, less than 0.1% of data were missing. Missing data were handled using full information maximum likelihood. In a single model, CU with all five gender/sexual orientation groups at time t predicted problematic CU at time $t+1$ at the within-person level. These associations were modeled as random. Gender (cisgender woman vs. non-binary individual) was included as a moderator of each association. The autocorrelation between problematic CU at times t and $t+1$ was also modeled as random, effectively controlling for problematic CU at t . Age at Wave 3, sexual identity, and race/ethnicity were included as between-person covariates. Multilevel structural equation modeling with a Bayesian estimator and the default of diffuse (non-informative) priors were used. Multilevel structural equation modeling utilizes latent variables (rather than group-mean centering) to separate within- from between-person variance (Marsh et al., 2009). Consistent with current recommendations for Bayesian modeling (Depaoli & Clifton, 2015; Muthén, 2010), we used Markov Chain Monte Carlo algorithms to generate a series of 100,000 random draws from the multivariate posterior distribution of our sample. Trace plots and Gelman-Rubin potential scaling reduction (PSR) were used to determine convergence (Depaoli & Clifton, 2015; Muthén, 2010).

3. Results

Intraclass correlations (ICCs) for CU companion variables (ICCs=.28-.47) indicated substantial variability in who participants tended to use cannabis with (53–72% of variance within-persons). Participants reported using CU with SMW during 79% of observations, sexual minority men during 44%, non-binary individuals during 34%, heterosexual women during 67%, and heterosexual men during 62%. Participants reported CU with 2.78 groups per observation on average ($SD=1.26$). The average CUDIT-R score was 8.07 ($SD=5.84$; $ICC=.69$). ICCs and mean scores for problematic cannabis use (as assessed by the CUDIT-R) and CU companion variables are presented in the Supplemental Table.

Table 2 presents model results. Gender did not significantly moderate any of the within-person associations between the sexual orientations and genders of CU companions and problematic CU. Therefore, the fixed-effects can be interpreted as the associations for both

cisgender SMW and sexual minority non-binary individuals. Results indicated that when participants reported CU with SMW or non-binary individuals at one wave, they experienced an increase in problematic CU at the next wave. However, CU with sexual minority men, heterosexual women, and heterosexual men were not significantly associated with changes in problematic CU. Age, sexual identity, and race/ethnicity were not significantly associated with average problematic CU across waves (between-person parameters are not presented for brevity but are available upon request).

4. Discussion

This study was the first to examine whether CU with different groups of people was associated with changes in problematic CU among cisgender SMW and sexual minority non-binary individuals assigned female at birth. Results indicated that CU with SMW and non-binary individuals was associated with increases in problematic CU, whereas CU with sexual minority men, heterosexual women, and heterosexual men was not. These findings are consistent with social learning theory. They suggest that when people belong to groups for whom substance use is perceived to be normative, using substances with other members of those groups is more likely to contribute to problematic use than using substances with members of different groups. Although we did not measure perceived CU norms, previous research has found that substance use is perceived to be more normative among SMW than among heterosexual women (Hatzenbuehler et al., 2008; Litt et al., 2015). As such, CU with SMW and non-binary individuals may have been associated with increases in problematic CU because CU may have been perceived as normative in these groups.

We hypothesized that only CU with the group most similar to one's own would be associated with increases in problematic CU (e.g., for cisgender SMW, only CU with SMW would predict problematic CU). However, results suggest that SMW and non-binary individuals are perceived to be similar enough to each other to predict increases in problematic CU for both groups. The majority of individuals who identify as non-binary are assigned female at birth and also identify as sexual minorities (James et al., 2016; Richards et al., 2016). Thus, cisgender SMW and sexual minority non-binary individuals assigned female at birth may perceive each other as similar, and this may be why CU with either group was associated with increases in problematic CU. However, research is needed to examine who SMW and non-binary individuals perceive as comprising their peer groups.

Our findings also provide evidence of the directionality of these associations (i.e., that CU with SMW and non-binary individuals preceded increases in problematic CU). While we were unable to examine mechanisms underlying these associations, we hypothesize that perceptions of CU as normative among SMW and non-binary individuals is likely to explain why CU with these groups was associated with increases in problematic CU. Consistent with this hypothesis, one prior study demonstrated that SMW perceived that other SMW drank more than heterosexual women, and that SMW's perceptions of other SMW's drinking predicted increases in their own alcohol consumption, while their perceptions of heterosexual women's drinking did not (Litt et al., 2015). It will be important for future research to directly test this potential mechanism. Further, it is possible that SMW may use substances for different reasons when with heterosexual compared to sexual minority

individuals and this may help to explain why using with some groups is associated with heightened problematic use. For example, Dworkin et al. (2018) have posited that SMW may drink more when with heterosexual individuals when they are motivated by coping with minority stress. However, SMW may drink more when with other sexual minorities when they are motivated by conformity and social motives (Dworkin et al., 2018). Alternatively, SMW and non-binary individual may also choose to use more cannabis when they are in situations in which they feel safe, such as when they are with other sexual minority individuals. Future research is needed to explore these alternative explanations.

4.1. Limitations

First, we were unable to examine mechanisms underlying the associations between CU with SMW and non-binary individuals and increases in problematic CU. Second, due to the small number of transgender men in our sample, we were unable to include them in analyses. Third, our convenience sample was recruited from community events, social media, and peer referral, and it remains unclear if findings generalize to the broader sexual minority population. Fourth, our sample was comprised of adolescents and young adults, and therefore, results may not generalize to older populations. Finally, possession of small amounts of cannabis was decriminalized in Chicago when the data were collected, and recreational use was legalized in Illinois shortly after.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Demographics of Analytic Sample (N = 321)

Demographics	N	%
Cohort		
2016 Cohort	276	86.0%
2007 Cohort	45	14.0%
Race/Ethnicity		
White	84	26.2%
Black	108	33.6%
Latinx	83	25.9%
Other	46	14.3%
Participant Gender		
Cisgender Women	250	77.9%
Non-Binary Individuals	71	22.1%
Sexual Identity		
Lesbian	71	22.1%
Bisexual	121	37.7%
Queer	53	16.5%
Pansexual	59	18.4%
Other Sexual Identity	17	5.3%
Age (<i>M, SD</i>)	20.76 (3.34)	

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Table 2
Gender Moderated Associations between Cannabis Use Companions and Problematic Cannabis Use Among Cisgender Women

Association	Parameter	b	posterior SD	95% CI
Problematic CU (<i>t</i>) → Problematic CU (<i>t</i> +1)	Fixed Effect (Average Slope)	.56	.10	.35, .73
	Random Effect (Slope Variance)	.06	.04	.01, .16
CU with Sexual Minority Women (<i>t</i>) → Problematic Cannabis Use (<i>t</i> +1)	Fixed Effect (Average Slope)	1.33	.58	.16, 2.44
	Gender → Slope	1.08	1.50	-1.88, 3.83
	Random Effect (Slope Variance)	.56	.98	.02, 3.51
CU with Sexual Minority Men (<i>t</i>) → Problematic Cannabis Use (<i>t</i> +1)	Fixed Effect (Average Slope)	.25	.55	-.85, 1.30
	Gender → Slope	-.31	1.05	-2.34, 1.74
	Random Effect (Slope Variance)	.84	1.11	.03, 4.18
CU with Non-Binary Individuals (<i>t</i>) → Problematic Cannabis Use (<i>t</i> +1)	Fixed Effect (Average Slope)	1.22	.63	.01, 2.48
	Gender → Slope	-1.85	1.18	-4.20, .43
	Random Effect (Slope Variance)	1.65	1.94	.07, 7.24
CU with Heterosexual Women (<i>t</i>) → Problematic Cannabis Use (<i>t</i> +1)	Fixed Effect (Average Slope)	.67	.57	-.42, 1.83
	Gender → Slope	-.73	1.12	-3.00, 1.44
	Random Effect (Slope Variance)	.61	.89	.02, 3.27
CU with Heterosexual Men (<i>t</i>) → Problematic Cannabis Use (<i>t</i> +1)	Fixed Effect (Average Slope)	.54	.56	-.58, 1.60
	Gender → Slope	-.19	1.12	-2.34, 2.04
	Random Effect (Slope Variance)	1.00	1.19	.05, 4.45

Notes: CU = cannabis use; gender is coded as 0 = cisgender woman and 1 = non-binary individual assigned female at birth. Bold indicates effects significant at $p < .05$.