

# CANNABIS IN THE TREATMENT OF AGE-RELATED PAIN

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# Summary & Key Findings

Pain affects one's mood, memory, relationships, and overall quality of life. Constant aches and discomfort can cause frustration, depression, anxiety, anger, social isolation, poor sleep, and related health risks. Pain is a problem. A big problem. And it gets worse as we age: Fifty percent of older adults who live on their own and 75-85 percent of the elderly in care facilities reportedly suffer from chronic pain.<sup>i</sup>

With a growing number of people turning to marijuana for relief, this survey sought to answer several questions: How satisfied are patients with cannabis as an analgesic? How does medical marijuana compare to other pain management approaches, in particular, opiates? How do the most common pain management therapies compare in terms of their impact on quality of life?

Eight hundred people responded to the survey over a six-week period. Most were between 50 and 70 years old. Over 80 percent reported that they were suffering from chronic pain; close to half reported suffering from acute pain; about 40 percent reported suffering from both. On average, respondents had tried four different treatment methods for their pain. One in four respondents had tried six or more treatment modalities.

## Key Findings

- ✓ Cannabis, opiates, exercise/physical therapy and NSAIDs all provided noticeable pain relief in more than half of patients.
- ✓ Cannabis was the only therapeutic approach for which there were no reports of worsening pain. In contrast, surgery, exercise, and nerve blockers benefited some but resulted in *increased* pain in a significant minority of survey participants.
- ✓ Cannabis and exercise/physical therapy were reported to be the most effective therapies for improving quality of life measurements. Over half of patients using these treatment approaches reported improvements in functional ability, mood, and energy.
- ✓ A striking number of patients (around half) reported that opiates had a negative impact on overall wellbeing, and resulted in worsening mood, energy, functional ability and sleep.
- ✓ Over half of respondents reported that they had used both cannabis and opiates for pain management. Of great interest was the impact of cannabis therapy on opiate usage: *Ninety-one percent of this subgroup reported that they used fewer or no opiates after beginning cannabis therapy.* Sixty-three percent said that they went off opiates altogether.

- ✓ Among those using marijuana, just under 90 percent said they used it one or more times per day.
- ✓ There were no significant differences in outcomes for patients using high THC versus CBD-rich products. Both types of cannabis were found to be highly effective in managing pain. Use of CBD-rich products, then, appears to be based on personal preferences with respect to psychoactivity and/or factors we did not measure. Moreover, some patients reported anecdotally that the psychoactivity of THC contributed positively to cannabis' pain-relieving effect.
- ✓ The most common method of administration was vaporization, which is generally a safe mode of administration—barring additives and thinning agents that can be found in low quality vaping products.

## Conclusion

Cannabis appears to be an effective pain management tool with few negative side effects. Patient-reported outcomes for cannabis therapy contrasted particularly sharply with those for opiates, which while effective for pain management, had a negative impact on quality of life measurements in a significant number of patients.

The observed decrease in opiate usage among patients on cannabis therapy was the study's most striking finding. *Again, 91 percent of survey respondents reported that they decreased the amount of opiates they were taking or eliminated them altogether.* This finding is supported by preclinical (animal) research, which suggests that cannabinoids and opiates may work synergistically; a low dose of cannabinoids in combination with an opiate may increase the opiate's effectiveness thereby slowing the development of tolerance, and decreasing the risk of addiction.<sup>ii</sup> Not surprisingly, the endocannabinoid system is implicated in opiate addiction and withdrawal. Increasing the concentration of endogenous cannabinoids has been shown to reduce the effects of opiate withdrawal in animals.<sup>iii</sup>

These observations are validated by public health statistics: The Johns Hopkins Bloomberg School of Public Health reported in 2015, "In states where it is legal to use medical marijuana to manage chronic pain and other conditions, the annual number of deaths from prescription drug overdose is 25 percent lower than in states where medical marijuana remains illegal."<sup>iv</sup>

**A tenet of healthcare in the United States is "First, do no harm." Patient reports of cannabis' efficacy together with its low side effect profile suggest that it should be considered as a first-line treatment for pain and/or as an adjunct treatment to opiates rather than as a medication of last resort.**

# Methodology & Limitations

## **Methodology**

Eight hundred people participated in the Care By Design and Project CBD survey on the use of cannabis and other therapies to treat pain. We asked about the type of pain patients experienced, and what medications or therapies they had used to relieve their discomfort. We then asked participants to assess each therapeutic modality in terms of its impact on five quality of life measurements: (i) pain level, (ii) functional ability, (iii) energy, (iv) mood, and (v) sleep. We also asked about the impact of cannabis on opiate use.

We did not seek to quantify the *degree* of improvement. We merely sought to assess whether these wellness indices got better, worse, or stayed the same while a patient was on a particular therapy. So, while respondents often reported that cannabis and other therapies helped, we do not know whether they helped a little or a lot.

## **LIMITATIONS**

There are limitations to this survey that warrant mention. Most significant is the way participants were selected; we recruited from people who subscribe to Project CBD or Care By Design. This means that all of our participants were interested in marijuana as a treatment, and many had already found cannabis to be helpful. This likely had the effect of increasing the proportion of patients who reported improvements (and decreasing the proportion of patients reporting that their condition worsened).

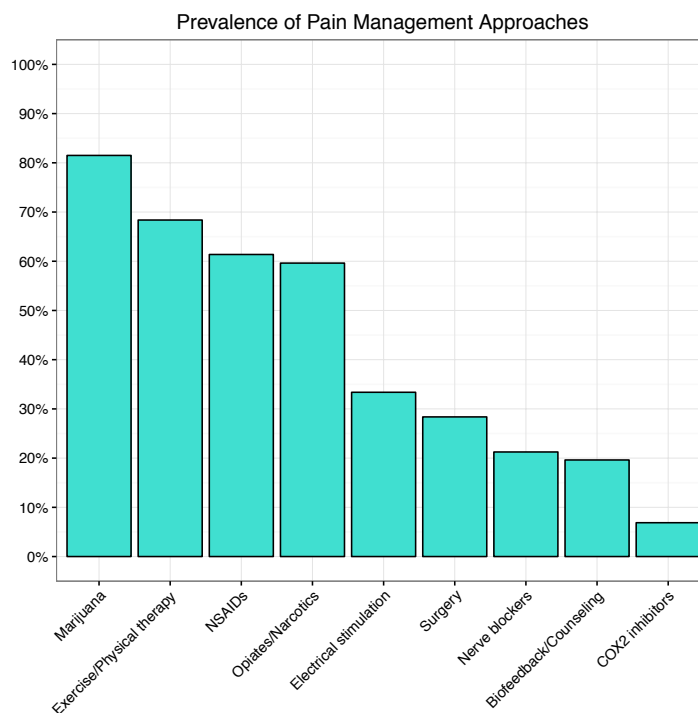
Furthermore, the selection of patients may have also introduced a systematic bias in other categories, though this is less clear. For example, since cannabis is rarely a first-line treatment, patients who turn to marijuana may be more likely to respond poorly to other modalities. This sample bias cannot be distinguished from the data, and the data must be viewed with this qualification in mind.

# About the Survey Participants

Most survey respondents were between 50 and 70 years old. The vast majority—83 percent—reported suffering from chronic pain; half reported suffering from acute pain; 42 percent reported suffering from both. On average, respondents had tried four different treatment methods for their pain. Twenty-five percent of respondents reported having tried six or more.

Surprisingly, the therapeutic approaches did not vary significantly based on the kind of pain the patient experienced—acute versus chronic. Opiates are generally considered more appropriate for acute pain due to the escalating risks of addiction and tolerance with prolonged use.<sup>1</sup> As such, one might have expected to find significantly lower opiate usage among those being treated for chronic pain, but we did not. Nor did therapeutic approaches vary significantly based on the age of the patient; older patients were as likely to report resorting to surgery and exercise as younger patients.

The most common pain treatments among respondents were marijuana (82%), exercise/physical therapy (68%), non-steroidal anti-inflammatory drugs (NSAIDs) (61%), and opiates (60%).

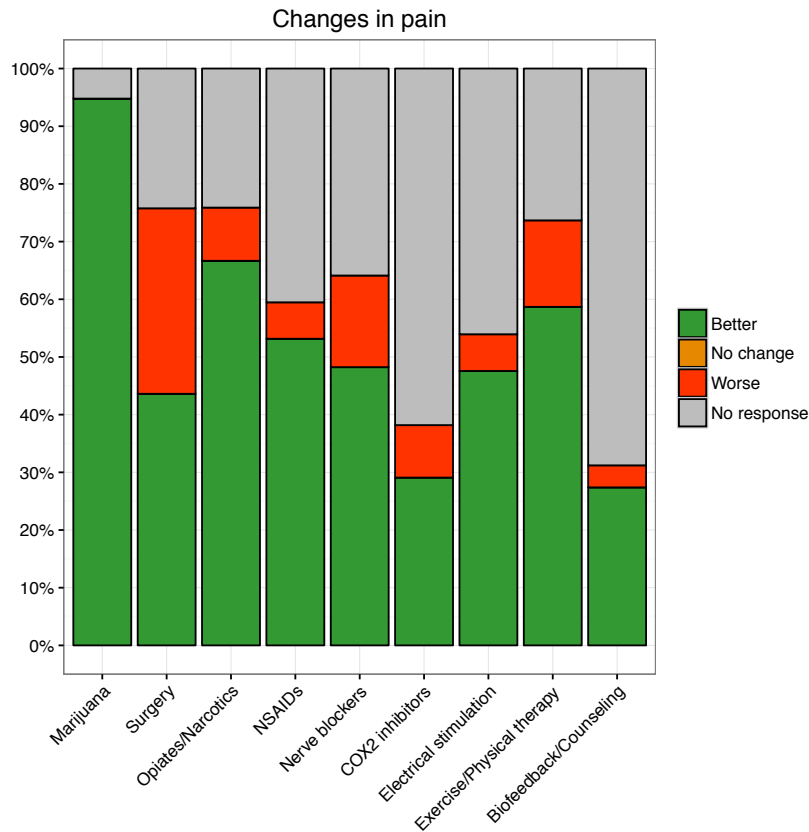


<sup>1</sup> Non-steroidal anti-inflammatory drugs (NSAIDs) such as aspirin can also lead to health problems when used over prolonged periods, including stomach ulcers and other gastrointestinal problems.

# Efficacy in the Treatment of Pain

Among survey respondents, cannabis, opiates, exercise/physical therapy and NSAIDs all provided measurable relief in more than half of patients (cannabis – 95%, opiates – 67%, exercise/physical therapy – 59%, and NSAIDs – 53%). Notably, cannabis was the only therapeutic approach that was reported to offer pain relief without any reports of worsening pain.

While surgery, exercise, and nerve blockers benefited some respondents, these three approaches were also the most likely to result in *increased* pain in a significant minority of patients (32% – surgery, 16% – nerve blockers, and 15% – exercise), which suggests a significant risk profile.



# Impact on Quality of Life

It is important to consider more than one factor when evaluating treatment. Pain, energy, mood, functional ability, and sleep all influence one another. A treatment that causes harm in these areas can potentially be worse than no treatment at all.

Cannabis and exercise/physical therapy were reported to be the most effective therapies for improving quality of life measurements.<sup>2</sup> Over half of patients using these treatment approaches reported improved functional ability, mood, and energy. Additionally, 83 percent of cannabis users reported improved sleep.

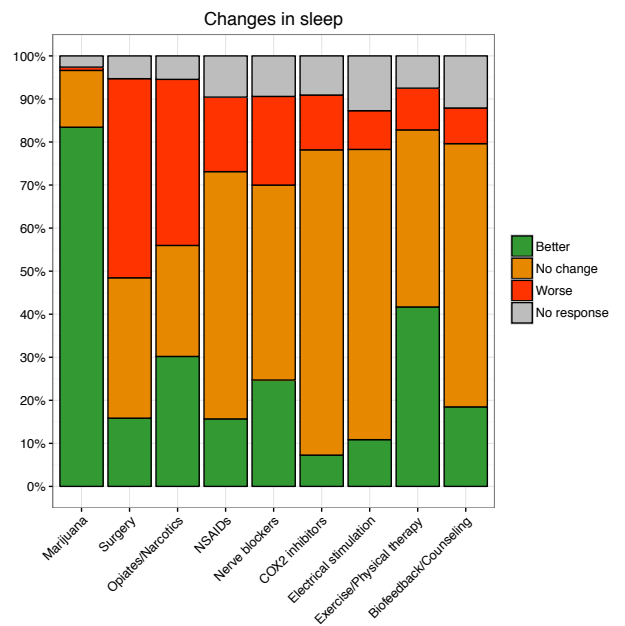
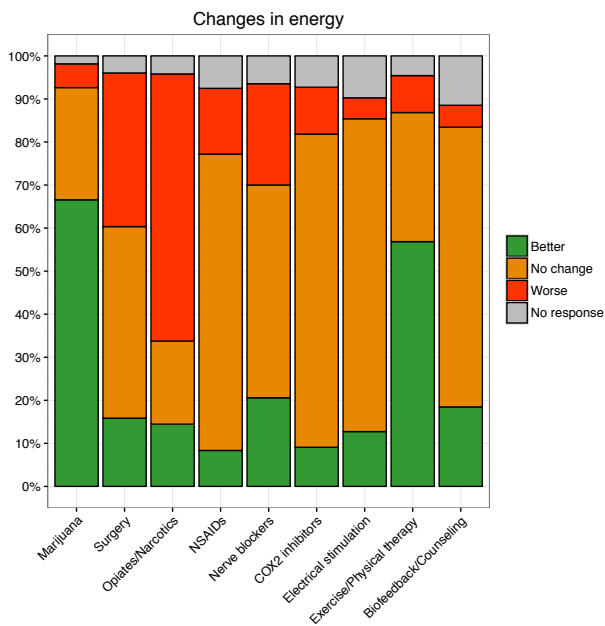
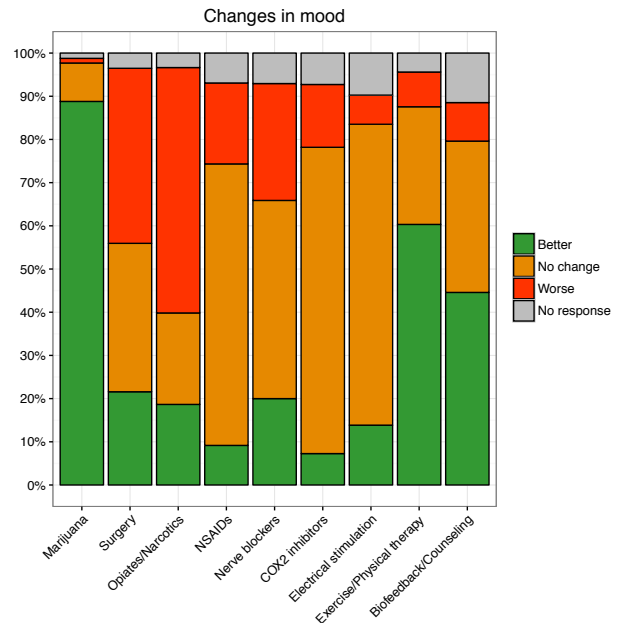
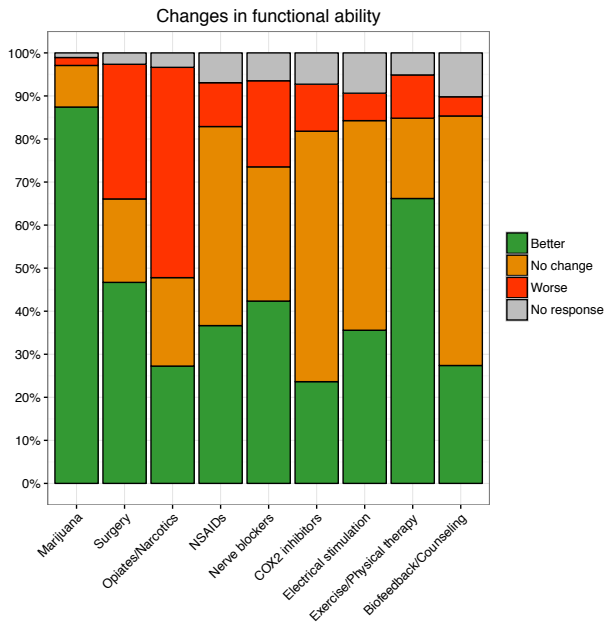
A striking number of patients reported that opiates had a negative impact on overall wellbeing. Over half of all respondents who took opiates for pain reported that their mood and energy worsened while on these drugs (62% and 57%, respectively). And close to half reported a decrease in functional ability and disruption of sleep (49% and 39%, respectively).

Surgery and nerve blockers also resulted in diminished quality of life in a significant minority of survey participants (37% and 21%, respectively).

Among the pain management modalities assessed in this survey, surgery is somewhat of an outlier. Surgery is meant to be performed only once; if successful, it may reduce pain permanently. Nonetheless, relief comes at a risk. For every four patients whose pain improved after surgery, three patients' pain worsened.

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<sup>2</sup> Biofeedback/counseling had minimal impact on most symptoms, except for mood where 44 percent of patients reported improvements.





# Cannabis Use

Regarding cannabis use, the survey found:

- Eighty-one percent of respondents reported using cannabis for pain.
- Among those using marijuana, 87 percent use it one or more times per day.
- There were no significant differences in outcomes between patients using high THC versus CBD-rich products. Both types of cannabis were found to be highly effective in managing pain.
- The most common method of administration was vaporization. Fifty-one percent of patients preferred to smoke or vaporize cannabis. Inhaled cannabis is likely most appropriate for acute pain given the rapid onset (approximately 5 minutes) and relatively short duration of the effect.
- Forty-two percent of patients preferred sprays, edibles, and capsules, which have a notably slower onset (approximately 1-2 hours) but remain active for 6-12 hours and are, thus, more suitable for long-term relief. However, the psychoactivity of ingested THC (e.g. a capsule or edible) is both greater and more difficult to control. As such, CBD-rich edibles are likely more appropriate for cannabis-naïve patients and individuals who wish to avoid or minimize psychoactive effects.

# Opiates and Cannabis

Of the 800 survey respondents, 444 individuals—or 56 percent—reported that they had used both cannabis and opiates for pain management. Of great interest was the impact of cannabis therapy on opiate usage:

- Ninety-one percent of this group of respondents reported that they used fewer or no opiates while using cannabis.
- Sixty-three percent said that they went off opiates altogether after beginning cannabis therapy.
- Only two of the 441 respondents (less than one percent) reported using more opiates when taking cannabis.

# Citations

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- <sup>i</sup> "Seniors and Chronic Pain | NIH MedlinePlus the Magazine," National Institute of Health. 2011. <https://medlineplus.gov/magazine/issues/fall11/articles/fall11pg15.html>.
- <sup>ii</sup> "Oxycodone's effects on cannabis-induced analgesia and subjective drug ratings," Cooper ZD, Comer SD, Haney M. Presented at the Annual Meeting of the International Cannabinoid Research Society. June 30<sup>th</sup>, 2016.
- <sup>iii</sup> "Effect of Pharmacological Modulation of the Endocannabinoid System on Opiate Withdrawal: A Review of the Preclinical Animal Literature," Wills K, Parker L. *Frontiers in pharmacology*. June 28 2016. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4923145/pdf/fphar-07-00187.pdf>
- <sup>iv</sup> "State Medical Marijuana Laws Linked to Lower Prescription Overdose Deaths," Johns Hopkins Bloomberg School of Public Health. June 26, 2015. <http://www.jhsph.edu/news/news-releases/2014/state-medical-marijuana-laws-linked-to-lower-prescription-overdose-deaths.html>.