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Original Research

Perceptions of Patient and Surgeon Marijuana Use: A Survey Study of Upper-Extremity Patients

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Purpose: The Drug Enforcement Agency has categorized marijuana as a schedule 1 substance. In states where marijuana is legal, health care systems and licensing boards restrict usage by health care professionals outside of work, unlike alcohol. Considering the paucity of evidence with respect to clinical efficacy and the legal ambiguity associated with marijuana, the purpose of this investigation was to quantify patient perceptions of marijuana use. We sought to evaluate patient perceptions of potential marijuana use by physicians, compared with other substances such as alcohol and nicotine.

Methods: Four hundred thirteen anonymous, 19-question surveys were administered to upper-extremity patients at a single institution. Surveys included demographics, the Brief Marijuana Effect Expectancies Questionnaire, and questions analyzing willingness to discuss/use marijuana as part of treatment. Patients were asked to answer the following using a five-point Likert scale: "*I am comfortable with my doctor using the following substances outside of work*." A binary logistic regression model was constructed to assess the significance of patient demographics associated with perceptions of physician marijuana usage.

Results: A total of 388 (94%) surveys were included. Forty percent of respondents had used marijuana. Forty percent were open to using marijuana as part of a treatment plan. Sixty-four percent agreed that they were comfortable with their doctor using alcohol outside of work compared with 47% for recreational marijuana. Demographic factors and personal history of marijuana use were not associated with perceptions of potential physician use.

Conclusions: Patient perceptions of marijuana use are variable. More patients were comfortable with their physician using marijuana outside of work than not. Patients were as comfortable with their physicians using medical marijuana as they were with nicotine.

Clinical relevance: As federal and state laws surrounding marijuana use change, understanding patient perceptions of potential physician use may play a role in determining health system and licensing board policies.

Marijuana (also referred to as cannabis) is one of the world's most frequently used recreational drugs with more than 200 million current or former users worldwide.[1] In addition, marijuana has been used for medicinal purposes as early as 2700 BC, where it was recorded as being used to treat more than 100 different illnesses.[2] Cannabis contains more than 100 phytocannabinoids that act on the endocannabinoid system, including delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD).[1,3,4] Phytocannabinoids function through two main receptors, cannabinoid receptor type-1 and type-2 (CB2). Cannabinoid receptor type-1 receptors are found primarily in the central nervous system, generating neuropsychiatric effects, whereas CB2 receptors are believed to regulate neuroinflammatory responses.[1,4,5] Delta-9-tetrahydrocannabinol is a weak partial agonist of both cannabinoid receptor type-1 and CB2 receptors, which contributes to its psychoactive effects as well as potential analgesic and anti-inflammatory actions.[4,5]

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The 2022 National Survey on Drug Use and Health reported that 23% of Americans aged 18 years and older used marijuana within the past year.[6] Marijuana usage has been reported to be as high as 34% among orthopedic patients, with pain management being the most frequently reported reason for use.[7] In the context of the recent opioid epidemic, there is increasing interest in studying nonopioid analgesic alternatives including both marijuana and CBD products. There remains a lack of evidence assessing the use of medical marijuana for hand and upper-extremity conditions. Specific to CBD, existing studies assessing its efficacy in hand arthritis and upper-extremity conditions have reported conflicting results.[8–10] A recently published randomized trial assessing CBD use in basal joint arthritis noted improvements in arthritis-related pain; however, another randomized series demonstrated no benefit.[9,10] Considering the legal ambiguity in the United States with respect to marijuana, conducting prospective and randomized series comparing marijuana with other analgesic options is challenging.

At present, the United States Federal Government, through the Drug Enforcement Agency, has categorized marijuana as a schedule 1 substance, a categorization for drugs believed to have no accepted medical use potential and a high potential for abuse.[11] Other drugs classified by the Drug Enforcement Agency as schedule 1 include heroin, lysergic acid diethylamide, ecstasy, and peyote.[11] Despite the federal designations, individual state governments in the United States have moved to decriminalize or legalize marijuana use either medicinally or recreationally. As of 2023, the Council of State Governments reported that 20 states have decriminalized use, 16 states have legalized medical use, and 21 states have legalized recreational use.[12] Additional states in the United States are considering legalization, and Canada has legalized recreational marijuana use. However, even in states where marijuana use is legal, health care systems and medical licensing boards restrict marijuana usage by health care professionals.[13] Unlike alcohol, which can be used recreationally by physicians outside of the workplace, marijuana use by physicians can result in substantial vocational ramifications including mandated rehabilitation, termination, and license forfeiture. Furthermore, current testing methods are limited in their ability to differentiate between remote and acute marijuana use. Urine tests can remain positive for as long as 30 days in chronic marijuana users, and blood tests for THC can be highly variable and decline quickly because of its lipophilic nature.[14] At present, it remains difficult to objectively determine if a person was under the influence in the workplace or had used marijuana outside of work in the recent past.

Considering the relative paucity of evidence with respect to marijuana efficacy for upper-extremity conditions, the legal ambiguity regarding use, and the changing landscape surrounding legalization, there may be value in understanding patient perceptions and experiences with cannabis. Furthermore, it remains uncertain how upper-extremity patients feel about potential substance use by their treating surgeon. The purpose of this investigation was to quantify and evaluate patient perceptions and their current use of marijuana. As a primary aim, we sought to evaluate patient perceptions of potential marijuana use by physicians, compared with other substances such as nicotine and alcohol. In addition, we aimed to identify demographics associated with the perception of potential marijuana use by physicians.

Materials and Methods

Geisinger Health System institutional review board approval was obtained for this survey study. Surveys were administered on paper and collected no identifying or protected health information. Responses were not recorded in the electronic medical record, and no demographic information from the electronic medical record was obtained or referenced. Participation was voluntary such that respondents were not compensated, and surveys were administered to patients who were aged at least 18 years and did not require the use of language interpretation services.

Survey dissemination occurred during March and April of 2024. Included patients presented to one of three fellowship-trained hand and upper-extremity surgeons at one of four outpatient clinics. All clinics are part of a rural, academic, multihospital health care system with an academic level I trauma center. This study was conducted in Pennsylvania. At present, Pennsylvania has legalized medical marijuana, and although the state government is discussing legislation related to legalization, recreational use remains illegal.

The study team designed a survey consisting of 21 questions, divided into three sections (Appendix S1, available online on the *Journal's* website at https://www.jhsgo.org). Section 1 consisted of 12 questions that collected patient demographic characteristics including age, gender, race, level of education, reason for visit, marital status, and employment status. Also collected in section 1 was information pertaining to both the frequency of marijuana use and method of consumption, if applicable, for each respondent. Section 2 was the five-question Brief Marijuana Effect Expectancies Questionnaire (MEEQ-Brief), a validated instrument that captures individual experiences and perceptions of marijuana use.[15,16] Section 3 contained four questions analyzing patient willingness to discuss and use both marijuana and CBD as part of a medical treatment plan and patient comfort level pertaining to physician use of specified substances (alcohol, nicotine, and marijuana).

The final question of section 3, question 21 (Q21), was used to derive the primary outcome of interest for the present work. Question 21 presented the patient with the statement, "*I am comfortable with my doctor using the following substances outside of work,*" and then listed four substances: alcohol, nicotine, prescribed marijuana, and recreational marijuana. Each patient was asked to indicate their level of agreement with this statement as it related to each of the four substances. Answer options were presented on a five-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree"). "Prefer Not to Answer" was also included as an answer choice. Of interest in terms of the primary research question was whether the patient responded in agreement (ie, "Somewhat Agree" or "Strongly Agree") to Q21 corresponding to recreational marijuana use versus patients who did not respond in agreement (ie, "Strongly Disagree," "Somewhat Disagree," "Uncertain," or "Prefer Not to Answer"). Thus, the primary outcome of interest was binarized ("Agreement Response" vs "Other Response").

Patient age at survey (in years) was summarized using the mean and SD. All remaining patient demographic characteristics and current marijuana usage information were summarized using frequencies and percentages. Surveys where Q21 was not completed were excluded from the analysis. The remaining missingness was reported in the tables.

Patient demographic and marijuana usage characteristics (section 1) identified as having a potentially meaningful association with whether a patient responded in agreement with binarized Q21 were analyzed. Bivariate associations were tested using a Kruskal-Wallis test for age at survey and χ^2 tests for each of the remaining characteristics of interest. From these tests, P values were reported, where P value $<.05$ was considered statistically significant. Under the a priori hypotheses that each of these characteristics may have an underlying association with a patient responding to Q21 in agreement versus otherwise, a binary logistic regression model was constructed where each of these characteristics was retained regardless of statistical significance in the

Table 1
Summary of Patient Demographic Characteristics and Marijuana Use History (N = 388)

Patient Demographic Characteristics (Survey Section 1)	Frequency (%)
Age at survey (y)*	55 (16)
Gender	
Male	163 (42.0)
Female	223 (57.5)
Nonbinary	2 (0.5)
Race	
White	371 (95.6)
Black or African American	6 (1.5)
Asian	4 (1.0)
Alaska Native or American Indian	3 (0.8)
Other	3 (0.8)
Prefer not to answer	1 (0.3)
Highest education level	
Elementary/middle school	3 (0.8)
High school	182 (46.9)
Trade school	42 (10.8)
College (associates or bachelors)	119 (30.7)
Masters or higher	36 (9.3)
Prefer not to answer	6 (1.5)
Reason for visit	
Hand/wrist	269 (70.6)
Elbow	31 (8.1)
Shoulder	81 (21.3)
Current marital status	
Married	226 (59.2)
Divorced	47 (12.3)
Widowed	23 (6.0)
Single	86 (22.5)
Currently employed	213 (55.8)
Patient marijuana usage (survey section 1)	**Frequency (%)**
Frequency of marijuana use*	
Never used	234 (60.3)
Rarely	61 (15.7)
Occasionally	30 (7.7)
Frequently	41 (10.6)
PNTA	22 (5.7)
Among those who reported some† history of marijuana use (n = 154)	
Patient has medical marijuana prescription card	33 (22.8)
Patient uses marijuana via…	
Inhalation/smoking	105 (73.4)
Edibles	61 (43.0)
Topical/lotion	26 (18.3)
Other	7 (4.9)
PNTA	12 (8.5)
Self-reported marijuana use category	
Recreational	81 (56.6)
Medical prescription	41 (28.7)
PNTA	21 (14.7)

PNTA, prefer not to answer.
* Mean (SD) reported rather than frequency and percentage.
† Missing (n): age (1), reason for visit (7), marital status (6), employment status (6), marijuana prescription card (9), inhalation/smoking (11), edibles (12), other (12), and self-reported marijuana use category (11).

bivariate analyses. From this model, odds ratios (ORs) and 95% confidence intervals (95% CIs) of the OR were reported. Statistical significance of the OR was concluded if the 95% CI did not contain one. Goodness of fit of the logistic regression model was assessed using the Hosmer-Lemeshow χ^2 test. All statistical analyses were performed using SAS Enterprise Guide 8.3.

Results

A total of 413 surveys were administered during the study period. Twenty-five patients refused participation, leaving a total of 388 included surveys (94%). Table 1 provides results of the baseline demographic and marijuana use questions contained in section 1. Mean age was 55 years, and 58% of respondents identified as women. Ninety-six percent of respondents were White, and 48% had a high school education or less. With respect to marijuana usage, 60% of respondents had never used, and 11% reported frequent use. Table 2 contains the results of the MEEQ-Brief. Respondents were most likely to agree with the following statement: "*Marijuana helps a person relax and feel less tense (helps a person unwind and feel calm).*"

Table 3 presents the results of the questions related to perceptions of marijuana and CBD use as part of a medical treatment plan. With respect to marijuana, 53% either agreed or strongly agreed that they were open to their physician discussing use as part of a treatment plan. Forty percent were open to using marijuana as part of a medical treatment plan (Table 3).

Table 4 contains a summary of responses related to patient perceptions regarding substance use by physicians. Sixty-four percent agreed or strongly agreed that they were comfortable with their doctor using alcohol outside of work with 13% either disagreeing or strongly disagreeing. In comparison, 47% agreed or strongly agreed that they were comfortable with their doctor using recreational marijuana outside of work, with 25% either disagreeing or strongly disagreeing (Table 4).

Table 5 contains the bivariate analyses pertaining to the demographic and marijuana usage characteristics of interest across agreement versus other responses to binarized Q21 (patient comfort with physician use). Table 6 presents the adjusted effects of the patient demographic and marijuana usage characteristics of interest on the odds of responding in agreement to question 21 in survey section 3 pertaining to physician recreational marijuana use outside of work. When regressed in a single cohesive model, all preexisting bivariate relationships (ie, age, gender, employment, and frequency of marijuana use) were nullified such that no statistically significant associations remained. The Hosmer-Lemeshow goodness-of-fit test failed to detect evidence of poor model fit ($X2(8) = 7.4$, P value = .49), suggesting the fitted model described in Table 6 adequately fits these observed survey data.

Discussion

Among a population of rural patients seeking subspecialty upper-extremity care, 40% reported a history of prior marijuana use, whereas 11% reported frequent use. In comparison with recent data published in the 2022 National Survey on Drug Use and Health, self-reported marijuana use among our population appears higher than national averages (40% vs 23%).[6]

However, the incidence of use among our assessed population does appear similar to previous studies assessing marijuana use among patients seeking care for musculoskeletal conditions. Fader et al[8] found that of 103 surveyed patients with basal joint arthritis, 34% had a prior history of marijuana use. Similarly, Carney et al[7] found that among orthopedic patients, 34% had used marijuana within the past year, with pain management and recreation cited as the most common reasons for use. In our series, 40% were open to using marijuana as part of a medical treatment plan. This finding may have practical implications for study recruitment when planning future randomized, prospective assessments of marijuana efficacy in the treatment of upper-extremity conditions.

In agreement with our hypothesis, there were high levels of variability with respect to patient perceptions of marijuana use in the clinical setting. These findings reflect the complex nature of marijuana use in our society, both in legality and social acceptance. Even for CBD, which does not contain any of the psychoactive properties of marijuana, 20% of patients were uncertain if they were open to their doctor discussing CBD use as part of their treatment plan. This uncertainty and variability were also reflected in our

Table 2
Summary of Patient Responses to the Marijuana Effect Expectancies Questionnaire-Brief (MEEQ-Brief) Administered in Survey Section 2 (N = 388)

Marijuana Effect Expectancies Questionnaire (Survey Section 2)	Patient Perception Responses: Frequency (%)					
	Strongly Disagree	Somewhat Disagree	Uncertain	Somewhat Agree	Strongly Agree	Prefer Not to Answer
"Marijuana makes it harder to think and do things (harder to concentrate or understand; slows people down when they move)."	51 (13.1)	54 (13.9)	130 (33.5)	76 (19.6)	59 (15.2)	18 (4.6)
"Marijuana helps a person relax and feel less tense (helps a person unwind and feel calm)."	17 (4.4)	9 (2.3)	87 (22.4)	137 (35.3)	120 (30.9)	18 (4.6)
"Marijuana helps people get along better with others and it can help a person feel more sexual (talk more; feel more romantic)."	35 (9.0)	24 (6.2)	212 (54.6)	67 (17.3)	32 (8.2)	18 (4.6)
"Marijuana makes people feel more creative and perceive things differently (music sounds different; things seem more interesting)."	22 (5.7)	20 (5.2)	175 (45.1)	99 (25.5)	50 (12.9)	22 (5.7)
"Marijuana has effects on a person's body and gives people cravings (get the munchies/ hungry; have a dry mouth; hard to stop laughing)."	10 (2.6)	16 (4.1)	131 (33.8)	121 (31.2)	87 (22.4)	23 (5.9)

Table 3
Summary of Patient Responses to the Patient Perception of Marijuana and CBD Statements Provided in Survey Section 3 (N = 388)

Marijuana- and CBD-Use Statements (Survey Section 3)	Patient Perception Responses: Frequency (%)					
	Strongly Disagree	Somewhat Disagree	Uncertain	Somewhat Agree	Strongly Agree	Prefer Not to Answer
"I am open to my doctor discussing Marijuana with me as a part of my treatment plan."	54 (13.9)	15 (3.9)	78 (20.1)	88 (22.7)	119 (30.7)	34 (8.8)
"I am open to my doctor discussing CBD with me as a part of my treatment plan."	45 (11.6)	10 (2.6)	79 (20.4)	107 (27.6)	108 (27.8)	39 (10.1)
"I am open to using the following as a part of my treatment plan (Select all that apply)."	**Marijuana Only**	**CBD Only**	**Marijuana and CBD**	**None of These**	**Prefer Not to Answer**	
	37 (9.5)	57 (14.7)	119 (30.7)	112 (28.9)	63 (16.2)	

MEEQ-Brief results, where "uncertain" as a response was the most common answer for 80% of questions. Patients may be unaware of the differences between marijuana (THC) and CBD, which may have additionally contributed to these findings. If marijuana and its byproducts become more common in medical treatments, additional education for both patients and physicians will be necessary.

Among a population of orthopedic trauma patients, 78% believed that marijuana could be used to treat pain, and 62% believed it could be used to treat anxiety.[17] In the same study, 84% of respondents were either comfortable or very comfortable discussing medical marijuana with their health care provider, which stands in contrast to our results.[17] In assessing perceptions of medical marijuana use among patients with chronic musculoskeletal pain and their treating physicians, both groups considered marijuana a "last-line" therapeutic option.[18] Understanding patient perceptions and beliefs with respect to marijuana may be of value when considering discussions of medical marijuana and CBD use as part of a treatment plan. This may be of particular importance considering the paucity of available clinical studies assessing marijuana use for upper-extremity conditions and the conflicting results of the limited studies analyzing CBD use.[8–10] These perceptions may be shaped, in part, by legalization status, personal experiences, and geographic location.

As part of our primary aim, we assessed patient perceptions of potential marijuana use (both recreational and medicinal) by their physicians, contextualized by their perceptions of substances such as alcohol and nicotine. Although there were high levels of response variability, patients were as comfortable with their physicians using medical marijuana as they were with nicotine. Patient demographic factors, including history of marijuana use or level of education, were not associated with perceptions of potential physician use. In our population, patients were more likely to agree than disagree with the potential scenario of their physician using recreational marijuana outside of work. Although there have been a number of prior studies assessing patient perceptions of personal marijuana use across a variety of subspecialties, there has been a paucity of prior studies assessing patient perceptions of potential physician use.[17,18] At present, the United States is undergoing an unprecedented change at the state level with respect to the legal status of recreational and medical marijuana. However, at both the federal and state licensure levels, guidance regarding physician medical marijuana usage is not clearly defined. In contrast, the Federal Aviation Administration (US Department of Transportation) follows federal guidance and has noted that state initiatives will have no bearing on their recreational or medical marijuana policies for pilots.[19] It remains uncertain if state medical boards and/or individual health care systems will provide additional guidance on their marijuana and substance use policies for physicians. However, if future changes are considered in regard to personal medicinal use by physicians, it is possible that patient perceptions may guide policy at the state and local levels. In this context, quantifying and understanding patient perceptions and beliefs are of increasing importance.

Table 4
Summary of Patient Responses to Physician Substance Use Statement in Question 21 of Survey Section 3 (N = 388)

Patient Perceptions of Potential Physician Substance Use Statement (Question 21 of Survey Section 3)	Patient Perception Responses: Frequency (%)					
"I am comfortable with my doctor using the following substance outside of work:"	Strongly Disagree	Somewhat Disagree	Uncertain	Somewhat Agree	Strongly Agree	Prefer Not to Answer
Alcohol	30 (7.7)	19 (4.9)	36 (9.3)	100 (25.8)	149 (38.4)	54 (13.9)
Nicotine	40 (10.3)	20 (5.2)	50 (12.9)	83 (21.4)	138 (35.6)	57 (14.7)
Prescribed marijuana	46 (11.9)	17 (4.4)	55 (14.2)	74 (19.1)	142 (36.6)	54 (13.9)
Recreational marijuana	72 (18.6)	24 (6.2)	63 (16.2)	69 (17.8)	106 (27.3)	54 (13.9)

Table 5
Patient Demographic and Marijuana Usage Characteristics of Interest Across Agreement Responses ("Somewhat Agree" or "Strongly Agree") Versus Other Responses ("Strongly Disagree," "Somewhat Disagree," "Uncertain," and "Prefer Not to Answer") to question 21 in survey section 3: "*I am comfortable with my doctor using recreational marijuana outside of work*"

Patient Demographic or Marijuana Usage Characteristic of Interest (Collected in Survey Section 1)	Patient Responses for Binarized Q21, n (%)		
	Agreement (n = 175)	Other (n = 213)	*P* Value*
Age at survey (y)†	52.0 (14.9)	57.6 (16.9)	<.05‡
Male gender	89 (50.9)	74 (34.7)	<.05
White race	169 (96.6)	202 (94.8)	.41
More than high school education level§	91 (52.0)	106 (49.8)	.66
Currently married	108 (61.7)	118 (57.0)	.35
Currently employed	108 (61.7)	105 (50.7)	<.05
Frequency of marijuana use			<.05
Never used	79 (45.1)	155 (72.8)	
Rarely	39 (22.3)	22 (10.3)	
Occasionally	18 (10.3)	12 (5.6)	
Frequently	30 (17.1)	11 (5.2)	
Prefer not to answer	9 (5.1)	13 (6.1)	
Medical marijuana prescription card	21 (22.3‖)	12 (23.5)	.87

* All *P* values correspond to a χ^2 test, unless otherwise indicated.
† Mean (SD) reported rather than frequency and percent.
‡ *P* value corresponds to Kruskal-Wallis test.
§ More than high school education level = "Trade School," "College (Associates or Bachelors)," and "Masters or Higher."
‖ Missing (n): age (1), currently married (6), currently employed (6), and marijuana prescription card (9).

Table 6
Adjusted Effects of Patient Demographic and Marijuana Usage Characteristics of Interest on the Odds of Responding in Agreement ("Somewhat Agree" or "Strongly Agree") to Question 21 in Survey Section 3 Pertaining to Physician Recreational Marijuana Use Outside of Work

Patient Demographic or Marijuana Usage Characteristics of Interest (Collected in Survey Section 1)	Comparison	OR (95% CI)
Age at survey (y)	Five-unit increase	0.94 (0.83–1.07)
Male gender	Yes vs no	1.27 (0.62–2.60)
White race	Yes vs no	3.66 (0.80–16.82)
More than high school education	Yes vs no	0.97 (0.46–2.03)
Currently married	Yes vs no	1.06 (0.51–2.24)
Currently employed	Yes vs no	1.09 (0.51–2.32)
Frequency of marijuana use*	Occasionally vs rarely	0.87 (0.34–2.21)
	Frequently vs rarely	1.82 (0.63–5.32)
	PNTA vs rarely	0.69 (0.20–2.38)
Medical marijuana prescription card	Yes vs no	0.61 (0.22–1.67)

CI, confidence interval; OR, odds ratio; PNTA, prefer not to answer.
* Patients who reported having "Never Used" marijuana were omitted from modeling. Hosmer-Lemeshow goodness-of-fit test failed to find evidence of poor model fit (X2(8)=7.4, *P* value = .49).

This investigation has several limitations, which should be considered. There are limitations unique to survey studies, including response bias. Because of the sensitive nature of some of these questions, it is unclear how respondents who chose "prefer not to answer" for physician use perceptions would have influenced the results had they chosen to list their preferences. This investigation was conducted in a single institution in a rural region of Pennsylvania with a homogeneous patient population. It is uncertain if these results are generalizable to other populations. In addition, Pennsylvania has legalized medicinal use, but recreational marijuana use remains illegal. This may influence both usage patterns and willingness to respond to questions about illegal drug use. Although limited to a single state and health care system, these data can, however, allow for comparisons to similarly conducted studies in different geographic locations with varying legalization status. In addition, potential changes in state medical board and health care system policies may be guided, in part, by patient perceptions in that region. Thus, there is likely value in understanding local and regional perceptions of marijuana use.

In conclusion, among a rural, upper-extremity patient population in the United States, perceptions of marijuana use and willingness to both discuss and use marijuana as part of a treatment plan remain highly variable. More patients were comfortable with their physician using marijuana outside of work than not, and patients were as comfortable with their physicians using medical marijuana as they were with nicotine. Patient demographic factors and history of personal marijuana use were not associated with perceptions of potential physician marijuana use outside of work. As federal and state laws surrounding the legal status of marijuana change, understanding patient perceptions of potential physician use may play a role in determining health system and licensing board policies.

Conflicts of Interest

No benefits in any form have been received or will be received related directly to this article.

References

1. Johal H, Vannabouathong C, Chang Y, Zhu M, Bhandari M. Medical cannabis for orthopaedic patients with chronic musculoskeletal pain: does evidence support its use? *Ther Adv Musculoskelet Dis*. 2020;12:e1–e7.
2. Hand A, Blake A, Kerrigan P, Samuel P, Friedberg J. History of medical cannabis. *J Pain Manag*. 2016;9(4):387–394.
3. Yang A, Townsend CB, Ilyas AM. Medical cannabis in hand surgery: a review of the current evidence. *J Hand Surg Am*. 2023;48(3):292–300.
4. Yamamoto I, Watanabe K, Matsunaga T, Kimura T, Funahashi T, Yoshimura H. Pharmacology and toxicology of major constituents of marijuana—on the metabolic activation of cannabinoids and its mechanism. *J Toxicol*. 2003;22(4):577–589.
5. Ebbert JO, Scharf EL, Hurt RT. Medical cannabis. *Mayo Clin Proc*. 2018;93(12):1842–1847.
6. Substance Abuse and Mental Health Services Administration. National Survey on Drug Use and Health: Detailed Tables. Accessed March 6, 2024. https://www.samhsa.gov/data/report/2021-nsduh-detailed-tables
7. Carney JJ, Hwang A, Heckmann N, Bernstein M, Marecek GS. Characteristics of marijuana use among orthopedic patients. *Orthopedics*. 2020;43(2):108–112.
8. Fader L, Scharf Z, DeGeorge BR Jr. assessment of medical cannabis in patients with osteoarthritis of the thumb basal joint. *J Hand Surg Am*. 2023;48(3):257–262.
9. Vela J, Dreyer L, Petersen KK, Arendt-Nielsen L, Duch KS, Kristensen S. Cannabidiol treatment in hand osteoarthritis and psoriatic arthritis: a randomized, double-blind, placebo-controlled trial. *Pain*. 2022;163(6):1206–1214.
10. Heineman JT, Forster GL, Stephens KL, Cottler PS, Timko MP, DeGeorge BR Jr. A randomized controlled trial of topical cannabidiol for the treatment of thumb basal joint arthritis. *J Hand Surg Am*. 2022;47(7):611–620.
11. Drug Enforcement Agency (DEA). Drug Scheduling. Accessed February 23, 2024. https://www.dea.gov/drug-information/drug-scheduling
12. The Council of State Govements (TCSG). State Approaches to Marijuana Policy. Accessed February 24, 2024. https://www.csg.org/2023/02/13/state-approaches-to-marijuana-policy/
13. Ryan JE, McCabe SE, Boyd CJ. Medicinal cannabis: policy, patients, and providers. *Policy Polit Nurs Pract*. 2021;22(2):126–133.
14. Moeller KE, Kissack JC, Atayee RS, Lee KC. Clinical interpretation of urine drug tests: what clinicians need to know about urine drug screens. *Mayo Clin Proc*. 2017;92(5):774–796.
15. Torrealday O, Stein LA, Barnett N, et al. Validation of the marijuana effect expectancy questionnaire-brief. *J Child Adolesc Subst Abuse*. 2008;17(4):1–17.
16. Buckner JD, Ecker AH, Welch KD. Psychometric properties of a valuations scale for the marijuana effect expectancies questionnaire. *Addict Behav*. 2013;38(3):1629–1634.
17. Heng M, McTague MF, Lucas RC, Harris MB, Vrahas MS, Weaver MJ. Patient perceptions of the use of medical marijuana in the treatment of pain after musculoskeletal trauma: a survey of patients at 2 trauma centers in Massachusetts. *J Orthop Trauma*. 2018;32(1):e25–e30.
18. Poisblaud L, Kröger E, Jauvin N, et al. Perceptions and preoccupations of patients and physicians regarding use of medical cannabis as an intervention against chronic musculoskeletal pain: results from a qualitative study. *J Pain Res*. 2023;16:3463–3475.
19. US Department of Transportation. DOT “Recreational Marijuana” Notice. Accessed March 8, 2024. https://www.transportation.gov/odapc/dot-recreational-marijuana-notice