Research Article

Clinical Experience and Student Support for Medical Cannabis Use: A Secondary Analysis

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Andrew W. Tong[1], Chloe J. DuBoux[2], Rebecca H. Seuferer[2], Thomas A. Clobes[1], Francis W. Siu[3], Bryan Magana[1], Joshua M. Gold[1], & Julia Bensing-Ruiz[1]

[1]Department of Health Sciences, California State University Channel Islands
[2]Department of Psychology, California State University Channel Islands
[3]Department of Biology, California State University Channel Islands

ABSTRACT

Objective: As medical cannabis (MC) legalization expands across the United States, understanding the factors shaping healthcare students' support for its use is essential to informing educational practices and reducing stigma in clinical care. **Method:** This secondary analysis examined factors associated with students' support for medical cannabis use (SFMCU), including clinical experience, personal cannabis use, demographic characteristics, and variation across patient vignettes. Participants (N= 349) were recruited from sciences and healthcare majors at multiple higher education institutions. SFMCU was measured using four clinical vignettes, and linear mixed-effects modeling was employed to account for both within- and between-subject variability. **Results:** Students with clinical experience demonstrated significantly lower SFMCU compared to those without such experience (p < .001). Personal cannabis use was also associated with higher SFMCU, with users reporting greater support than non-users (p < .001). Older age and male gender predicted higher SFMCU (p < .05). Support varied by vignette type, with participants reporting greater SFMCU for post-traumatic stress disorder and insomnia compared to depression (p < .001). **Conclusions:** Findings indicate that clinical experience, personal cannabis use, and demographic factors each influence students' attitudes toward MC. Students with healthcare experience exhibited lower support, possibly reflecting exposure to traditional medical norms or institutional stigma. These results underscore the need to integrate evidence-based MC education into healthcare curricula to enhance student knowledge, address misconceptions, and prepare future professionals to engage in informed, stigma-free patient care.

Key words: = medical cannabis; healthcare education; student attitudes; clinical experience; stigma

Medical cannabis (MC) refers to the use of the marijuana plant or its extracts to treat symptoms of illness (National Institute on Drug Abuse, 2018). Over the past few decades, the use and acceptance of MC have steadily increased as more states permit its use. Nearly 90% of Americans believe that MC should be legal in some capacity, whether that be for medical or adult use (Pew Research Center, 2024). Despite this increase in support, cannabis remains classified as a Schedule I drug with no accepted medical use and a high potential for abuse or misuse (Drug Enforcement Administration [DEA], 2025). However, President Trump issued an Executive

Corresponding Author: Thomas A. Clobes, PhD, California State University Channel Islands, 1 University Drive. Camarillo, California, 93012. Email: thomas.clobes@csuci.edu

Order intending to reschedule cannabis III (Exec. Order No. 14370, 2025). Additionally, research has indicated potential therapeutic applications of MC, including pain relief, anti-inflammatory benefits, and symptom management for cancer patients (Mangal et al., 2021; Nagarkatti et al., 2009; Svendsen et al., 2004). As of 2025, 40 states, three U.S. territories, and the District of Columbia have permitted the use of MC, which may expand research on its therapeutic efficacy (National Conference of State Legislatures, 2025).

Given the increasing acceptance of MC, it is important to understand students' views, as they can provide early indications of future attitudes. Many students believe cannabis should be reclassified from a Schedule I drug due to its perceived low potential for addiction and recognized medical benefits (Jacobs, Colon, & Kane, 2022). Although, they generally support its use for medical purposes and not other adult uses. Though students typically express positive attitudes towards MC, Pereira et al. (2020) found that students who had experience with cannabis were more in favor of legalization than those without experience. Despite students' strong support for MC, research has revealed a lack of cannabis knowledge (Felnhofer et al., 2021; Moeller & Woods, 2015; Moeller et al., 2019). Nursing students, specifically, recognize this knowledge gap and believe MC could help patients, but they report feeling unprepared due to inadequate or absent MC curriculum (Parmelee & Clark, 2022). This lack of education leads many students to seek information from nonacademic sources with unknown credibility.

Previous research has shown MC to provide benefits to individuals experiencing a variety of conditions. The use of cannabidiol (CBD) with antipsychotic medication was associated with greater symptom improvement in individuals with schizophrenia than the medication alone (McGuire et al., 2018). CBD was also shown to provide positive anxiolytic effects to individuals diagnosed with generalized social anxiety disorder (Hoch et al., 2019). Research by Ganesh et al. (2024) found that individuals who switched from opioid use to cannabis reported lower anxiety and reduced opioid cravings. Additionally, cannabis was found to be more effective than opioids for pain relief in chronic pain management (Jylkkä et al., 2023; Reiman et al., 2017). Many users indicated a preference for MC over other prescription medications, reporting that MC alleviated their symptoms without adverse side effects (Mercurio et al., 2019).

Though many studies have looked at MC support among healthcare professionals and within the public, there remains a limited amount of research addressing how clinical experience among students may influence their support. The purpose of this secondary analysis was to examine factors associated with students' support for medical cannabis use (SFMCU), including clinical experience, personal cannabis use, demographic characteristics, and contextual variation across patient vignettes. Previous research suggests that healthcare exposure, personal experience with cannabis, and sociodemographic variables may shape attitudes toward MC, yet these relationships have not been examined together within a student population. Specifically, this study explored whether students with clinical experience, those who had used cannabis, or those differing in age and gender identity would vary in their level of SFMCU. In addition, the study examined whether support varied by patient condition, allowing for a more comprehensive understanding of the factors influencing student attitudes toward MC.

METHODS

Overview & Participants

This secondary analysis utilized data collected during September and October 2024 for a study assessing implicit racial bias and MC recommendations (Tong et al., 2025). The previous study sought to investigate implicit racial biases in pre-healthcare students and MCPs and the influence of said biases, if any, on their support of MC use in common patient scenarios. Questionnaires were distributed electronically and contained three distinct sections: demographics, four MC clinical vignettes, the White-Black race, and an implicit association test. Participants were recruited from sciences and healthcare majors at multiple higher educational institutions in Southern California, and a national online university. The current study analyzed the relationship between SFMCU and demographic factors and cannabis history use, omitting the implicit bias focus of the original work.

Measures

Support for medical cannabis use. Participants were presented with four patient scenarios developed by the researchers describing conditions commonly treated with MC: PTSD, insomnia, depression, and chronic pain. For each vignette, participants rated their SFMCU on a nine-point Likert scale, ranging from 1 (Strongly Against) to 9 (Strongly Supported). To ensure participants were critically evaluating their potential support and not universally supporting MC use, the original research included a pregnant patient with nausea, as cannabis use during pregnancy is generally discouraged (Navarrete et al., 2020). Since most respondents were strongly against its use in this vignette, it was omitted from this secondary analysis.

Clinical experience. Clinical experience was defined as having a current or previous clinical paid or student position with direct patient contact. The three questions used to classify students were "what is your major," "do you currently or have you ever worked in healthcare," and, if indicated work in healthcare, a follow-up question determining the specific role. Therefore, a nursing student was classified as "clinical," but a biology major who worked as a receptionist at a doctor's was classified as "non-clinical."

Data Analysis

Analyses were conducted to examine how students' clinical experience, personal cannabis use, demographic characteristics, and vignette context influenced SFMCU. A series of linear mixed-effects models were utilized to account for both fixed and random sources of variability in SFMCU ratings. Fixed-effect predictors included student category (clinical vs. non-clinical), personal cannabis use, age, gender identity, and vignette type. Random intercepts for participants and vignettes were specified to account for repeated measures within individuals and differences across vignette scenarios. This approach allowed for the evaluation of within- and between-subject variability while controlling for the non-independence of observations. All statistical analyses were performed using IBM SPSS Statistics (Version 29). Model assumptions, including linearity, normality of residuals, and homoscedasticity, were assessed through diagnostic plots and statistical tests to ensure model appropriateness. Statistical significance was set at $p = .05$.

IRB Approval

This study was approved by the Institutional Review Board of California State University, Channel Islands (Protocol #I05720). All participants electronically acknowledged an informed consent on the introductory page of the questionnaire. Participation was restricted to individuals 18 years of age or older.

RESULTS

A total of 349 participants completed the survey, with 81.4% identifying as female, 16.3% male, and 2.0% nonbinary. The mean age was 23.0 (SD = 9.65, range = 18-71). A majority of the sample identified as Latino (57.2%), followed by mixed/other (20.6%), and White (16.6%). Reported cannabis use was evenly split between non-users (49.0%) and users (50.9%). Among users, participants were divided based on adult use (n = 133), medical use (n = 8), and both (n = 37).

The sample represented mostly students without clinical experience (62.8%). However, a majority of students (78.2%) reported the intention to pursue a career in healthcare after graduating, though a minority (40.4%) reported having experience in a health-related role, with a mean of 3.67 years clinical experience (SD = 4.74, *range* = 0-29 years). Accordingly, a large number of students reported pursuing health-related majors such as Health Science, Psychology, Nursing, and Biology (57.6%, 16.9%, 8.88%, and 4.87%, respectively).

This project examined whether student category (clinical vs. non-clinical) predicted participants' SFMCU. The linear mixed-effects analysis revealed a significant main effect of student group on SFMCU scores (β = -.702, SE = 0.187, t = -3.75, $p < .001$). Specifically, clinical participants reported significantly lower estimated marginal SFMCU scores (M = 5.97, SE = 1.62) compared to their non-clinical counterparts (M = 6.68, SE = 1.63). This finding indicates that students' clinical experiences were associated with less SFMCU.

Personal cannabis use was examined for its ability to predict SFMCU. Results indicated a

significant main effect of personal cannabis use on SFMCU scores. Post-hoc analysis revealed non-users reported significantly lower SFMCU scores (M = 5.58) than participants who used cannabis for medical purposes only (M = 6.62, p = .016), adult use only (M = 6.40, p < .001), and both medical and adult use (M = 7.22, p < .001). There was no significant difference between medical-only and adult-only users. However, participants who used cannabis for adult and medical use had significantly higher SFMCU scores than those who used it for adult use only.

A significant main effect of participant age on SFMCU scores (β = .034, p = <.001) was found. Specifically, a one-unit increase in age was associated with a .034 increase in SFMCU, indicating that older participants reported a higher level of SFMCU.

Participants' gender identity was assessed for its ability to predict SFMCU. Analyses indicated that participant gender identity predicted SFMCU (p = .0008). Participants who identified as males (M = 6.48) had significantly higher SFMCU scores than females (M = 6.01, p = .012). Those who identified as "Nonbinary" or "Other/Don't know" were excluded from the analysis due to the small sample size. This finding suggests that male participants had higher levels of SFMCU than female participants.

A significant main effect of vignette type was found on SFMCU scores. Participants reported significantly lower SFMCU scores for the depression vignette (M = 4.94) compared to both the PTSD (M = 6.70, p < .001) and insomnia (M = 6.63, p < .001) vignettes. This indicates that participants were more likely to support MC use for patients using it for PTSD and insomnia than for depression.

DISCUSSION

The present study investigated whether students' clinical experience, personal cannabis use, demographic characteristics, and vignette context influence SFMCU. The results revealed that students with clinical experience reported significantly lower SFMCU than those without such experience. These findings suggest that exposure to healthcare settings influences students' attitudes toward MC. Students who have clinical exposure may have experienced more traditional views of MC, influenced by federal regulations, institutional norms, or liability concerns regarding the recommendation of MC use in healthcare settings. This aligns with the findings of Felnhofer et al. (2021), who found that medical students were more skeptical about increasing medical use of cannabis than students with no medical background. However, the findings of the present study did not correspond with the research of Weisman and Rodríguez (2021), who found greater support for MC legalization among healthcare professionals than healthcare students. One possible explanation for this discrepancy is the stage at which students are in their careers. Practicing healthcare professionals have more extensive training, clinical experience, and education, which may influence their understanding of MC use. Furthermore, professionals may have more direct experience interacting with and treating patients who have benefited from MC, ultimately causing a more positive attitude toward its use (Szaflarski et al., 2020). On the contrary, students may have limited exposure to those who have benefited from MC and may instead be influenced by stigmas.

It is also possible that attitudes of students with healthcare experience toward MC could be influenced by societal stigmas. Although public support for MC has substantially grown (Hossain & Chae, 2024), stigma persists, particularly in the medical and academic setting (Fehr et al., 2023). Students with clinical experience may feel pressure to adhere to the perceived beliefs of professionals already in the field, who may still express negative attitudes towards MC.

The results of this study highlight a critical issue in the insufficient integration of MC education in schools. As patients are increasingly turning to MC for pain management (O'Brien et al., 2023), nausea control (Bathula & Maciver, 2024), and other conditions, healthcare professionals are increasingly expected to provide informed guidance. A recent study by Parmelee and Clark (2022) highlighted this gap, where many nursing students were supportive of MC but believed their nursing program to have inadequate instruction on it. Incorporating MC education into healthcare curricula will help bridge this gap. Given that students with clinical experience were less supportive of MC, exposure to possible patient use, potential drug interactions, and evidence-based practice will help clinical students create more informed

decisions and will allow them to confidently engage in patient conversations. Additionally, MC education may contribute to reducing stigma among healthcare professionals (Clobes et al., 2022). Research by Jacobs, Kane, and Caballero (2022) found that students who had greater knowledge of MC expressed significantly more positive perceptions.

The inconsistent inclusion of MC in medical, nursing, and other healthcare curricula (Evanoff et al., 2017; Zolotov et al., 2021) results in variability of clinician knowledge and preparedness to advise patients on MC use. Legal ambiguity also creates barriers to curriculum development. While many states have legalized MC, it remains a Schedule I drug under federal law (DEA, 2025). The lack of consistent laws and regulations in the United States creates confusion about how to approach the implementation of MC education in schools. In addition, research gaps make it challenging for educators to create robust curricula (Cooper et al., 2021).

Although the findings of this study offer insight into the relationship between clinical experience and student SFMCU, several limitations must be acknowledged. One limitation was the lack of diversity in students' race, gender, and major. Because of this, the findings may not apply broadly to other populations. Further, this study included participants mostly residing in states where cannabis is legal for both medicinal and adult use, and where people generally have progressive views (Satterlund et al., 2015). The social and legal environment surrounding cannabis in these regions may have shaped participants' attitudes toward its medicinal use. While the results offer useful insights, the sample may not reflect the views of students in more conservative areas or areas with generally negative attitudes toward cannabis use.

Moving forward, research should aim to collect a more diverse sample with participants from states of varying cannabis laws and with differing backgrounds, such as diverse student majors and ethnicities. Future research should also expand its participant pool to individuals in different stages of their healthcare career, such as pre-healthcare, nursing students, graduate students, and medical professionals. Longitudinal studies could also provide insight into how SFMCU changes throughout their career.

Conclusion

This study identified several factors influencing students' SFMCU, revealing that clinical experience, personal cannabis use, age, gender, and patient context each play a role in shaping attitudes. Students with clinical experience expressed lower SFMCU than those without such experience, suggesting that exposure to traditional medical environments may reinforce conservative views toward MC. Conversely, personal cannabis use, older age, and male gender were associated with higher SFMCU. Since non-clinical students were more supportive of MC, these findings highlight the need to integrate evidence-based MC education into healthcare curricula to promote informed, stigma-free patient care. As legalization and therapeutic use continue to expand, enhancing students' understanding of MC may better prepare future healthcare professionals.

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