Brief Report 1

Exploring Differences in Cannabis Use and Harm Perceptions Among Sexual Minority and Heterosexual Females: A Brief Report

Cannabis 2025 © Author(s) 2025 researchmj.org 10.26828/cannabis/2025/000273 Volume 8, Issue 1



Sarah J. Ehlke^{1,2}, Samantha A. Fitzer¹, Kendra N. Rigney¹

¹Department of Psychology, Old Dominion University ²Virginia Consortium Program in Clinical Psychology

ABSTRACT

Objective: Sexual minority women (SMW) have higher rates of cannabis use compared to heterosexual women, which may be partially attributed to lower harm perceptions. However, no study has examined if the association between harm perceptions and cannabis use is stronger for SMW than heterosexual women. This study examined if sexual identity (SMW vs. heterosexual woman) moderated the association between harm perceptions and past 30-day cannabis use among a sample of female young adults (18-25 years old). Method: Participants were 949 (29.8% SMW; Mean age = 24.33; 92.1% non-Hispanic White) females (99.3% cisgender) recruited from Amazon Mechanical Turk who reported weekly cannabis use. Participants reported how many days they used cannabis in the past 30-days and how harmful they perceived cannabis to be to their health (not at all/slightly/somewhat harmful vs. very/extremely harmful). An Analysis of Covariance examined the study aim. Results: A significantly larger percentage of heterosexual women perceived cannabis to be very/extremely harmful to their health than SMW (45.2% vs. 22.6%). Those who perceived cannabis to be very/extremely harmful reported more frequent cannabis use in the past-30 days. SMW who perceived cannabis to be very/extremely harmful reported more frequent cannabis use relative to those who held lower harm perceptions; there were no significant differences for heterosexual women. Conclusions: SMW may perceive cannabis as harmful because they may be experiencing health consequences from frequent use. It may be important for interventions and public health campaigns to be tailored specifically to SMW and include information about the potential harms of cannabis use.

Key words: = cannabis use; sexual minority women; harm perceptions

Rates of cannabis use among young adults are high, compared to older age groups, with recent estimates from the 2022 Monitoring the Future Panel Study showing that 28.8% of young adults ages 19 to 30 in the United States reported past month use (Patrick et al., 2023). Further, sexual minority women (SMW) have higher rates of cannabis use than heterosexual women (Ehlke et al., 2024; Schuler & Collins, 2020). Specifically, results from the 2021 and 2022 National Survey on Drug Use and Health (NSDUH) showed that SMW were two to three times more likely than heterosexual women to report past year cannabis

use (Substance Abuse and Mental Health Services Administration, 2023). Sexual identity differences on cannabis use disparities are stronger and more stable for women than men (see Dyar, 2022 for a review), indicating that SMW are at greater risk of use than heterosexual women, and differences and changes in use for men are less distinct. The high rates of cannabis use among SMW are concerning given the health consequences of use. such psychological distress. cognitive impairment, and adverse respiratory outcomes (Figueiredo et al., 2020; Hall et al., 2016; Russell et al., 2018). Despite these notable health

Corresponding Author: Sarah J. Ehlke, PhD, Old Dominion University, 5115 Hampton Blvd, Mills Godwin Life Sciences Building room 130B. Norfolk, Virginia, 23529. Email: sehlke@odu.edu

consequences, some research indicates that compared to adolescents and older adults, young adults have low perceptions that cannabis is harmful to their health (Levy et al., 2021; Waddell, 2022). For instance, among a sample of young adults, they most often reported perceived risks unrelated to health (e.g., get into trouble, friends upset with you) and greater perceived benefits (e.g., feel high or buzzed, look cool) of using cannabis (Nguyen et al., 2022). Further, a recent study of young adults found that SMW reported lower harm perceptions of cannabis relative to heterosexual women (Romm et al., 2023). This finding is alarming given research that low harm perceptions of cannabis are related to greater use among young adults (Nguyen et al., 2023; Romm et al., 2023). Thus, lower harm perceptions of use may be one explanation for why the rates of cannabis are higher for SMW than heterosexual women.

Given the rapidly changing policy landscape of cannabis, there is an urgent need to identify reasons associated with increased cannabis use for SMW to inform intervention and prevention programs, with the goal of reducing the rates of use and reducing health disparities among this population. Perceived harms of cannabis are an important reason for use among young adults (Nguyen et al., 2023) and are often lower than harm perceptions of tobacco products and alcohol (Berg et al., 2015; Hanauer et al., 2021; Nguyen et al., 2023). Thus, cannabis use may continue to increase without interventions that address the harms of this product, potentially creating larger disparities for groups that already use at elevated levels, such as SMW. This study examined differences between cannabis harm perceptions sexual identity (sexual minority vs. heterosexual) among a sample of young adult (ages 18 to 25) females who reported weekly cannabis use. Additionally, to extend prior research, sexual identity was examined as a moderator of the relationship between cannabis harm perceptions and past 30-day cannabis use frequency. Although this study used a female sample, without regard to gender identity, the term SMW is used herein to describe the current sample given the extensive use of this term in the broader literature. It was hypothesized that SMW would report lower cannabis harm perceptions than heterosexual women, which would be associated with greater cannabis use.

METHODS

Participants and Procedure

Participants were 949 (29.8% SMW) young adult females recruited from Amazon Mechanical Turk (MTurk; Amazon Mechnical Turk, n.d.) in February 2023 who completed a larger study about factors related to cannabis use. Eligibility criteria included a) 18-25 years old, b) female, and c) report using cannabis some days (at least weekly) or every day in the past 30-days. MTurk system and premium qualifications were also used to request participants who live in the United States, had a ≥95% approval rating, were 18-25 years old, and were female. Participants were compensated \$1 for completing the 12-15 minute survey. Participants were on average 24.33 years old (SD = 1.33), primarily not Hispanic White (92.1%), completed some college or higher (96.7%), and married (61.9%). In terms of gender identity, 99.3% identified as a woman, 0.6% as a man, and 0.1% as gender non-conforming. For more details about MTurk qualifications, participant characteristics, and study procedures, see Ehlke et al. (2024). Study materials and procedures were approved by the University's Institutional Review Board.

Materials

Sexual identity was measured by asking participants, "How would you describe your sexual identity? Would you say you are:" with response options of a) heterosexual, b) lesbian or gay, c) bisexual, d) pansexual, e) queer, f) another sexual orientation not listed, or g) don't know/unsure. A single sexual identity variable was created where 0 = heterosexual (n = 666, 70.2%) and 1 = SMW (all other sexual identities; lesbian/gay n = 3, 0.3%; bisexual n = 265, 27.9%; pansexual n = 11, 1.2%; queer n = 2, 0.2%; another sexual orientation n = 1, 0.1%; don't know/unsure n = 1, 0.1%). To measure cannabis use frequency, participants reported the number of days in the past 30-days they used marijuana (range = 1-30; M = 12.93, SD = 7.47). Lastly, harm perceptions were measured by asking participants, "How harmful do you think marijuana is to your health?" with response options of a) not at all harmful, b) slightly harmful, c) somewhat harmful, d) very harmful, or e) extremely harmful.

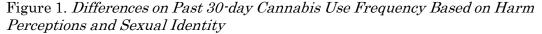
Similar to prior research (Cohn et al., 2023; Sarvet et al., 2018), a binary cannabis use harm perception variable was created where 0 = not at all/slightly/somewhat harmful and 1 = very/extremely harmful.

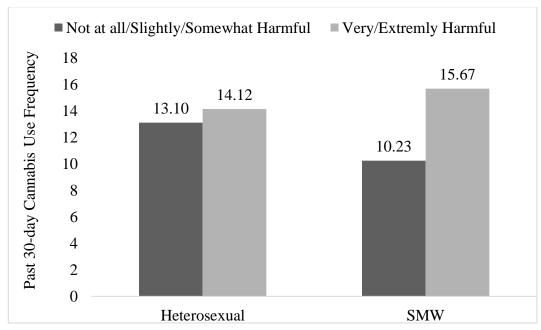
Data Analysis

Analyses were conducted in IBM SPSS Statistics (Version 28; IBM Corp, 2021). Past 30-day cannabis use frequency was normally distributed with no outliers. Chi-square analyses examined differences between sexual identity (SMW vs. heterosexual) and cannabis harm perception (very/extremely harmful vs. not at all/slightly/somewhat harmful), and an independent samples t-test examined differences on cannabis use frequency.² An Analysis of Covariance (ANCOVA) examined if sexual identity moderated the association between harm perception and cannabis use frequency.³

RESULTS

A greater percentage of heterosexual women (45.2%) than SMW (22.6%) perceived that cannabis was very/extremely harmful to their health, $\chi^{2}(1) = 42.78$, p < .001. Additionally, heterosexual women reported cannabis use on more days than SMW. M=13.56. SD=6.98 vs. M= 11.45, SD = 8.37; t(451.79) = 3.72, p < .001, and those who perceived cannabis as very/extremely harmful to their health reported more frequent use in the past 30-days, relative to those who cannabis perceived not all/slightly/somewhat harmful, M = 14.39, SD =7.32 vs. M = 12.03, SD = 7.43; t(943) = -4.78, p <.001. ANCOVA results showed that SMW who perceived cannabis as being very/extremely harmful to their health reported more frequent use in the past 30-days than SMW who perceived cannabis as not at all/slightly/somewhat harmful, F(1.941) = 27.09, p < .001. However, there were no differences between harm perceptions and past 30-day cannabis use for heterosexual women. F(1.941) = 3.20, p = .320. See Figure 1.





¹Problematic cannabis use was measured in this study using the Cannabis Use Disorder Identification Test − Revised (CUDIT·R); however, the majority of the sample (98.6%) met criteria for hazardous use (CUDIT scores ≥8), possibly due to the eligibility criteria of at least weekly cannabis use. Therefore, due to the overwhelming majority of the sample meeting the cutoff score for hazardous use, we did not include this variable in the current study.

²Differences between SMW and heterosexual women on cannabis use frequency has been examined in a previous publication from this dataset that examined route of cannabis administration; see Ehlke et al., 2024.

³Age, race (non-Hispanic White, non-Hispanic Black, non-Hispanic another race, and Hispanic), and income were examined as potential covariates. However, these variables were not significant in the ANCOVA model and results were identical when including and not including these potential covariates. Thus, to present the most parsimonious model, the ANCOVA results do not include these covariates.

DISCUSSION

This study examined cannabis harm perceptions among SMW and heterosexual women, and their association with past 30-day cannabis use frequency. Heterosexual women in the current study reported using cannabis on more days in the past 30-days, relative to SMW, which is contrary to prior research (Ehlke et al., 2024; Schuler & Collins, 2020). This may be attributed to the recruitment of only individuals who used cannabis frequently for the current study (see Ehlke et al., 2024). Consistent with prior research (Romm et al., 2023), heterosexual women held greater perceptions that cannabis was harmful to their health, compared to SMW. Lower harm perceptions among SMW may be due to social norms related to cannabis use within the sexual minority community (Romm et al., 2023). In fact, prior research has found that sexual minority females perceive cannabis as more socially acceptable and that more peers use cannabis, relative to heterosexual women (Romm et al., 2023). Thus, these higher social norms among SMW than heterosexual women may result in greater beliefs that cannabis is not harmful.

Contrary to prior research (Nguyen et al., 2023; Romm et al., 2023), among all participants in the current study, those who perceived cannabis as more harmful to their health reported more frequent cannabis use in the past 30-days. This may be attributed to our sample that only included females who reported cannabis use. Perhaps participants in other studies that include non-users of the substance being examined have higher harm perceptions, but this may also influence (i.e., lower) the mean when examining frequency of use. Conversely, a recent study of only cannabis users found greater cannabis harm perceptions were associated with less frequent use (Florimbio et al., 2024). However, this study included males and females, which may have influenced the findings, given research showing that males perceive cannabis as less harmful than females (e.g., Hellemans et al., 2019; Levy et al., 2021). The current study used a large sample of only females, which may partially explain the different findings. Studies examining harm perceptions should focus on subset analyses that include only users of the substance and separate males and females. Additionally, prior research has found that greater cannabis harm perceptions are associated with a higher likelihood of problematic cannabis use (Romm et al., 2024). Unfortunately, problematic cannabis use was not examined in the current study given the high proportion of those who met criteria for hazardous use (see footnote 1). Differences between SMW and heterosexual women on this association between cannabis harm perceptions and problematic cannabis use should be explored in future research.

The current study also extends previous research (Romm et al., 2023) by revealing that SMW who held higher cannabis harm perceptions reported more frequent cannabis use than SMW with lower harm perceptions. These findings show that although some SMW acknowledged cannabis was harmful to their health, they continued to use it more frequently than those with lower harm perceptions. This is contrary to prior research about cannabis harm perceptions (Nguyen et al., 2023; Romm et al., 2023) but is the first study to focus on sexual identity as a moderator of this association and SMW specifically. SMW with greater harm perceptions may be experiencing more health consequences because of frequent use. It is widely accepted that SMW experience sexual minority stressors due to their sexual identity (Meyer, 2003) and therefore may use cannabis to cope with these stressful experiences (Khantzian, 1997). Over time, the increased use of cannabis may result in health consequences and influence harm perceptions. Interventions should be tailored for SMW, specifically, given the elevated rates of use among this population (Ehlke et al., 2024; Schuler & Collins, 2020). However, a recent review article found that the majority of interventions for sexual and gender minority individuals focused on sexual minority men and that there was a lack of programs for cannabis use (Kidd et al., 2022). Empirically evaluating cannabis use interventions for SMW is also of critical importance (McGeough, 2021). Taken together, interventions to reduce cannabis use should be tailored for SMW, incorporate harm perceptions related to use, and evaluated using scientific rigor through randomized controlled trial designs.

Findings from this study also showed that there were no differences between harm perceptions and cannabis use for heterosexual women. Perhaps other factors influence cannabis use for heterosexual women. As mentioned the social norms surrounding previously. cannabis may be different for heterosexual women due to the lower rates of use and subsequently less exposure to use among this population. Romm et al. (2023) found that heterosexual females reported lower perceived social acceptability and peer cannabis use, relative sexual minority females. Thus, these normative perceptions may also influence harm perceptions. Although speculative, if heterosexual women have less exposure to other peers using cannabis, they may believe this behavior is less normative due to the harm it poses to one's health. While addressing harm perceptions of cannabis is important for all groups, it may be less likely to lead to behavior change or have a lesser impact for heterosexual women, as compared to SMW.

Limitations and Future Directions

Several limitations should be noted for the current study. This was a cross-sectional study, limiting the interpretation of causal inferences of cannabis use. Future studies should use ecological momentary assessment (EMA) designs examine the momentary association between harm perceptions and cannabis use, and the fluctuation of harm perceptions at the daily level. All SMW were grouped together due to the low representation of non-heterosexual identities. Specifically, the majority of this sample identified as bisexual/pansexual (97.5%; i.e., bisexual+). Understanding subgroup sexual identity differences, such as bisexual+ and monosexual identities (e.g., lesbian/gay). should be considered in future research. Problematic cannabis use was not examined in the current study. MTurk participants may have different (i.e., higher) rates of cannabis use. which influences problematic use. Although MTurk is commonly used to collect large samples of data, including examining differences on substance use based on sexual identity (Benz et al., 2019; Smout & Benotsch, 2022), and samples are similar to community samples on demographic factors (Burnham et al., 2018), results may not generalize to the larger population of females who use cannabis. Additionally, future studies should expand findings to harm perceptions of other substances such as alcohol and tobacco and the co-use of products. Comparisons between racial and ethnic minority individuals were not examined, given that the sample was predominantly non-Hispanic White, and findings may not generalize to racial/ethnic minority populations. It is important for future research to consider the intersection of sexual orientation and racial/ethnic identity to understand the relationship between harm perceptions and cannabis use for populations with multiple marginalized identities.

Conclusions

Given the elevated rates of cannabis use among young adults in the United States, it is important to identify reasons for these increasing trends of use, particularly for health disparity populations such as SMW. This was the first study to show that cannabis harm perceptions were associated with cannabis use for SMW, but not heterosexual women. Because findings showed that higher health harm perceptions of use were associated with cannabis use, it may be critical to disseminate information about the health effects of cannabis, particularly for SMW, to reduce frequent cannabis use.

REFERENCES

Amazon Mechanical Turk. (n.d.). Amazon Mechanical Turk. https://www.mturk.com/Benz, M. B., Reed, K. P., & Bishop, L. S. (2019).

Stigma and help-seeking: The interplay of substance use and gender and sexual minority identity. *Addictive Behaviors*, *97*, 63-69. https://doi.org/10.1016/j.addbeh.2019.05.023

Berg, C. J., Stratton, E., Schauer, G. L., Lewis, M., Wang, Y., Windle, M., & Kegler, M. (2015). Perceived harm, addictiveness, and social acceptability of tobacco products and marijuana among young adults: Marijuana, hookah, and electronic cigarettes win. Substance Use & Misuse, 50(1), 79-89. https://doi.org/10.3109/10826084.2014.958857

Burnham, M. J., Le, Y. K., & Piedmont, R. L. (2018). Who is Mturk? Personal characteristics and sample consistency of these online workers. *Mental Health, Religion & Culture*, 21(9-10), 934-944. https://doi.org/10.1080/13674676.2018.148639

Cohn, A. M., Alexander, A. C., Ehlke, S. J., Smith, M. A., Lowery, B., McQuoid, J., & Kendzor, D.

- E. (2023). Seeing is believing: How cannabis marketing exposure is associated with cannabis use attitudes and behavior in a permissive medical cannabis policy environment. *The American Journal on Addictions*, 32(4), 333-342. https://doi.org/10.1111/ajad.13390
- 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
- Ehlke, S. J., Fitzer, S. A., Shipley, J. L., & Braitman, A. L. (2024). Exploring the intersection of sexual identity and route of administration in relation to cannabis use among young adult females. *The American Journal* on Addictions. https://doi.org/10.1111/ajad.13487
- Figueiredo, P. R., Tolomeo, S., Steele, J. D., & Baldacchino, A. (2020). Neurocognitive consequences of chronic cannabis use: a systematic review and meta-analysis. Neuroscience & Biobehavioral Reviews, 108, 358-369.
 - https://doi.org/10.1016/j.neubiorev.2019.10.01
- Florimbio, A. R., Walton, M. A., Duval, E. R., Bauermeister, J. A., Young, S. D., McAfee, J., & Bonar, E. E. (2024). Direct and indirect effects of cannabis risk perceptions on cannabis use frequency. *Addiction Research & Theory*, 32(1), 68-73. https://doi.org/10.1080/16066359.2023.222102
- Hall, W., Renström, M., & Poznyak, V. (2016). *The health and social effects of nonmedical cannabis use.* World Health Organization. https://iris.who.int/bitstream/handle/10665/25 1056/9789241510240-eng.pdf?sequence=1
- Hanauer, M., Walker, M. R., Machledt, K., Ragatz, M., & Macy, J. T. (2021). Association between perceived risk of harm and self-reported binge drinking, cigarette smoking, and marijuana smoking in young adults. *Journal of American College Health*, 69(4), 345-352.
 - https://doi.org/10.1080/07448481.2019.167675

- IBM Corp. (2021). IBM SPSS Statistics for Windows (Version 28.0) [Computer software]. IBM Corp.
- Khantzian, E. J. (1997). The self-medication hypothesis of substance use disorders: A reconsideration and recent applications. *Harvard Review of Psychiatry*, 4(5), 231-244. https://doi.org/10.3109/10673229709030550
- Kidd, J. D., Paschen-Wolff, M. M., Mericle, A. A., Caceres, B. A., Drabble, L. A., & Hughes, T. L. (2022). A scoping review of alcohol, tobacco, and other drug use treatment interventions for sexual and gender minority populations. *Journal of Substance Abuse Treatment*, 133, 108539.
 - https://doi.org/10.1016/j.jsat.2021.108539
- Levy, N. S., Mauro, P. M., Mauro, C. M., Segura, L. E., & Martins, S. S. (2021). Joint perceptions of the risk and availability of cannabis in the United States, 2002-2018. Drug and Alcohol Dependence, 226, 108873. https://doi.org/10.1016/j.drugalcdep.2021.108873
- McGeough, B. (2021). A systematic review of substance use treatments for sexual minority women. Journal of Gay & Lesbian Social Services, 33(2), 180-210. https://doi.org/10.1080/10538720.2021.187534 6
- 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
- Nguyen, N., Holmes, L. M., Pravosud, V., Cohen, B. E., & Ling, P. M. (2023). Changes in perceived harms of tobacco and cannabis and their correlations with use: A panel study of young adults 2014–2020. *Addictive Behaviors*, 144, 107758.
- https://doi.org/10.1016/j.addbeh.2023.107758 Nguyen, N., Wong, M., Delucchi, K., & Halpern-Felsher, B. (2022). Adolescents' and young

adults' perceptions of risks and benefits differ by type of cannabis products. *Addictive Behaviors*, 131, 107336. https://doi.org/10.1016/j.addbeh.2022.107336

Patrick, M. E., Miech, R. A., Johnston, L. D., & O'Malley, P. M. (2023). Monitoring the Future Panel Study Annual Report: National Data on Substance Use among Adults Ages 19 to 60, 1976-2022.

https://monitoringthefuture.org/wp-content/uploads/2023/07/mtfpanel2023.pdf

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 US young adult women and men. *Health Education Research*, 38(6), 513-526. https://doi.org/10.1093/her/cyad038

Romm, K. F., Ehlke, S. J., Smith, M. A., Vogel, E. A., McQuoid, J., Kendzor, D. E., & Cohn, A. M. (2024). Cannabis use differences among sexual minority versus heterosexual females and males in Oklahoma: The roles of mental health, cannabis perceptions, and cannabis marketing exposure. Substance Use & Addiction Journal, 45(1), 101-113. https://doi.org/10.1177/29767342231208519

Russell, C., Rueda, S., Room, R., Tyndall, M., & Fischer, B. (2018). Routes of administration for cannabis use–basic prevalence and related health outcomes: A scoping review and synthesis. *International Journal of Drug Policy*, 52, 87-96. https://doi.org/10.1016/j.drugpo.2017.11.008

Sarvet, A. L., Wall, M. M., Keyes, K. M., Cerdá, M., Schulenberg, J. E., O'Malley, P. M., Johnston, L. D., & Hasin, D. S. (2018). Recent rapid decrease in adolescents' perception that marijuana is harmful, but no concurrent increase in use. *Drug and Alcohol Dependence*, 186, 68-74. https://doi.org/10.1016/j.drugalcdep.2017.12.041

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.

 $https://doi.org/10.1016/j.drugalcdep.2019.107\\755$

Smout, S. A., & Benotsch, E. G. (2022). Experiences of discrimination, mental health, and substance use among bisexual young adults. *Journal of Bisexuality*, 22(4), 539-556. https://doi.org/10.1080/15299716.2022.211651

Substance Abuse and Mental Health Services Administration. (2023). Lesbian, gay, and bisexual behavioral health: Results from the 2021 and 2022 National Surveys on Drug Use and Health. Center for Behavioral Health Statistics and Quality. https://www.samhsa.gov/data/report/LGB-Behavioral-Health-Report-2021-2022

Waddell, J. T. (2022). Age-varying time trends in cannabis-and alcohol-related risk perceptions 2002–2019. *Addictive Behaviors*, 124, 107091. https://doi.org/10.1016/j.addbeh.2021.107091

Funding and Acknowledgements: This work was not funded. The authors have no conflicts of interest to report. Data and materials from this study are available from the primary author upon request.

Copyright: © 2025 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.

Citation: Ehlke, S. J., Fitzer, S. A., & Rigney, K. N. (2025). Exploring differences in cannabis use and harm perceptions among sexual minority and heterosexual females: A brief report. *Cannabis*, 8(1), 1-7. https://doi.org/10.26828/cannabis/2024/000273

Issue Date: February 1, 2025

