



Prevalence and Perceived Analgesic Utility of Cannabinoid Use for Pain in Musculoskeletal Joint Clinic Patients



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Background

- In the United States and worldwide, the legality, acceptance, and use of cannabinoids has been steadily increasing over the last several years.¹ Growing widespread advocacy and use of cannabinoid compounds has been coincident with the increasing legalization of medicinal and recreational cannabis across several jurisdictions.^{2,3}
- Prior observational studies have shown that orthopaedic patients utilize cannabinoids for pain relief, though there is minimal evidence regarding the efficacy, safety, and adverse effects of cannabinoid preparations, particularly those available over-the-counter at dispensaries. Additionally, few studies have evaluated the benefits and risks of cannabinoid use for the treatment of neuropathic, post-operative, and arthritis-related pain specifically.
- Given that musculoskeletal pain accounts for a large proportion of chronic pain globally, and that chronic, non-cancer related, pain is a significant contributor to morbidity, the use of cannabinoids may represent an alternative therapy for the management of joint-related musculoskeletal pain.^{5,6} An understanding of current cannabinoid use and its effects in this specific MSK sub-population can help inform patients and providers of potential risks and benefits as well as help guide future recommendations for its use.

Objectives

- The goal of this study is to assess the prevalence and perceived analgesic utility of cannabinoids for the treatment of joint-related pain in musculoskeletal clinic patients.
- Self-reported quality of life measures related to pain behavior, pain interference, and physical function will also be assessed for any possible cannabis dependent effect.

Methods

- A cross-sectional study was performed of patients presenting to the UCLA Orthopaedic Surgery subspecialty joint clinics for treatment of joint-related musculoskeletal pain, including, but not limited to, pain arising from arthritis or post-operative pain following total arthroplasty of the hip or knee.
 - Inclusion criteria: All consecutive patients aged 18 years or older who presented to the aforementioned clinic locations.
 - Exclusion criteria: Patients under the age of 18 or those unable to complete the online questionnaire.
- An online questionnaire to be completed on a patient's own personal device was administered to all eligible patients via REDCap for an enrollment period of 4.5 months. All patients, new or returning, were offered the opportunity to complete the survey only once across all clinics and were informed that the survey should be completed only once.
- The questionnaire asked patients questions about their current or past cannabis usage including frequency, dosage, and method of consumption as well as perceptions regarding cannabis, experienced side effects following cannabis use, the reason for which they are seeing their doctor, and pain levels. Patients were also asked to answer questions regarding demographics as well as use, frequency, and pain relief from other medications and adjuvant therapies.
- All data was collected via REDCap.
- Mean PROMIS scores and 95% confidence intervals for the three health measures were calculated using Excel.
- One-way ANOVA was used to evaluate the statistical significance of PROMIS scores between cannabis users and non-users in the three health measures that were assessed: pain behavior, pain interference, and physical function.

Tables/Figures

Table 1. Demographics of Musculoskeletal Joint Clinic Patients

Variable	Values
n	46
Gender (%)	
Female	28 (60.9)
Male	18 (39.1)
Age: mean(sd)	70.09 (9.75)
Ethnicity (%)	
Hispanic	3 (6.5)
Non-Hispanic	41 (89.1)
No Response	2 (4.3)
Race (%)	
White	38 (82.6)
Black	6 (13.0)
Latino/a	1 (2.2)
Asian	4 (8.7)
Pacific Islander/ Native Hawaiian/ Native American/ Alaskan Native	0 (0.0)
Middle Eastern	0 (0.0)
No Response	1 (2.2)

Data are presented as number (percentage) unless otherwise indicated.

Table 2. Frequency of Cannabis Use Among Musculoskeletal Clinic Patients

Cannabis Use Frequency	Value: n (%)
Never	16 (34.8)
No but in the past	8 (17.4)
Less than once per month	1 (2.2)
Once per month	1 (2.2)
2-3 times per month	4 (8.7)
Once a week	3 (6.5)
2-3 times a week	3 (6.5)
4-6 times a week	3 (6.5)
Once per day	2 (4.3)
More than once per day	5 (10.9)

Data are presented as number (percentage) unless otherwise indicated.

Figure 1. Breakdown of Cannabis Use Among Musculoskeletal Clinic Patients

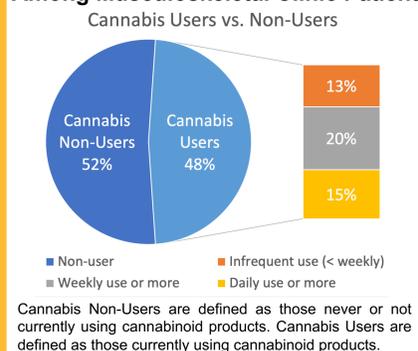


Figure 2. Patient perceptions regarding the potential medicinal benefits of cannabis use.

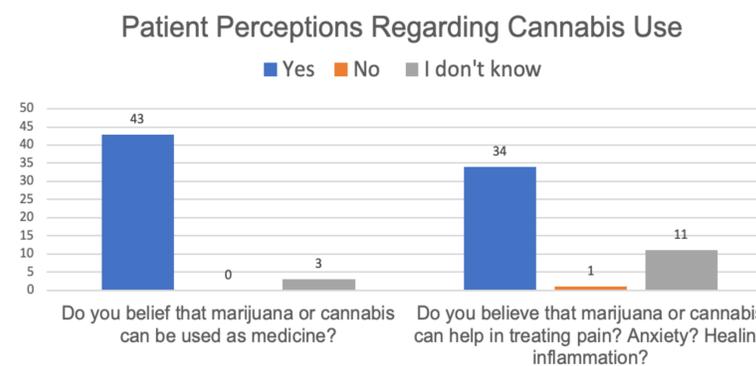
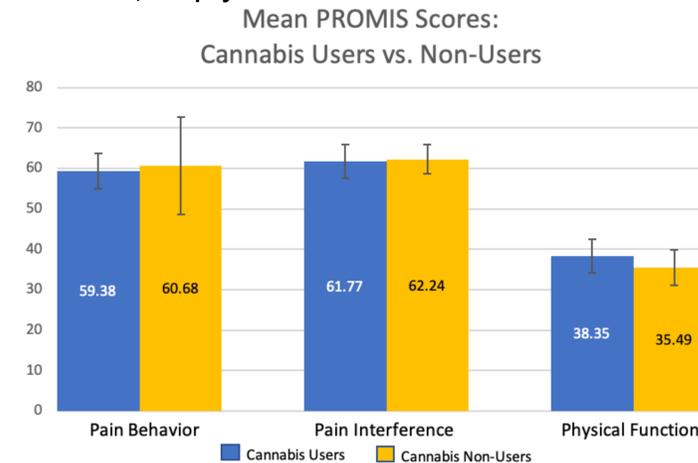


Figure 3. Comparing Patient Reported Outcome Measurement Information System (PROMIS) Scores between cannabis users and non-users in the three health measures assessed: pain behavior, pain interference, and physical function.



Results

- In total, 1,542 patients were invited to complete the online questionnaire via REDCap over the 4.5 month enrollment period. Of those, a total of 46 patients completed the survey, yielding a response rate of 2.98%.
 - Among the survey respondents, 60.9% were female and 39.1% were male (Table 1).
 - The average age was 70.09 years with a standard deviation of 9.75 years (Table 1).
- Our data suggests that 48% of patients visiting the UCLA Orthopaedic Surgery subspecialty joint clinics currently use cannabinoid products, with 15% of patients using these products daily or more. Only 52% of patients have never or are not currently using cannabinoid products (Figure 1).
- Across all groups and for all three measures, mean PROMIS t-scores were approximately one standard deviation (SD) or greater away from the mean of the reference population (the U.S. population with a mean of 50 and SD of 10). However, between cannabis users and non-users, the data shows no statistical significance between groups across all three PROMIS measures: Pain Behavior, Pain Interference, and Physical Function. The corresponding p-values are 0.467, 0.847, and 0.145 respectively (Figure 3).

Discussion

- Our study suggests that a significant percentage (48%) of musculoskeletal clinic patients utilize cannabis for recreational and medicinal purposes, including relief of joint-related musculoskeletal pain (Figure 1).
- The prevalence of current cannabis consumption among orthopaedic patients is much higher than that of the general population. Current data suggests that among U.S. adults the prevalence of marijuana use in any form in the last year was 12% in states where marijuana is nonlegal, 14.6% in states where medicinal marijuana is legal, and 20% in states where recreational marijuana is legal.⁷
- Findings show that the majority of patients, both users and non-users of cannabis, believe cannabinoid products to have possible medicinal benefits including analgesic and anti-inflammatory effects, among others.

Limitations & Future Research

- Due to low initial survey response rate, a gift card incentive was used to help encourage patient participation. Given the low response rate and nature of the questions asked, future analysis will assess for possible non-response bias.
- There are challenges in classifying patients as either cannabis users or non-users. The use of a binary to classify patients as either users vs. non-users is likely an over-simplification and does not take into account the likelihood of a dose-dependent or product type-dependent effect. These factors will be taken into consideration upon further analysis of the data.
- Logistic regression will be used to adjust for possible confounding factors including tobacco use, other drug use, and certain demographic factors.
- In patients undergoing primary total arthroplasty of either the hip or knee, potential differences in patient perceptions, cannabinoid use, post-operative pain and surgical outcomes will be assessed between groups.
- This project was the first step in identifying cannabis use, perceptions, and outcomes among this specific population of orthopaedic patients. Further investigation and analysis is needed to help bridge the knowledge gap so that patients and providers may be better informed of the potential risks and benefits of cannabinoid use.

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