



Is Marijuana Use for Pain Driving Negative Societal Effects?

by Kenneth Finn, MD

The problem of increased marijuana use has origin in its purported use for pain, but the medical literature is completely void of evidence for the treatment.

Pain is the most common diagnosis associated with marijuana being recommended for medical use¹. With more states moving towards accepting marijuana use for medical purposes, there is a call from the medical and scientific community for more research and evidence that it actually works for common pain conditions.

Out of the top 20 medical diagnoses presenting to the primary care physician nationally, there are only three that are associated with a painful condition:² spinal disorders (i.e., lower back pain), arthropathies and related disorders (i.e., knee arthritis), and abdominal pain. There were no other pain diagnoses in the top 20 diagnoses that present to the primary care physician for treatment, including cancer pain or neuropathic pain.

What does the medical literature tell us about the use of marijuana for pain? In 2011, *The British Journal of Pharmacology* released a paper looking at the use for cannabinoids for the treatment of chronic non-cancer pain.³ They narrowed a broad literature review to only 18 trials with a total of 925 participants. Most of the trials studied neuropathic pain (72%), including HIV neuropathy and multiple sclerosis related neuropathy (three trials), with single studies looking at arthritis and chronic spinal pain.

There were four studies that looked at smoked cannabis and neuropathic pain only. Six studies evaluated synthetic cannabinoids (Dronabinol, Nabilone) for pain (off-label use).

From these trials, the average number of patients was 49 with average duration of 22 days, some of which were one week long. Despite their conclusion that cannabinoids may help for chronic non-cancer pain, they noted study limitations of small sample size, modest effects, and the need for larger trials of longer duration to determine safety and efficacy.

In 2015, the *Journal of the American Medical Association (JAMA)* released an article on cannabinoids for medical use.⁴ Chronic pain was assessed in 28 studies, involving 63 reports and 2,454 participants. Thirteen studies evaluated nabiximols (not available in the United States), four smoked THC, six synthetic THC, three oromucosal spray, one oral THC, and one vaporized cannabis. The majority of studies looked at some form of neuropathic pain or cancer pain. Two studies were at low risk of bias, nine at unclear risk, and 17 at high risk. Studies generally suggested improvements in pain measures associated with cannabinoids but did not reach statistical significance in most individual studies. Despite these difficulties, the authors concluded there was moderate-quality evidence to suggest that cannabinoids may be beneficial for the treatment of chronic neuropathic or cancer pain (smoked THC and nabiximols). Note these are less common pain conditions presenting to the physician for treatment nationally. The authors noted an increased risk of short-term adverse effects with cannabinoid use, including some serious adverse effects. Common adverse effects included asthenia, balance problems, confusion, dizziness, disorientation, diarrhea, euphoria, drowsiness, dry mouth, fatigue, hallucination, nausea, somnolence, and vomiting.



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In 2017, the National Academies of Science, Engineering, and Medicine released a paper on the health effects of cannabis and cannabinoids.⁵ It may be important to note that none of the authors had a background in Anesthesia or Pain Medicine. The authors felt the referenced *JAMA* article was the most comprehensive and that the medical condition most often associated with chronic pain in that article was neuropathy, and a majority of studies evaluated treatment with nabiximols, which are not available in the United States. The committee found that only a handful of studies evaluated the use of cannabis and that many of the cannabis products sold in state regulated markets bear little resemblance to the products available for research at the federal level in the United States. They also note that very little is known regarding efficacy, dose, routes of administration, or side effects of commonly used and commercially available products in the U.S. Despite this, they concluded that “cannabis is an effective treatment for chronic pain in adults.”

The above noted papers demonstrate the limited data available to the public and medical community, and represent the only information available regarding treatment of pain with marijuana. Despite that, the public has embraced that marijuana can treat all pain conditions, and state governments have followed suit, without scientific evidence, and have allowed an industry to prosper on the thin ice of what is currently and scientifically available.

It is important to understand that pain covers a broad spectrum of disorders and pain of different origins does not necessarily respond the same to different medications. Additionally, dispensary cannabis is considered a generic substance without defined or accepted dosing guidelines, and will vary in purity as well as potency. It may also contain hundreds of other compounds, some of which may have physiologic activity. Cannabinoids are purified components of the plant which have been isolated in a laboratory and have more scientific foundation, but are currently not available for study or use in pain conditions in the U.S.

Since *de facto* legalization in Colorado in 2009, there has been a significant increase in public health and safety concerns, which include utilization of the health care system, an increase in adolescent substance use treatment for cannabis, and an increase in marijuana-related driving fatalities.⁶ The addiction rates are reportedly 9% in the adult and roughly 18% in the adolescent, which was based on the potency of marijuana from nearly 20 years ago. The potency has significantly increased in the past five years alone, so we are now in uncharted waters and unable to predict the long-term effects or addiction rates of currently available, highly potent products, with variable delivery systems.

As the number of medical marijuana patients increased in Colorado, there appeared to be a parallel increase in the number of adolescents needing substance use treatment, most often for cannabis. Colorado is now contending with a huge opioid and heroin epidemic, and despite the widespread availability of Narcan, does not appear to have leveled off or curbed the number of opioid or heroin deaths in the state which continue to rise.⁷

Although the concept of using marijuana to decrease opioid use is attractive, there is little data to suggest that may be the case. According to the Centers for Disease Control, the number of drug overdose deaths in Colorado has continued to increase, ahead of the national average.⁸

The above problems are now falling into the laps of other groups including law enforcement and mental health providers who are pushing back and straining their respective resources.

In summary, the problem of increased marijuana use has origin in its purported use for pain, but the medical literature is completely void of evidence for the treatment of common pain conditions with cannabinoids or cannabis. Current medical literature suggests benefit in less common pain conditions, with products not commercially available in the U.S., or with synthetic THC, not with dispensary cannabis. The variability of available products changes regularly and their use in medicine, particularly pain, is unproven. The end game is in the court of law enforcement, mental health providers, the medical community, and our educational systems, at unknown societal costs, which are only now becoming apparent.

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