

**Can Christians Use Medical Marijuana?**  
**Paper Presented at the 72<sup>nd</sup> Annual Meeting of the**  
**Evangelical Theological Society**  
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Country music legend Willie Nelson is perhaps the most famous marijuana advocate in the United States. Arrested multiple times for marijuana possession, in a 2019 interview with *Rolling Stone*, Nelson commented on marijuana's rapid legalization and said, "It's nice to watch [marijuana] being accepted — knowing you were right all the time about it: that it was not a killer drug. It's a medicine."<sup>1</sup> Laying aside the fact Nelson has used the drug for recreational purposes, his statement that "it's a medicine" reflects a common opinion among people both inside and outside the church. But is marijuana harmless? Is it a wonder-drug? Is it morally permissible for Christians to smoke marijuana for medical purposes?

*Medical marijuana* is a broad term which refers to the therapeutic use of marijuana or marijuana-based products to treat symptoms of illness and other conditions with the whole, unprocessed cannabis plant or its basic extracts. Supporters of medical marijuana claim it can make chemotherapy more tolerable, boost appetite, reduce eye pressure due to Glaucoma, relieve pain, stop muscle spasms, treat depression or anxiety, alleviate PTSD, and help with a whole host of other conditions. Two chemicals found in the cannabis plant (*Cannabis sativa*) are of special interest for medical treatment: tetrahydrocannabinol (THC) and cannabidiol (CBD). THC has the mind-altering effects which creates euphoria. The FDA has approved two drugs containing THC – dronabinol and nabilone – to treat nausea caused by chemotherapy and to increase appetite in patients with extreme weight loss caused by AIDS. CBD by itself does not make you intoxicated. Currently, only one drug derived from CBD is approved by

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<sup>1</sup> James Minchin, "The High Life," *Rolling Stone* April 29, 2019, <https://www.rollingstone.com/music/music-features/willie-nelson-weed-issue-826290/>.

the FDA: Epidiolex is prescribed for the treatment of seizures associated with two rare and severe forms of epilepsy. As more states make recreational marijuana legal, some Christians will be tempted to self-medicate using legally purchased marijuana. But a robust survey of scientific and Biblical evidence will demonstrate that while Christians may use medications derived from marijuana under correct supervision to address specific medical needs, smoking marijuana for supposed medical purposes presents far more moral problems for Christians. Currently, there is not enough peer-reviewed data to justify the claim that smoking marijuana is superior to pharmaceutical interventions for pain management.

To defend this thesis, the paper will begin with a brief summary of the pharmacology of marijuana. Then, I will summarize research regarding the effectiveness of medical marijuana and marijuana products. These purported benefits will then be contrasted with the negative effects of smoking marijuana. Finally, the paper will conclude with reflections on the use of medical marijuana by Christians, including Biblical passages on pain management, warnings about intoxication, and the use of wisdom for critical analysis will be utilized to argue for appropriate use of medically dispensed drugs derived from marijuana while rejecting smoking marijuana. This paper will not specifically address the ethics of recreational marijuana. Also, the word *cannabis* will be used to refer to the *cannabis sativa* plant, while marijuana will be used in reference to cannabis one smokes, hashish one eats, or other cannabis products one drinks or inhales.

## **I. The Pharmacology of Marijuana**

*Pharmacology* is the study of drugs, their sources, their nature, and their properties and the body's reaction to drugs.<sup>2</sup> When discussing marijuana, several pharmacological questions emerge. What are its active chemicals? What are the sites and mechanisms within the body which

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<sup>2</sup> William C. Shiel, Jr., "Medical Definition of Pharmacology," <https://www.medicinenet.com/script/main/art.asp?articlekey=4859>.

interact with the active chemicals in marijuana? How does the body react to marijuana?

## 1. What are the active chemicals in cannabis?

The cannabis plant contains about 540 chemical substances.<sup>3</sup> Of these chemicals, more than 100 are called *cannabinoids*, meaning these chemicals are unique to the cannabis plant. The two main cannabinoids are *delta-9-tetrahydrocannabinol* (THC) and Cannabidiol (CBD). THC and CBD are structural isomers of each other, meaning the numbers and types of atoms are the same in both cases, but the arrangement of the atoms (what is connected to what) are different.<sup>4</sup>

THC is the main psychoactive (mind-altering) chemical in the cannabis plant responsible for most of the intoxicating effects that people seek. The chemical is found in resin produced by the leaves and buds primarily of the female cannabis plant.

How much THC is typically in cannabis? Cannabis shows considerable variation in potency depending on the particular plant strain, growing conditions, and storage. The moisture and temperature of the growing season can also affect THC levels, meaning that some varieties of marijuana contain more THC than others.<sup>5</sup> The cannabis plants being grown today have a much, much higher level of THC than those grown in the past, meaning the marijuana of today is more potent than in previous decades. The THC content of marijuana, as detected in confiscated samples,

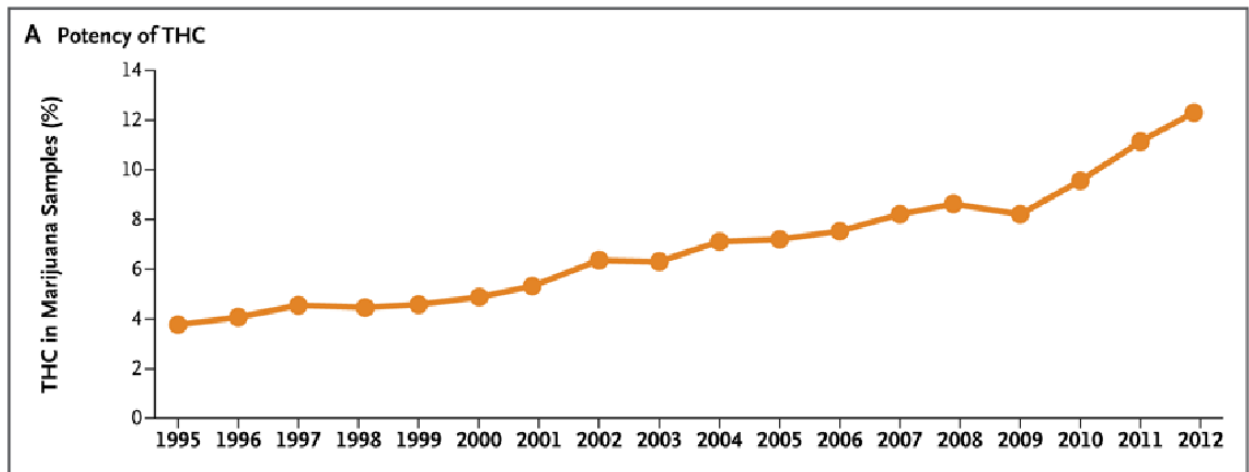
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<sup>3</sup> National Institutes of Health, National Center for Complementary and Integrative Health, "Cannabis (Marijuana) and Cannabinoids: What You Need to Know," November 2019, <https://www.nccih.nih.gov/health/cannabis-marijuana-and-cannabinoids-what-you-need-to-know>.

<sup>4</sup> Personal communication with Dr. Andy Holder, chemistry professor, UMKC.

<sup>5</sup> Mitch Earleywine, *Understanding Marijuana: A New Look at the Scientific Evidence* (New York: Oxford University Press, 2002), 128.

has been steadily increasing from about 3% in the late 1980s to 12% in 2012.<sup>6</sup>



The difference of the amount of THC in marijuana 40 years ago compared to marijuana today is comparable to the difference in drinking a glass of wine versus drinking a pint of grain alcohol.

CBD is the second most prevalent active ingredient in cannabis, but it does not make people intoxicated. It can be derived from both *cannabis sativa* and its cousin plant hemp. To be clear: If you take CBD, you will not get high.

2. What are the sites and mechanisms within the body which interact with the active chemicals in marijuana?

In the human body, the endocannabinoid system [ECS] consists of cannabinoid receptors, endogenous neurotransmitters called *endocannabinoids*, and the enzymes that synthesize and degrade endocannabinoids.<sup>7</sup> The system plays key modulatory roles during

<sup>6</sup> Nora D. Volkow, Ruben D. Baier, Wilson M. Compton, and Susan R.B. Weiss, "Adverse Effects of Marijuana Use," *New England Journal of Medicine* 370.23 (June 5, 2014): 5, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4827335/pdf/nihms762992.pdf>.

<sup>7</sup> Ken Mackie, "Cannabinoid Receptors: Where They are and What They Do," *Journal of Neuroendocrinology* 20 (2008): 10.

synaptic plasticity and homeostatic processes in the brain.<sup>8</sup> In research over recent decades, the ECS has emerged as one of the key regulatory mechanisms in the brain controlling multiple events such as mood, pain perception, learning and memory.<sup>9</sup>

There are two cannabinoid receptors – CB1 and CB2. The CB1 receptors are primarily located on nerve cells in the brain are found in high levels in the neocortex, hippocampus, basal ganglia, cerebellum and brainstem. CB1 receptors are also found in the spinal cord, and in some peripheral organs and tissues such as the spleen, white blood cells, endocrine gland and parts of the reproductive, gastrointestinal and urinary tracts. The CB2 receptors are concentrated in cells and tissues of the immune system, and is mainly found on white blood cells, in the tonsils and in the spleen.

Endocannabinoids are cannabinoids which naturally occur in the human body and activate the cannabinoid receptors. For example, the brain produces an endocannabinoid called *anadamide*, a neurotransmitter which attaches to CB1 receptors and works to boost dopamine production in the reward cycle. THC's structure resembles that of anadamide. Because the structures are so similar, the body recognizes THC, which also attaches to CB1 receptors and alters brain communication, producing the euphoric condition known as getting high.

A simplistic, although not exact, analogy for the endocannabinoid system is a lock and key. Both naturally occurring endocannabinoids and THC “fit the lock” on the CB1 receptors. The analogy is imperfect because both keys may fit the lock, but cause a different effect. The different keys may also bind more or less well and stay stuck to different degrees. All of

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<sup>8</sup> Debra A. Kendall and Guillermo A. Yudowski, “Cannabinoid Receptors in the Central Nervous System: Their Signaling and Roles in Disease,” *Frontiers in Cellular Neuroscience* 10.294 (January 2017): 1. Homeostatic processes keep the organism in optimal functioning as is the state of steady internal, physical, and chemical conditions maintained by living systems.

<sup>9</sup> *Ibid.*, 3.

these variables cause a multitude of potential outcomes. Both THC and CBD fit into the cannabinoid receptors in our bodies (and all mammals) and bind in slightly different ways. But for our purposes, it is important to note that CB1 is a nervous system and brain receptor and that when THC binds and sticks to it, someone gets high. Interestingly, CBD actually mitigates THC binding anywhere it is present.<sup>10</sup>

### 3. How does the body react to marijuana?

THC and CBD, though very similar, produce very different responses in the body. Beyond making a person high, THC has analgesic (pain relief), antiemetic, anti-inflammatory, and antioxidant properties. CBD has anxiolytic properties (reduces anxiety) and antipsychotic properties. It also has anticonvulsive properties, and may reduce the severity of epileptic seizures or other convulsions. It also can counteract some of the psychoactive effects of THC.<sup>11</sup>

The method of taking marijuana affects the speed at which it takes effect. When someone smokes marijuana, THC quickly diffuses to the brain, eliciting the perceived high within seconds to minutes. Vaping has a similar time to onset of high. “Dabbing” is a relatively new form of inhaling; in this method, a person takes a marijuana concentrate and applies it to a hot surface to create smoke. This method creates a longer and more intense high. Eating marijuana or hashish does not produce effects for 30 minutes to 2 hours, but the perceived high purportedly lasts longer.<sup>12</sup> CBD oil can be ingested normally, sublingually, applied topically, or inhaled.

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<sup>10</sup> The lock and key analogy provided by Andy Holder, professor of chemistry.

<sup>11</sup> Joan L. Kramer, “Medical Marijuana for Cancer,” *CA: A Cancer Journal for Clinicians* 65.2 (March / April 2015): 111.

<sup>12</sup> National Academy of Sciences, Engineering, and Medicine, *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research* (Washington, DD: The National Academies Press, 2017), 14.

The pharmacology of the cannabis plant holds a great many opportunities for future research. Keep in mind that THC was only first isolated in 1964 and CBD was first obtained from cannabis in 1940. It was in 1990 that a team led by Lisa Matsuda with National Institutes of Health mapped the DNA sequence that encodes for CB1 in the brain, and CB2 was identified about the same time. In 1992, naturally occurring endocannabinoids were discovered. The cumulative result of these findings has contributed in the last 30 years to an explosion in claims regarding medical marijuana, but which claims are legitimate and which ones lack evidence?

## II. Summary of Research Regarding Medical Marijuana

Anecdotal claims about purported benefits of medical marijuana far outnumber the amount of substantiated uses based on randomized controlled trials. To summarize the findings, we will begin with a working definition of the term *medical marijuana*. Next, FDA approved cannabinoid pharmaceuticals will be summarized. Then, research on claims related to medical marijuana will be described.

Medical marijuana refers to treating symptoms of illness and other conditions with the whole, unprocessed cannabis plant or its basic extracts. Keep in mind that the term *medical marijuana* can be used in many different ways. For some, medical marijuana refers to pharmaceutical products derived from the cannabis plants. For others, medical marijuana refers to smoking marijuana to manage a clinically identified condition. Still others expand the definition even further to included CBD products with little or no THC content.

I suggest the following working definition of Medical Marijuana: Medical marijuana is a broad term which refers to the (purportedly) therapeutic use of marijuana or marijuana-based products to treat symptoms of illness and other conditions with the whole, unprocessed cannabis plant or its basic extracts. Medical marijuana should be

distinguished from pharmaceutical-grade medications developed from components of the cannabis plant that have been developed according to U.S. Food and Drug Administration standards.<sup>13</sup> The term *therapeutic use* is quite broad; for some people medical marijuana is used narrowly for crises such as cancer pain or controlling nausea from cancer treatments, while others extend *therapeutic use* to include mild arthritic pain or relational stress. It is important to maintain a distinction between medical marijuana and cannabinoid pharmaceuticals:

Medical Marijuana: This is the pot one smokes, the hashish one eats, or oils one vapes; Medical marijuana may also refer to CBD products sold for a variety of alleged health benefits.

Cannabinoid pharmaceuticals: These are drugs derived from the cannabis plant and have been developed according to U.S. Food and Drug Administration (FDA) standards or which are synthetic forms of THC or CBD. These are drugs one gets from a pharmacy.

This distinction between medical marijuana and cannabinoid pharmaceuticals is essential; there have been fewer studies of medical marijuana than cannabinoid pharmaceuticals. Joan Kramer, medical editor of the American Cancer Society, comments on state of research between studies of people who smoke pot for medical reasons as opposed to studies of people who take cannabinoid pharmaceuticals and says, “Gaps in the available evidence likely adversely influence the quality of decisions by patients and clinicians,”<sup>14</sup> meaning physicians are making decisions to prescribe marijuana and individuals are choosing to smoke marijuana for therapeutic reasons based on inadequate evidence.

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<sup>13</sup> See American Academy of Medical Ethics, “AAME Statement on Medical Marijuana,” February 20, 2020.

<sup>14</sup> Joan L. Kramer, “Medical Marijuana for Cancer,” *Cancer Journal for Clinicians* 65.2 (March / April 2015): 118.



## A. Cannabinoid Pharmaceuticals

The FDA has approved three pharmaceutical-grade medications derived from the cannabis plant: dronabinol, nabilone, and Epidiolex:

Dronabinol (sold under the brand names Marinol or Syndros) contains a synthetic form of THC. It is prescribed to treat chemotherapy-induced nausea and vomiting in patients that don't respond well to other therapies, as well as to treat AIDS patients who are experiencing weight loss and anorexia. Marinol comes only in soft gel capsules, while Syndros is a liquid.<sup>15</sup>

Nabilone (sold under the brand name Cesamet) contains a synthetic form of THC prescribed for chemotherapy-induced nausea and vomiting in adults over age 18. It comes only in a capsule form.<sup>16</sup> Nabilone appears to be more potent than Dronabinol with a greater potential for addiction.<sup>17</sup>

Epidiolex (CBD) is oral solution approved in 2018 for the treatment of seizures associated with two rare and severe forms of epilepsy, Lennox-Gastaut syndrome and Dravet syndrome, in patients older than age two. Epidiolex does not contain THC.<sup>18</sup> In 2020, the FDA extended the approved use of Epidiolex to include treatment of seizures associated with tuberous sclerosis complex in children one year of age or older. Epidiolex contains an active ingredient derived

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<sup>15</sup> Lisa D. Ellis, "FDA Approves Syndros, First Liquid Form of Cannabinoid Dronabinol," *Practical Pain Management* August 9, 2017, <https://www.practicalpainmanagement.com/resources/news-and-research/fda-approves-syndros-first-liquid-form-cannabinoid-dronabinol>.

<sup>16</sup> National Institutes of Health, National Institute on Drug Abuse, "What is Medical Marijuana?," July 2019, <https://www.drugabuse.gov/publications/drugfacts/marijuana-medicine#references>. "Cesamet (nabilone)," [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2006/018677s011lbl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2006/018677s011lbl.pdf).

<sup>17</sup> Gillinder Bedi, Ziva D. Cooper, and Margaret Haney, "Subjective, Cognitive, and Cardiovascular Dose-Effect Profile of Nabilone and Dronabinol in Marijuana Smokers," *Addictive Biology* 18.5 (September 2013): 872 – 881.

<sup>18</sup> U.S. Food and Drug Administration, "FDA Approves First Drug Comprised of an Active Ingredient Derived from Marijuana to Treat Rare, Severe Forms of Epilepsy," June 25, 2018, <https://www.fda.gov/news-events/press-announcements/fda-approves-first-drug-comprised-active-ingredient-derived-marijuana-treat-rare-severe-forms>.

directly from cannabis, while dronabinol and nabilone are synthetic replicas of THC.

Another cannabis-derived pharmaceutical is called nabiximols, sold under the trade name Sativex, and it contains both THC and CBD in a 1:1 ratio (2.7 mg to 2.5 mg) and is administered by means of spray into the mouth.<sup>19</sup> Since 2005 and 2007 in Canada, it has been approved for treatment of neuropathic pain associated with multiple sclerosis and for treatment of adults with advanced cancer pain. The drug has since been approved in several other countries. Sativex entered Phase 3 clinical trials with the FDA in 2014, but has not yet been approved for use in the USA.

## **B. Research Regarding Medical Marijuana**

Beyond FDA approved cannabinoid pharmaceuticals, what does research tell us about the potential effectiveness of medical marijuana? Specifically, what does current research tell us about the effectiveness of smoking, eating, or inhaling marijuana for various health problems? This survey will focus on four commonly repeated claims about medical marijuana – pain management, cancer, glaucoma, and epilepsy.

### **1. Marijuana and Pain Management**

Marijuana may possibly be helpful in the management of chronic pain but not acute pain. Relief from chronic pain is by far the most common reason cited for the use of medical marijuana. When California passed its Compassionate Use Act in 1996 legalizing medical marijuana, one of the prime reasons given was management of chronic pain.

Medically, the concept of pain can be divided into two categories: nociceptive and neuropathic. Nociceptive pain is acute and arises from a

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<sup>19</sup> Andrew J. Schuman, "Current Status of FDA-approved Cannabis or Cannabis-Derived Compounds," *Contemporary Pediatrics* September 6, 2019, <https://www.contemporarypediatrics.com/view/current-status-fda-approved-cannabis-or-cannabis-derived-compounds>.

specific situation or injury, and will go away when the affected part of the body heals. For example, when a broken arm gets better, the pain level improves. Neuropathic pain means the nervous system itself is the source of pain because it has been damaged or is not working properly due to disease or injury. Neuropathic pain doesn't develop from a specific stimulus (like stubbing your toe). Neuropathic pain is usually chronic, and it is the type of pain that often emerges from cancer.<sup>20</sup> These two categories of pain are not necessarily mutually exclusive and may coexist with inflammatory pain.<sup>21</sup> *Chronic* pain is ongoing and usually lasts longer than six months.<sup>22</sup>

In 2017, the National Academies of Sciences, Engineering, and Medicine published the largest report yet on the medical use of Cannabis, *The Health Effects of Cannabinoids*. They concluded, "There is substantial evidence that cannabis is an effective treatment for chronic pain in adults."<sup>23</sup> Keep in mind that by the term *cannabis*, the authors do not merely mean smoking marijuana, but it includes smoking, transdermal patches, prescription medication, and others. The authors added, "Thus, while the use of cannabis for the treatment of pain is supported by well-controlled clinical trials . . . very little is known about the efficacy, dose, routes of administration, or side effects of commonly used and commercially graded cannabis products in the United States."<sup>24</sup> Also, keep in mind, no one is suggesting cannabis is effective at managing acute pain: If you have surgery, smoking pot will not alleviate the pain like opiates will, or even NSAIDs or acetaminophen.

Within the field of research, contradictory data continues to spur debate regarding cannabis for chronic pain. In 2017, a review of

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<sup>20</sup> Shingles is a good example of neuropathic pain as well.

<sup>21</sup> Daniel Carr and Michael Schatman, "Cannabis for Chronic Pain: Not Ready for Prime Time," *American Journal of Public Health* 109.1 (January 2019): 50.

<sup>22</sup> The Cleveland Clinic, "Acute vs. Chronic Pain," January 26, 2017, <https://my.clevelandclinic.org/health/articles/12051-acute-vs-chronic-pain>.

<sup>23</sup> National Academies of Science, *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research* (Washington, DC: The National Academies Press, 2017), 90.

<sup>24</sup> *Ibid.*, 90.

randomized controlled trials (RCT) of Cannabis-based medicines for pain management was published which was not as optimistic as the National Academies of Sciences' report. This analysis said there is limited evidence showing more pain reduction with cannabis in chronic pain compared to placebos. Moreover, even though this review consisted of some RCTs that showed a clinically significant improvement with a decrease of pain scores, the majority of the studies did not show an effect. Consequently, although the primary analysis showed that the results were favorable to Cannabis-based medicines over placebos, the clinical significance of these findings is uncertain.<sup>25</sup> But a study from 2018 arrived at different findings, findings even less optimistic about cannabis's effectiveness for chronic pain. Using a sample of 1,514 participants, the researchers found "no evidence that cannabis use improved patient outcomes" nor was there evidence "that cannabis use reduced pain severity or interference or exerted an opioid-sparing effect."<sup>26</sup> Keep in mind that RCTs are the gold standard in medicine to prove a drug's impact as opposed to mere association or perception of an effect.

The effectiveness of cannabis for treating chronic pain is directly related to the amount of THC it contains. This is problematic because higher THC levels produce more cognitive side-effects, similar to opioids. An older study from 1975 noted that the effective pain relief of cannabis-based medicines was noted only at doses of 15mg to 20 mg, levels which produced substantial sedation and mental clouding.<sup>27</sup> Writing in *Pain Management*, two physicians associated with Tufts University School of Medicine said in 2019, "In summary, the unsettling safety profile of cannabis, the lack of strong empirical support for its efficacy, the general absence of CBD in what is used "medically" and the methodological challenges in conducting research suggest that, at present, cannabis should

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<sup>25</sup> J. Aviram and G. Samuely-Leichtag, "Efficacy of Cannabis-Based Medicines for Pain Management: A Systematic Review and Meta-Analysis of Randomized Controlled Trials," *Pain Physician* 20.6 (September 2017): e755 – e796.

<sup>26</sup> Gabrielle Campbel, et al, "Effect of Cannabis Use in People with Chronic non-cancer pain Prescribed Opioids: Finding from a 4-year Prospective Cohort Study," *The Lancet Public Health* 3.7 (July 2018): 341.

<sup>27</sup> R. Noyes, S.F. Brunk, D.A. Baram, and A. Canter, "Analgesic Effect of Delta-9-tetrahydrocannabinol and Codeine," *Clinical Pharmacology and Therapeutics* 18.1 (July 1975): 84 – 89.

not necessarily be considered an optimal choice as a drug for pain management.”<sup>28</sup>

There is some evidence that cannabinoids have a synergistic analgesic effect with opioids via unknown mechanisms.<sup>29</sup> This means cannabis-based medicines may increase the effectiveness of well-known opioid pain medications. Findings in this area are preliminary.

## 2. Marijuana and Cancer

One of the most-commonly cited reasons for legalizing marijuana is to help people struggling with cancer. As noted above, chronic pain is often associated with cancer and many people use marijuana in an attempt to cope with this pain. Other more extravagant claims are made about marijuana as a cure for some cancers. We will discuss cannabis used to relieve refractory cancer pain, as an antiemetic, and claims that cannabis can cure certain cancers.

As already noted, cannabis-based medications may have potential to relieve chronic pain associated with cancer. Pain itself may be the most common and distressing symptom experienced by cancer patients. *Refractory cancer pain* has been defined as pain related to cancer or its treatment, of at least three months duration, and that has not responded to standard treatment with opioids and co-analgesics.<sup>30</sup> As noted by one group of researchers, “Opioids remain the mainstay of treatment for severe cancer pain, but up to 20% of patients have persistent or refractory pain despite rapid and aggressive opioid titration, or develop refractory pain after long-term opioid use.”<sup>31</sup>

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<sup>28</sup> Daniel Carr and Michael Schatman, “Cannabis for Chronic Pain: Not Ready for Prime-Time,” *Pain Management* 109.1 (January 2019): 51.

<sup>29</sup> Gianna Wilkie, Bachir Sakr, and Tina Rizack, “Medical Marijuana in Oncology: A Review,” *JAMA Oncology* 2.5 (May 2016): 672.

<sup>30</sup> David C. Currow, Odette Spruyt, and Janet Hardy, “Defining Refractory Pain in Cancer for Clinicians and Researchers,” *Journal of Palliative Medicine* 15.1 (January 23, 2012): 5 – 6.

<sup>31</sup> Hongyan Li, Liqiang Yang, Zhaoxuan Guo, Yuanzhang Tang, nan Chen, Yinying Lu, and Jiaxiang Ni, “Successful Treatment of Refractory Cancer Pain with morphine and Ropivacaine,” *Medicine* 96.22 (June 2017): 1.

Again, the National Academy of Sciences, Engineering, and Medicine affirmed that cannabinoids have some effect on chronic pain, especially when compared to placebos. In 2008, a non-randomized prospective observational study in patients with advanced cancer suggested that nabilone decreased pain scores and morphine consumption compared to untreated patients.<sup>32</sup> However, the widely repeated claim that cannabis reduces dependence on opioids suffers from conflicting data. Taken as a whole, the research on cannabis-based medications for cancer pain management has yielded some perhaps hopeful findings, but the data differs based on the mode of administration – smoking, vaping, orally, etc. – and whether or not one is discussing pharmaceutical cannabis products or smoking marijuana.

Cannabis-based products have proven effective as an antiemetic drug. Vomiting is often associated with cancer treatments, and cannabis-derived products have been helpful in this area. Both dronabinol and nabilone are FDA approved drugs prescribed for this purpose. James Avery adds, “No evidence supports self-medication for nausea or vomiting with marijuana.”<sup>33</sup> In other words, there is no evidence to support the claim that smoking pot is an effective way to control vomiting.

Cannabis is not a cure for cancer. The National Academies of Sciences report said, “There is insufficient evidence to support or refute the conclusion that cannabinoids are an effective treatment for cancers, including glioma.”<sup>34</sup> The reason some people suggest cannabis may assist in curing some cancers is because cannabinoid receptors have been found on cancer cells and cannabinoids have shown evidence of antitumoral effects in some preclinical studies. There is some preliminary indication cannabis-based medications might suppress cell proliferation in some

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<sup>32</sup> V. Maida, M. Ennis, S. Irani, M. Corbo, M. Dolzhykov, “Adjunctive nabilone in cancer pain and symptom management: a prospective observational study using propensity scoring,” *Journal of Supportive Oncology* 6.3 (2008):119–24.

<sup>33</sup> James Alan Avery, *Marijuana: An Honest Look At the World’s Most Misunderstood Weed* (Bristol, TN: Christian Medical and Dental Association, 2020), 49.

<sup>34</sup> *The Health Effects of Cannabis and Cannabinoids*, 91.

tumors. Much of the hope is based on small study in which THC was administered intracranially to nine patients with a specific form of brain tumor. THC decreased tumor growth in 2 of the 9 patients, but this is a very small sample size and the study lacked a control group.<sup>35</sup> But at the same time, there has also been some evidence that THC may increase tumor growth by reducing the immune function. The majority of the data regarding cannabis's use in stopping tumor growth comes from animal research. Currently, two ongoing clinical studies are investigating this further in humans. Cannabinoids have been found to decrease the size of some cancers in some cell cultures and animal models, but paradoxically seem to accelerate the growth of other types of cancers.

A survey of cannabis-based medications and cancer published in 2016 in *JAMA Oncology* summarized the research and said, "Marijuana in oncology may have potential for use as an antiemetic, for refractory cancer pain, and as an antitumor agent. However, much of the data are based on animal data, small trials, or are outdated."<sup>36</sup> The American Cancer Society, while optimistic about future research on cannabis, says, "While the studies so far have shown that cannabinoids can be safe in treating cancer, they do not show that they help control or cure the disease."<sup>37</sup> More research is needed and currently cannabis is not a primary means for treating cancer.<sup>38</sup>

### 3. Cannabis and Glaucoma

Glaucoma is a group of eye diseases that can cause vision loss and blindness by damaging a nerve in the back of the eye called the optic nerve. There's no cure for glaucoma, but early treatment can often stop the

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<sup>35</sup> M. Guzmán, M.J. Duarte, C. Blázquez, "A Pilot Clinical Study of  $\Delta^9$ -tetrahydrocannabinol in patients with recurrent glioblastoma multiforme," *British Journal of Cancer* 95.2 (July 2006): 197 – 203.

<sup>36</sup> "Medical Marijuana in Oncology: A Review," 670.

<sup>37</sup> American Cancer Society, "Marijuana and Cancer," August 4, 2020, <https://www.cancer.org/treatment/treatments-and-side-effects/complementary-and-alternative-medicine/marijuana-and-cancer.html>.

<sup>38</sup> Beyond cannabinoids, terpenes – responsible for the aroma of cannabis – and flavonoids are also being investigated for anti-cancer potential.

damage and protect one's vision. Doctors and scientists aren't sure what causes glaucoma, but many people with glaucoma have high eye pressure (intraocular pressure) — and treatments that lower eye pressure help to slow the disease.<sup>39</sup> Glaucoma affects nearly 60 million people worldwide.<sup>40</sup>

Relief of intraocular pressure (IOP) has been one of the most commonly cited claims related to medical marijuana. Smoking marijuana does relieve intraocular pressure, but only for 3 – 4 hours at a time. The problem is that glaucoma needs to be treated 24 hours a day. Thus, for marijuana to be effective, it would have to be smoked 6 to 8 times per day, meaning a person would be perpetually stoned. The American Glaucoma Society says, “Although marijuana can lower the IOP, its side effects and short duration of action, coupled with a lack of evidence that its use alters the course of glaucoma, preclude recommending this drug in any form for the treatment of glaucoma at the present time.”<sup>41</sup>

#### 4. Marijuana and Epilepsy

The National Academies of Science report said, “There is insufficient evidence to support or refute the conclusion that cannabinoids are an effective treatment for epilepsy.”<sup>42</sup> At the same time, in 2018 Epidiolex was approved for the treatment of seizures associated with two rare and severe forms of epilepsy, Lennox-Gastaut syndrome and Dravet syndrome. Because approximately one-third of patients with epilepsy have seizures that are resistant to antiepileptic medications,<sup>43</sup> many epileptic people and their families are desperate for effective treatment. Two British neurologists

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<sup>39</sup> National Eye Institute, National Institutes of Health, “At A Glance: Glaucoma,” March 11, 2020,

<https://www.nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/glaucoma>.

<sup>40</sup> Allison Mack and Janet Joy, *Marijuana As Medicine: The Science Beyond the Controversy* (Washington, D.C.: National Academy Press, 2001), 124.

<sup>41</sup> Henry Jampel, “American Glaucoma Society Position Statement: Marijuana and the Treatment of Glaucoma,” *Journal of Glaucoma* 19.2 (February 2010): 76.

<sup>42</sup> *The Health Effects of Cannabis and Cannabinoids*, 101.

<sup>43</sup> Sidra Zaheer, Deepak Kumar, Muhammad T Khan, Pirthvi Raj Giyanwani, and FNU Kiran, “Epilepsy and Cannabis: A Literature Review,” *Cureus* 10.9 (September 2018): e3278.



comment on this desperation and say, “[Epileptic] People will be ‘taking matters in to their own hands’ and there may be an upswing in the recreational use of cannabis in an attempt to help their seizure control.”<sup>44</sup>

In some ways, research on cannabis and epilepsy seems to be moving more quickly than other areas. Perhaps this is because of the approval of Epidiolex. It is also interesting because in this case it is CBD, not THC, which has shown some positive effects in reducing seizures in some people with epilepsy. The Epilepsy Foundation reflects some of the desperation mixed with hope regarding CBD and epilepsy and says, “When conventional treatments do not work to control seizures, as is the case for roughly 30% of people with epilepsy, it is not unreasonable to consider CBD oil.”<sup>45</sup> But this statement does not mean that CBD has been proven to cure seizures, only that that the Epilepsy Foundation is expressing sympathy for those who try CBD oils.

### **C. Potentially Negative Side-Effects of Cannabis**

Negative side-effects of cannabis should be considered when considering the wisdom of using medical marijuana.

#### **1. Cannabis’ Effects on the Brain**

How does marijuana affect the brain? The immediate effects of getting high negatively affect one’s ability to process information; the long-term effects are still negative but less clear. The effects of marijuana on the brain are different based on the age one begins smoking pot, how long one smokes pot, and the strength of the pot one smokes.

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<sup>44</sup> Rhys H. Thomas and Mark O. Cunningham, “Cannabis and Epilepsy,” *Practical Neurology* 18.6 (2018): 470.

<sup>45</sup> Epilepsy Foundation, “Medical Marijuana and Epilepsy,” May 31, 2019, <https://www.epilepsy.com/learn/treating-seizures-and-epilepsy/other-treatment-approaches/medical-marijuana-and-epilepsy>.

## a. Getting High

The main reason people smoke marijuana is to get high and experience the reportedly pleasurable intoxication and euphoria initiated by THC. The hallucinogenic effects are even said to have positive benefits for one's development as a person, as Motley Crüe sang in their 1994 ode to pot titled *Smoke the Sky*, "But through time we've smoked the sky . . . Compliments the senses, opens up the mind."<sup>46</sup> The experience of marijuana intoxication is difficult to depict and varies dramatically from person to person and across situations.<sup>47</sup> Very little marijuana is needed for a person to get high. A British study showed that the sensation of getting "high" occurred in 94% of participants who received less than 7 mg of the THC in marijuana.<sup>48</sup>

Why does marijuana affect the brain this way and why does it get people high? Marijuana interacts with the *reward circuit*, a group of structures in the brain that are activated by rewarding or reinforcing stimuli, like THC. The brain responds to THC by releasing the neurotransmitter dopamine. The reward pathway of the brain is connected to areas of the brain that control behavior and memory. It begins in the ventral tegmental area (VTA), where neurons release dopamine to make you feel pleasure. The brain begins to make connections between the activity and the pleasure, ensuring that we will repeat the behavior. Sometimes this pathway is helpful but other times, it can be devastating. For example, certain drugs – like marijuana – can trigger the reward pathway and over time, an addiction can develop. All thoughts and pleasures have a biological *component*, and reward and pleasure are no exception. God has created the reward circuit for a purpose. Because we enjoy pleasurable experiences, we are more likely to repeat actions that

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<sup>46</sup> <https://genius.com/Motley-crue-smoke-the-sky-lyrics>

<sup>47</sup> Mitch Earleywine, *Understanding Marijuana: A New Look at the Scientific Evidence*, 271.

<sup>48</sup> Lineke Zuurman, A. E. Ippel, E. Moin, and J. M. van Gerven, "Biomarkers for the Effects of Cannabis and THC in Healthy Volunteers." *British Journal of Pharmacology* 67.1 (January 2009): 14.

activate our reward system.<sup>49</sup> But we are called to be good stewards and exercise wise management of life's pleasures; just because an experience is pleasurable does not necessarily mean it is good. In our fallen condition, we abuse God's good gifts – like the reward circuit – for immoral and unholy purposes.

## b. Acute Impairment

How does marijuana affect the brain? When someone smokes pot and gets high, he or she experiences immediate and acute impairment of learning and memory, attention, and working memory. The long term effects of enduring cannabis use on neuropsychological impairment is less clear.<sup>50</sup> A growing body of evidence points to negative effects on the brain.

## c. Marijuana and the Adolescent Brain

Regular marijuana use has very detrimental effects on the brains of young people, and much of the damage done is not reversible. Keep in mind that the human brain continues to develop into the mid-20s. In 2017, 6.5 percent of adolescents aged 12 to 17 were current users of marijuana. This means that approximately 1.6 million adolescents used marijuana in the past month.<sup>51</sup> This is concerning multiple studies using neuroimaging suggest that regular cannabis use during adolescence may lead to structural changes such as altered cortical gray matter development and reduced white matter myelination.<sup>52</sup> And the effects of cannabis on the teenage brain continue after a period of abstinence; adolescent cannabis users still showed subtle neuropsychological deficits compared to nonuser

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<sup>49</sup> Matthew S. Stanford, *The Biology of Sin: Grace, Hope, and Healing for Those Feeling Trapped* (Downers Grove, IL: Biblica Books, InterVarsity Press, 2010), 86.

<sup>50</sup> Nora D. Volkow, et al, "Effects of Cannabis Use on Human Behavior, Including Cognition, Motivation, and Psychosis: A Review," *JAMA Psychiatry* 73.3 (March 2016): 292.

<sup>51</sup> Substance Abuse and Mental Health Services Administration, "Key Substance Use and Mental Health Indicators in the United States: Results from the 2017 National Survey on Drug Use and Health (HHS Publication No. SMA 18-5068, NSDUH Series H-53)," <https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHF2017/NSDUHF2017.htm#illicit1>.

<sup>52</sup> Robert L. Page, II, et al, "Medical Marijuana, Recreational Cannabis, and Cardiovascular Health: A Scientific Statement from the American Heart Association," *Circulation* 142 (August 5, 2020): e14.

after one month's abstinence. Furthermore, earlier onset of cannabis use was also associated with decreased processing speed and executive function 3 years later.<sup>53</sup>

#### d. Marijuana and the Adult Brain

Marijuana negatively affects the adult brain too, but the person who starts smoking pot at age 30 doesn't appear to do as much damage to his brain as someone who starts smoking pot at age 15. This doesn't mean there are no detrimental consequences for adults who smoke marijuana. One European study from 2019 found that people who used cannabis daily had an increased odds of psychotic disorder compared with never users, and the risk rose to nearly five-times increased odds for daily use of high-potency cannabis.<sup>54</sup>

## 2. Addiction

Related to marijuana's negative effects on the brain is the possibility of addiction. One piece of urban legend about marijuana is that it doesn't affect the brain in the same way as "harder" drugs, so you shouldn't be as worried about addiction to marijuana as to cocaine, heroin, or other illicit drugs. To be clear, the effects of cocaine and heroin addiction are more severe than marijuana. But marijuana affects the mesolimbic dopamine system similarly to other common drugs of abuse. It is very likely that repeated exposures to marijuana results in neuroadaptations, not only to the mesolimbic dopamine system, but also to downstream targets that are critically involved in the development of drug addiction.<sup>55</sup>

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<sup>53</sup> A.D. Meruelo, N. Castro, C.I. Cota, and S.F. Tapert, "Cannabis and Alcohol Use, and the Developing Brain," *Behavioral Brain Research* 325 (May 15, 2017): 4.

<sup>54</sup> Marta Di Forti, et al, "The Contribution of Cannabis use to Variation in the Incidence of Psychotic Disorder Across Europe (EU-GEI): A Multicentre Case-Control Study," *Lancet Psychiatry* 6 (2019): 427 – 436. The risk for psychotic disorders increases with frequency of use, potency of the marijuana product, and as the age at first use decreases.

<sup>55</sup> Erik B. Oleson and Joseph F. Cheer, "A Brain on Cannabinoids: The Role of Dopamine Release in Reward-Seeking," *Cold Spring Harbor Perspectives In Medicine* 2.8 (August 2012): 10.

Approximately 9% of those who experiment with marijuana will become addicted. But the percentage of those who become addicted is much higher for those who start using during adolescence, with 1 in 6 teenagers who use pot eventually becoming addicted. Additionally, 25% - 50% of those who smoke marijuana daily will reach clinical criteria for addiction.<sup>56</sup> It should also be emphasized that the *DSM V* lists Cannabis Use Disorder as one of its diagnoses. Social addiction is beyond the scope of this paper, but the environment of “using” friends clearly promotes continual use.

### 3. Possibility of Overdose

Is it possible to overdose on marijuana in the same way one overdoses on heroin? The answer is that it depends on which marijuana product one is using. If one is smoking pot, the answer is probably not. But if one is vaping or otherwise ingesting one of the high-potency cannabis products now available, the risk for overdose increases. Concerning smoking marijuana, The Centers for Disease Control says, “A fatal overdose is unlikely, but that doesn’t mean marijuana is harmless.” Using heavy amounts of pot can lead to extreme confusion, anxiety, paranoia, panic, fast heart rate, delusions or hallucinations, increased blood pressure, and severe nausea or vomiting.<sup>57</sup> In some cases smoking marijuana leads to unintentional injury such as a motor vehicle crash, fall, or poisoning, each of which can be fatal.<sup>58</sup>

Yet high-potency marijuana products have inherent dangers. The higher THC concentrations and the new methods of delivery (oils, vaping,

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<sup>56</sup> Nora D. Volkow, Ruben D. Baier, Wilson M. Compton, and Susan R.B. Weiss, “Adverse Effects of Marijuana Use,” *New England Journal of Medicine* 370.23 (June 5, 2014): 1,

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4827335/pdf/nihms762992.pdf>.

<sup>57</sup> Centers for Disease Control, “Is it possible to “overdose” or have a “bad reaction” to marijuana?,” March 7, 2018, <https://www.cdc.gov/marijuana/faqs/overdose-bad-reaction.html>.

<sup>58</sup> In 1972, the Shafer commission said, “A careful search of the literature and testimony of the nation’s health officials has not revealed a single human fatality in the United States proved to have resulted solely from ingestion of marihuana.” *Marihuana: A Signal of Misunderstanding; the Official Report of the National Commission on Marihuana and Drug Abuse*, Raymond P. Shafer, chairman (New York: New American Library, 1972), 104.

dabbing) could lead to people using a fatal overdose level of THC.<sup>59</sup> A 2019 article in the *New England Journal of Medicine* described a man in Pennsylvania who overdosed by injecting a liquid marijuana formulation. The patient had purchased without a prescription a 500 mg syringe which had a THC content of 65.9%, and he had injected about 2/3rds of the syringe. This case illustrates the dangers of legalized marijuana, where in many states the active ingredients in marijuana are not standardized, product concentrations are not regulated, and prescribing practices vary.<sup>60</sup> Additionally, a 2014 article in *Forensic Science International* detailed the deaths of two men under the acute influence of cannabis.<sup>61</sup>

It must be emphasized: The danger of overdosing from smoking too much marijuana is very small, but that does not mean marijuana poses no dangers regarding overdose. This problem is exacerbated in the current environment where dosage and timing of administration of marijuana and other cannabis-derived products is unregulated. Most people buying medical marijuana or cannabis products are relying on the advice of untrained budtenders at local cannabis dispensaries. It is not hard to imagine situations in which people ingest too much THC – either orally or through an injection – leading to an overdose.

#### 4. Marijuana Smoke

Because smoked marijuana contains carcinogens, it has the potential to cause cancer.<sup>62</sup> But data on marijuana and cancer is complicated by the large number of marijuana users who also use tobacco. The state of research in this area is still developing, and the current data has limitations. In 2017, the National Academies of Sciences Report said, “There is moderate evidence of no statistical association between cannabis smoking

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<sup>59</sup> Avery, *Marijuana: An Honest Look at the World's Most Misunderstood Weed*, 118.

<sup>60</sup> Anita Mudan, Francis DeRoos, Jeanmarie Perrone, “Medical Marijuana Miscalculation,” *New England Journal of Medicine* 381 (September 12, 2019): 1086 – 1087.

<sup>61</sup> Benno Hartung, Silke Kauferstein, Stefanie Ritz-Timme, Thomas Daldrup, “Sudden Unexpected Death Under Acute Influence of Cannabis,” *Forensic Science International* 237 (April 2014): e11 – e13.

<sup>62</sup> Joan L. Kramer, “Medical Marijuana for Cancer,” *Cancer Journal for Clinicians* 65.2 (March / April 2015): 117.

and the incidence of lung cancer.”<sup>63</sup> There is some data to indicate that heavy cannabis use is associated with an increased risk for testicular cancer.<sup>64</sup> But just because marijuana smoke has not been strongly associated with lung cancer does not mean it is *harmless*.

Marijuana smoke contains many of the same chemical components as tobacco smoke. Some of these, such as 4-amniobiphenyl, arsenic, benzene, cadmium, formaldehyde, and lead, are known human carcinogens. Marijuana smoke also contains toxicants such as ammonia, carbon monoxide, hydrogen cyanide, and tar. Unlike tobacco smoke, marijuana smoke does not contain nicotine or tobacco-specific nitrosamines derived from nicotine. While marijuana smoke has comparable or even somewhat less mutagenicity<sup>65</sup> than tobacco smoke condensates, smoking marijuana is linked to higher carboxyhemoglobin<sup>66</sup> levels, inhaled tar, and tar retained in the lungs compared to filtered cigarettes.<sup>67</sup> But when all the research is considered together, researchers with the National Institute on Drug Abuse said in 2014, “Although the possibility of a positive association between marijuana smoking and cancer cannot be ruled out, the evidence suggests that the risk is lower with marijuana than with tobacco.”<sup>68</sup> But marijuana smoke is also associated with other negative outcomes.

Cannabis-related products show some measure of effectiveness for specific conditions. FDA approved cannabinoid pharmaceuticals are now prescribed for controlling symptoms to specific forms of epilepsy, to help control the negative side-effects of cancer treatment, and to boost appetite

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<sup>63</sup> *The Health Effects of Cannabis and Cannabinoids*, 143.

<sup>64</sup> Russell C. Callaghan, Peter Allebeck, Olof Akre, Katherine A. McGlynn, and Anna Sidorchuk, “Cannabis Use and Incidence of Testicular Cancer: A 42-year follow-up of Swedish Men Between 1970 and 2011,” *Cancer Epidemiology, Biomarkers, & Prevention* 26.11 (November 2017): 1644 – 1652.

<sup>65</sup> *Mutagenicity* means “capable of inducing genetic mutation or increasing its rate.” A trait associated with cancer. DNA changes caused by mutagens may harm cells and cause certain diseases, such as cancer.

<sup>66</sup> Carboxyhemoglobin (COHb), which normally comprises less than 1-2 % of total hemoglobin, is the product of reaction between carbon monoxide and hemoglobin.

<sup>67</sup> Joan L. Kramer, “Medical Marijuana for Cancer,” *Cancer Journal for Clinicians* 65.2 (March / April 2015): 111.

<sup>68</sup> Nora D. Volkow, Ruben D. Baier, Wilson M. Compton, and Susan R.B. Weiss, “Adverse Effects of Marijuana Use,” *New England Journal of Medicine* 370.23 (June 5, 2014): 5, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4827335/pdf/nihms762992.pdf>.

in people with AIDS. Cannabinoids appear to have potential as analgesics. But should Christians use cannabis-related products and should Christians smoke marijuana for medical purposes?

### **III. Reflections on Medical Marijuana Use by Christians**

To develop a Christian response to medical marijuana, our response will be divided into two sections. First, we will discuss some dangers and limitations of medical marijuana from the practical point of how it is currently used. Then we will move to Biblical and theological reflection.

#### **A. Practical Concerns About Medical Marijuana**

1. There is no way to manage the dosage and timing of medical marijuana.

Effective use of drug entails a proper dosage suitable to a person's age and condition administered at intervals which optimize the effectiveness of the drug. If a person purchases marijuana to smoke for medical reasons from a local dispensary, there is no guidance for dosage or timing. Furthermore, there is no guidance as to what concentration of THC a person should use. This leaves the dosage and timing up to the individual without guidance from a physician, pharmacist, or even a label warning. This is a patently unwise way to administer any medication, especially one with as many possible side-effects as marijuana.

2. There is no way to monitor drug interactions with medical marijuana.

An important aspect of being under a physician's care and using a pharmacy is monitoring the interactions of various drugs. The American Heart Association notes, "Drug interactions with cannabis can be expected to vary considerably in clinical significance given the wide variability in products, potencies, ratios of THC and CBD, doses, routes of



administration, and populations using cannabinoids.”<sup>69</sup> The person smoking marijuana purchased at a dispensary has no notion of how cannabis may interact with other drugs. It is unwise to self-medicate with a drug without knowing how this drug will affect one’s health when combined with other drugs.

3. The research on smoking cannabis for pain relief is far too preliminary and insubstantial to justify its use.

While there are three FDA approved cannabinoid pharmaceuticals, the FDA has not approved any use of medical marijuana: There is no medically approved and certified use for smoking marijuana. Surgeon General Jerome Adams has gone so far as to say, “There is no such thing as medical marijuana.”<sup>70</sup> Following Adams, I point out that we do not discuss over-the-counter sales of medical foxglove, medical opium, or medical cocaine. But with marijuana, the nation seems ready to encourage people to grow marijuana, purchase marijuana, and use it without any guidance for allegedly medical purposes. Data on marijuana’s curative properties is far too preliminary to draw any hard conclusions about possible benefits of smoking marijuana.

The most frequently-cited reason for supporting medical marijuana is relief from pain. But we have to ask, “Exactly *what kind of pain* is being discussed?” When the average church member thinks of smoking marijuana for pain, they may think of someone in the final stages of terminal cancer searching for some relief. But in practice, for medical marijuana users the category of “pain” is quite broad, including arthritis, joint pain, fibromyalgia, and even relational pain. In the case of relational pain, this means people want to smoke pot because a relationship or romance has failed. Getting stoned is an incredibly poor coping mechanism for relational pain.

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<sup>69</sup> Page, et al, “AHA Scientific Statement,” e14.

<sup>70</sup> <https://www.youtube.com/watch?v=YeVs7aTh9vw>.

4. There is inadequate control over the quality of marijuana and CBD products in particular.

There is inadequate control over the content of marijuana and CBD products. It is unclear what agents might be included in some of these substance. While CBD is marketed as a miracle compound, the truth is that there is only limited evidence for its effectiveness. Furthermore, the content of most CBD products is inaccurately advertised. A 2017 report in the *Journal of the American Medical Association* found that 70% of CBD products tested were inaccurately labeled.<sup>71</sup> Dr. Pieter Cohen of Harvard Medical School has said, “Before CBD supplements are recommended, we need to have a marketplace where the label actually reflects what’s inside them, and we know that the dose is safe. We don’t have any of that in place right now.”<sup>72</sup>

5. Addiction is Possible

It is possible to become addicted to marijuana, albeit not as common as addiction to alcohol or opium. This concern is especially noteworthy as the THC content of marijuana and Cannabis-derived products is rapidly increasing. Smoking marijuana for purportedly medical purposes opens one up to the possibility of addiction.

6. Marijuana and Opiates

In light of the opioid epidemic, marijuana has been suggested as a safer alternative and the argument has been that opiate use would actually decline if marijuana was legalized. This theory gained momentum when a 2014 study of death certificate data from 1999 – 2010 seemed to imply that states which had legalized medical marijuana had fewer opioid-related

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<sup>71</sup> Marcel O. Bonn-Miller, Mallory J.E. Loflin, Brian F. Thomas, et al, “Labeling Accuracy of Cannabidiol Extracts Sold Online,” *Journal of the American Medical Association* 318.17 (August 7, 2017): 1708 – 1709.

<sup>72</sup> Danny Reed, “Arthritis Foundation Announces Guidelines on CBD Usage,” *CBD Today* September 25, 2019, <https://www.cbdtoday.com/arthritis-foundation-announces-guidelines-on-cbd-usage/>.

deaths.<sup>73</sup> But further research quells this optimism. In 2019, researchers found that when the death certificate data was extended into 2017, states that legalized medical marijuana actually saw a 23% increase in opiate-related overdoses. The shift in data was so dramatic the authors said that if someone only looked at data from 2017, one might conclude “that medical cannabis laws were compounding opioid overdose mortality.”<sup>74</sup>

## **B. Biblical Reflection**

Cannabis is never specifically mentioned in the Bible. But when reflecting on medical marijuana, what Biblical ideas should guide Christian thought? I suggest a particular understanding of the doctrine of creation, mercy to those in pain, wisdom in decision making, and personal holiness provide parameters for thinking about medical marijuana.

### **1. Cannabis and Creation**

The history of the cannabis plant begins with God’s creation of the earth. Genesis 1:11 – 13 says that on the third day of creation God made all the plants:

Then God said, “Let the earth sprout vegetation, plants yielding seed, *and* fruit trees on the earth bearing fruit after their kind with seed in them”; and it was so. The earth brought forth vegetation, plants yielding seed after their kind, and trees bearing fruit with seed in them, after their kind; and God saw that it was good. There was evening and there was morning, a third day.

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<sup>73</sup> Marcus A Bachhuber, Brendan Saloner, Chinazo O Cunningham, Colleen L Barry, “Medical cannabis laws and opioid analgesic overdose mortality in the United States, 1999-2010,” *Journal of American Medical Association Internal Medicine* 174.10 (October 2014): 1168 – 1673.

<sup>74</sup> Chelsea L. Shover, Corey S. Davis, Sanford C. Gordon, and Keith Humphreys, “Association Between Medical Cannabis Laws and Opioid Dose Mortality Has Reversed Over Time,” *Proceedings of the National Academy of Sciences* 116.26 (June 25, 2019): 12625.

The Hebrew word translated *vegetation* in Genesis 1:11 seems to be an all-inclusive term for the wide variety of vegetation on earth, while the “plants yielding seed” and “fruit trees” are different subdivisions. By God’s own majestic and sovereign word, he brought all vegetation into existence.<sup>75</sup> Primitive forms of cannabis would have been included in these plants. What is even more important, is that all the vegetation God created – cannabis included – was good. God created cannabis. The cannabis plant was not evil, but good.

Humans are also charged with responsible management of God’s creation. Genesis 2:15 says, “Then the LORD God took the man and put him into the Garden of Eden to cultivate it and keep it.” Adam (and later Eve) were to cultivate the garden in accordance with God’s purposes. The Hebrew word translated *cultivate* is עָבַד / *‘abad*, a common term for tilling the soil or other labor, and is also used of worshipping God (see Exodus 3:12). The point is that work is not a dreadful task placed on humans because of the Fall, but God-ordained cultivation of the environment was part of man’s original purpose, though vastly complicated now because of sin’s intrusion in the world (Genesis 3:17 – 19). In a way, appropriate management of God’s world is a form of worship. As Matthews says, “In the garden God gives the man a purposeful existence that includes overseeing his environment.”<sup>76</sup> One component of God’s creation to be managed is the cannabis plant. Man’s dominion mandate includes use of the cannabis plant in ways consistent with God’s moral parameters. The cannabis plant has many *possible* uses, but not all the possible uses are morally permitted uses.

## 2. Mercy for Those in Pain

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<sup>75</sup> Allen P. Ross, *Creation & Blessing: A Guide to the Study and Exposition of Genesis* (Grand Rapids: Baker Academic, 1998), 110.

<sup>76</sup> Kenneth A. Matthews, *Genesis 1 – 11:26*, The New American Commentary, vol. 1a (Nashville: Broadman & Holman Publishers, 1996). 209.

Proverbs 31:6 – 7 says, “Give strong drink to him who is perishing, and wine to him whose life is bitter. Let him drink and forget his poverty and remember his trouble no more.” While there is diversity of opinion among commentators, a school of thought says this passage is referring to alcohol as a primitive form of pain management for those who are sick. For example, Van Leeuwen says, “The picture here is of a less sophisticated society, where alcohol has an anesthetic function.”<sup>77</sup> Steinmann adds, “This [Proverbs 31:6 – 7] might be compared to modern ethical health care practice in which a terminal patient, perhaps at a hospice, is given increasing doses of medication as needed to alleviate suffering.”<sup>78</sup>

Since God created the cannabis plant and there is a Biblical mandate to show mercy to those suffering for disease, it is reasonable to explore the potential of the cannabis plant and its derivatives for potential benefits regarding pain relief. *Plant breeding* is the art and science of changing the traits of plants in order to product desired properties or traits, and it is morally permissible to breed cannabis plants in an effort to develop properties favorable to pain management or other medical benefits. This has already been done with a handful of cannabis-based pharmaceuticals.

### 3. Godly Wisdom

Proverbs 14:15, “The naïve believes everything, but the sensible man considers his steps.” Christians are called to use responsible and Godly discernment in making healthcare decisions related to medical marijuana. The explosion of social media outlets means the wildest and most unsubstantiated claim about medical marijuana can be spread throughout the body of Christ in only a matter of days. One survey of false news found that the top false news story claiming cannabis as a cancer cure generated 4.26 million engagements on social media, while the top accurate news

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<sup>77</sup> Raymond C. Van Leeuwen, *Proverbs*, The New Interpreters Bible, vol. 5 (Nashville: Abingdon, 1997), 258.

<sup>78</sup> Andrew E. Steinmann, *Proverbs*, Concordia Commentary (St. Louis: Concordia Publishing, 2009), 623. For a different opinion from the one I advocate, see Paul E. Koptak, *Proverbs*, NIV Application Commentary (Grand Rapids: Zondervan, 2003), 673.

story debunking this false news generated only 0.036 million engagements.<sup>79</sup> British physicians Thomas and Cunningham lament, “There is no limit to what advocates have claimed medical cannabis can cure, but the failures are never publicized. Medical cannabis has been cleverly marketed and has captured the imagination of much of the population.”<sup>80</sup>

In the 1800s, a flood of patent medicines were sold over the counter, some containing dangerous drugs such as opium. Sadly, a disproportionate number of these patent medicines targeted women. Unknowingly, many people with minor ailments became addicted to these drugs, with devastating consequences. Yet in each case, the patent medicine claimed to provide miraculous relief from the pains of life. In a strange turn of events, the legalization of medical marijuana has brought a new wave of cannabis-based patent medicines into the market, many of which make ridiculous and unproven claims, but have the potential to lead the unwise Christian into a life of drug use. When listening to claims about medical marijuana, Christians should not be foolishly naïve, but exercise Godly wisdom regarding what has and has not been proven regarding cannabis-based products.

### Summary and Conclusion

#### 1. Should Christians use cannabis-based pharmaceuticals?

Christians may use cannabinoid pharmaceuticals under the direction of a physician and dispensed by a pharmacist. This process, while not perfect, is designed in best case scenarios to promote the patient’s health and minimize the risks of abuse, both of which are consistent with Scripture. Of course, as the opioid crisis demonstrates, things can go wrong with prescription medications, but the goal of our current system is to avoid these problems and find useful paths to correct abuses.

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<sup>79</sup> Siyu Shi, Arthur R. Brant, Aaron Sabolch, and Erqi Pollom, *Cureus* 11.1 (January 2019): 1 – 11.

<sup>80</sup> Rhys H. Thomas and Mark O. Cunningham, “Cannabis and Epilepsy,” *Practical Neurology* 18.6 (2018): 468.

## 2. Should Christians smoke marijuana for pain management?

Studies show about 40% of people with chronic pain are not satisfied with existing medications. For neuropathic pain that percentage is higher. We desperately need more treatment options. But should Christians *smoke* marijuana for pain management?

Marijuana has an analgesic effect, but it is not clear if *smoking* marijuana is more effective than other FDA approved drugs (including opioids) as approved pharmaceutical interventions for *chronic* pain. For cannabinoids, the clinical research is sparse, so presently there are really no pain applications that are clinically proven or ethically appropriate. We can have a high degree of optimism that such proven treatments will emerge from ongoing and future research on cannabinoids. There is compelling evidence from animal studies that cannabinoids have analgesic properties, so it would actually be unethical not to pursue safe and effective derivatives or synthetics that could be used safely and compassionately in treating unresolved pain.<sup>81</sup> While cannabinoids *might* prove to be part of the solution to the problem of pain management, using current marijuana products is neither medically safe nor ethically justified.

Smoking anything as a delivery method is a bad idea. Besides marijuana, I know of no other drug where *smoking* is seriously suggested to be the preferred method of administration. Furthermore, the Christian Medical and Dental Association notes, “Smoking is a harmful route of administration for any medicinal compound because of carcinogens and other harmful materials which are known to produce adverse effects on the lungs and other tissues.”<sup>82</sup> Based on the current state of knowledge, it is unwise to smoke the widely varying forms of marijuana available across

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<sup>81</sup> Comments in this paragraph derived from Neurologist John Witt.

<sup>82</sup> Christian Medical and Dental Association. “CMDA Statement on Medical Marijuana,” Section D.4.J, 2019. <https://cmda.org/wp-content/uploads/2019/02/CMDA-Medical-Marijuana-PPS-Final.pdf>.

the United States for pain management. If smoking marijuana proves to be the most effective and least dangerous method of administering the drug, it would be unusually unique among pharmaceuticals.

Marijuana advocates often claim that smoking marijuana is better for pain management than taking cannabis derived pharmaceuticals. Two reasons are given for this. First is the purported “entourage effect.” This is the claim that the combination of chemicals in marijuana is more effective than isolating specific ingredients. The whole is supposed to be greater than the sum of its parts. Secondly, inhaling is claimed to be easier for people who are already struggling with nausea. Currently, there is no data to confirm or deny either of these claims.

The only way to answer claims about smoking marijuana is through randomized controlled trials in clinical settings. However, the abnormally high levels of THC in modern marijuana and the unhealthy process of smoking marijuana both present numerous problems regarding the safety of research subjects. It is hypothetically possible to imagine a trial where the THC levels are closely monitored and in which a delivery method of smoking marijuana eliminated any carcinogens. But it is likely to be impossible to remove all of these inherent dangers. The canon of informed consent requires research subjects be forewarned of all possible dangers, but subjects should never be asked in the first place to participate in an experiment which is inherently dangerous and which has little or no benefit to the research subject. If these concerns could be properly addressed, it would be morally permissible for Christians to participate in approved research in such trials. The goal of smoking marijuana or cannabis products in such settings would neither be intoxication nor unwise attempts at self-medication.

Until data from such trials proves the effectiveness of smoking marijuana for pain management in specific settings, it is foolish and unwise to smoke pot for any reason. Furthermore, and this must be said, in our



current setting many people are smoking medical marijuana for reasons so trivial that we must state the obvious: The real goal is getting stoned, not pain management.

### 3. Move Marijuana to Schedule II

Research on cannabis-based medicines is vastly complicated by its listing as a Schedule I drug by the Federal Government, which means the government sees the drug as having no accepted medical use and a high potential for abuse. This makes getting approval for clinical trials extremely difficult. Furthermore, government guidelines require that all cannabis used in medical experiments be obtained from a single farm managed by the University of Mississippi. Until recently, this farm only grew annually around 500kg for research purposes every year, but that was increased to 2,000kg in 2019. And until recently, the Ole Miss cannabis was only allowed to have a THC content of 7%, while consumers are using marijuana with much higher THC levels along with oils and concentrates containing as high as 90% THC.<sup>83</sup> A reasonable approach is for the Federal government to move marijuana to a schedule II drug and to increase the number of legal suppliers of research marijuana. Extensive controlled trials will help separate the facts from fantasy regarding the effectiveness of cannabis-based medicines. As oncologist Joan Kramer notes, “Gaps in available evidence adversely influence the quality of decisions by patients and clinicians.”<sup>84</sup>

### 4. CBD seems less morally complicated, but there are still concerns.

Using CBD without much THC content does not get one intoxicated, so there tends to be less moral concern for Christians. But I must reiterate, the quality of CBD products available is very poorly regulated. Furthermore, the most outlandish claims are being made about CBD’s

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<sup>83</sup> The University of Mississippi, “Marijuana Research,” <https://pharmacy.olemiss.edu/marijuana/>; Calra K. Johnson, “Enough for Five Million Joints: Ole Miss Growing More Marijuana for Federal Research,” *Associated Press* July 12, 2019, <https://www.clarionledger.com/story/news/2019/07/12/pot-marijuana-research-ole-miss-growing-most-5-years-federal-government-nida-thc-cbd-health/1710259001/>.

<sup>84</sup> Joan L. Kramer, “Medical Marijuana for Cancer,” *CA: A Cancer Journal for Clinicians* 65.2 (April 2015):118.

curative properties. It is foolish to accept such claims based on anecdotal evidence alone.

Marijuana is not a cure-all. It is a plant provided by God for responsible stewardship to be used for human flourishing. Initial research is promising that its analgesic properties in particular will result in pharmaceutical products which can help people suffering in the most dire circumstances. But the current rush to smoke marijuana for any or all problems is foolish.