



Contents lists available at [ScienceDirect](#)

CPDD News and Views

Society homepage: www.cpdd.vcu.edu



The case for medical marijuana: An issue of relief[☆]

Mallory Loflin, Mitch Earleywine

Habits and Lifestyles Laboratory, Department of Psychology, University at Albany, State University of New York, United States

1. Introduction

A question rife with debate is whether cannabis warrants its placement in the schedule I controlled substances list, which restricts it from being prescribed by physicians. Pros and Cons abound, but practical concerns regarding quality control, teen exposure, and potential for negative side effects often receive less attention in the pro medical marijuana rhetoric. These worries likely still exist for those who are apprehensive about legalizing medical marijuana. We will attempt to address each of those concerns below in an effort to allay fears about the plant. We will also focus our discussion on whether the benefit of keeping cannabis in the strictest schedule, thereby denying doctors the ability to use cannabis for medical treatment, outweighs the cost of preventing treatment access to patients. Recent data (and the human conscience) suggest it doesn't.

1.1. Legal status of medical and recreational cannabis at federal and state levels

The United States, under the Controlled Substances Act, regulates all prescription medications along a grading system divided into five schedules (21 U.S.C.: Food and Drugs). Medications are placed in a schedule depending on their relative abuse potential and if the drug has any known medical benefit. Abuse criteria are weighted against the likelihood that safety can be established with medical supervision. Substances that are deemed schedule I are considered unsafe by the Drug Enforcement Administration (DEA), have a high potential for abuse, and do not have known medical efficacy. Medical doctors are prohibited from writing prescriptions for these substances. Cannabis (marijuana) is classified as a schedule I drug (21 U.S.C. § 812).

Before moving into a discussion of what the costs and benefits of changing cannabis' schedule might be, we must acknowledge that few topics engender such lively debate as a discussion on how to legislate cannabis. Federal and state laws differ in their treatment of cannabis. Twenty-three states and the District

of Columbia have passed legislation allowing medical use of cannabis (though municipalities differ in what constitutes "medical use"). Washington and Colorado permit recreational use of the plant, and more states are following suit (Oregon, Alaska). Nevertheless, while medical and recreational use of cannabis might be legal in certain states, such use is still in violation of federal law. Given the current political climate surrounding all things marijuana-related most discussion of how to legislate marijuana tends to conflate pro recreational and pro medical arguments. Whether or not one is in favor of legalization of marijuana for recreational purposes, the health care industry must evaluate cannabis' legitimacy as medication as a distinct phenomenon from a movement toward full legalization. We will focus our discussion specifically on addressing the concerns raised against access to cannabis as medicine.

2. Medical efficacy and addiction potential of marijuana

Attempts to federally reschedule cannabis for medical use have been unsuccessful (DEA, 2001). Concerns cited usually regard a lack of evidence supporting cannabis' medical utility. Most critics of medical cannabis claim that the number of randomized trials for medical marijuana is too few to justify any change in policy or practice, although many legal drugs in the modern pharmacopeia never went through this process. In addition, a recent review of clinical trials of medical marijuana clearly undermines the notion of limited support for the effectiveness of medical marijuana for specific conditions (for review see [Borgelt et al., 2013](#)). Providing an exhaustive review of the sheer number of studies that have been conducted in the last ten years on cannabis' medical efficacy is outside the aims of this paper.

Research on medical marijuana is notoriously difficult to conduct in the US given the plant's Schedule I status. Data, however, do support the plant's use for numerous symptoms (e.g., certain types of neuropathic pain). For example, one review cites 37 randomized controlled clinical research studies between 2005 and 2010 that were conducted to evaluate specific medical applications of cannabis ([Hazekamp and Grotenhermen, 2010](#))—a number much higher than what we see for clinical trials of other drugs. The assertion that we do not have evidence supporting cannabis' medicinal efficacy for any symptoms at all is clearly not supported. Randomized, placebo-controlled clinical trials find smoked marijuana can alleviate neuropathic pain associated

[☆] Invited Scientific CPDD News and Views articles are reviewed prior to publication by the members of the CPDD Publications Committee and invited members of the College. News and Views is edited by the Chair of the CPDD Publications Committee: Gregory M. Miller, Ph.D., Harvard Medical School, New England Primate Research Center, Pine Hill Drive, Southborough, MA 01772, USA.

with cancer, diabetes, HIV/AIDS, and spinal cord injury as well or better than currently available medications (Berman et al., 2004; Ellis et al., 2009; Rahn and Hohmann, 2009; Ware et al., 2010). Note that most drugs receive FDA approval simply by proving safety and efficacy. Clinical trials with MS patients suggest that smoked cannabis reduces muscular spasticity better than placebo and provides benefits beyond treatment as usual (Collin et al., 2007). Both basic and applied research also support cannabis' ability to reduce intraocular pressure associated with glaucoma (Tomida et al., 2006; Nucci et al., 2008; Zhan et al., 2005), although better medications might be available for some patients. In the context of reviews supporting specific medicinal benefits of marijuana, lack of established medical efficacy is likely not the predominant motivating factor among the medical community who oppose medicinal cannabis legalization.

Addiction to medical marijuana also doesn't seem to be a pressing concern for most physicians and mental health professionals, since they consistently rate the plant as less addictive than legal substances like alcohol and tobacco (Core and Earleywine, 2006; Nutt et al., 2007). Cannabis' dependency potential is probably less than coffee's (Gable, 1993). The availability of opiate-based medications (e.g., Vicodin, percocet), whose abuse potential clearly dwarfs cannabis's, also makes concerns about addictiveness of medical marijuana seem odd or even hypocritical.

3. Other potentially harmful side effects

Concerns about the safety of any medication are understandable contributors to the decision to permit medical recommendations and prescriptions. A major hurdle for medical cannabis is quality control. Underground markets are often notorious for comparable problems, as we learned from alcohol prohibition's methyl alcohol poisonings (Levine and Reinerman, 1991). Contaminants ranging from bacteria to fungi spores to toxic pesticides have been found in samples of medical cannabis; patients might inhale these contaminants during use and suffer ill effects (McClean, 2010; McPartland, 2002; Ungerleider et al., 1962). Exposure to high levels of toxic agents and additives is particularly worrying for the medical cannabis community because these patients already suffer from health complications. Sullivan et al. (2013) found pesticide residues as high as 69.5% in cannabis smoke samples produced through typical combustion methods. In comparison, typical pesticide recovery in the smoke of other inhaled plant material, such as tobacco, is typically isolated between 2 and 16% (Cai et al., 2002).

The cannabis found in many dispensaries has not been sent out for any kind of third-party purity analysis to check for the addition of toxic chemicals, like pesticides, because the dispensaries are still operating illegally under federal law, and therefore, cannot be mandated to do so, at least by federal law. There are also no application standards and guidelines restricting what growers can use for pest control nor are there any limits on how much of a pesticide these growers can use. The medical cannabis industry is starting to police itself on these issues, but progress has been challenging. In addition, plants are not regularly checked for individual THC potency in some states (McLaren et al., 2008), making estimating proper dose a real challenge.

The troubling findings of high pesticide toxicity and unregulated potency standards pose big problems for the medical cannabis industry. Nevertheless, none of these issues support a position of less regulation. The quality control issue is a product of prohibition. When substances are illegal for recreational and medical purposes, the government cannot enact standards of quality, purity, or potency. Many of these quality control problems

could be side-stepped by moving to a legal and regulated market in medical cannabis.

4. Method of administration and associated health risks

Another important concern is how to deliver cannabis medication safely. Attempts to create a synthetic form of cannabis, which only delivers specific psychoactive compounds of the plant, have not been met with much praise from medicinal users. Medical users report that use of the whole plant gives greater relief than using synthetic or "pure" forms of D-9 THC (Tramèr et al., 2001). The following sections review the most common methods of administering medical marijuana: inhalation (smoked or vapor), edibles, and concentrates. Importantly, methods of administration such as vaporizers and forms of oral administration may provide respiratory harm reduction approaches for medical marijuana users.

4.1. Smoked medical marijuana

The most common means of administration is through inhalation (Reinerman et al., 2011). The process of burning plant material and inhaling its smoke, however, raises obvious worries about respiratory safety.

Many frequent cannabis users report experiencing bronchial symptoms, such as coughing, wheezing, and tightness in the chest (Earlywine and Barnwell, 2007; Tetrault et al., 2007). Long-term follow-ups, however, do not provide consistent results regarding marijuana-related respiratory problems. Some longitudinal research supports a negative dose-dependent association between use and lung functioning. For example, Pletcher et al. (2012) found that heavy cannabis use (20 or more times per month) was associated with small, but significant, decreases in lung functioning, whereas infrequent use (a few times per month) was not. These findings are noteworthy because medicinal users tend to use more cannabis and use more often than recreational users (Reinerman et al., 2011). Nevertheless, a review of 14 studies found that after controlling for cigarette smoking, age, and weight, cannabis use failed to significantly predict differences in key measures of lung function (Tetrault et al., 2007). Inconsistent results linking cannabis use with lung cancer also suggest more research is needed, though reports of cannabis-induced lung cancers are relatively rare (Callaghan et al., 2013; Mehra et al., 2006). Worries about smoking burned plant materials when using medical cannabis may or may not be well founded.

4.2. Vaporizers

The effects of liquid tinctures, concentrates, and edible forms of cannabis differ from the effects of inhaling flower cannabis (Hart et al., 2002). For those who prefer the rapid onset of effects associated with inhaling cannabinoid medication, vaporizers offer a less harmful mode of administration than smoking. Vaporizers heat the plant without igniting it, thereby releasing cannabinoids in a vapor free of combustion-related by-products.

The majority of studies evaluating respiratory risk associated with vaporized cannabis suggest that vaporizers can reduce the potential for pulmonary symptoms (Abrams et al., 2007; Doblin, 1994; Earlywine and Barnwell, 2007; Van Dam and Earleywine, 2010). Those who use vaporizers report that they experience less respiratory irritation when using a vaporizer compared to a traditional burning technique (Earlywine and Barnwell, 2007). Moreover, one pre-post trial found significant reductions in bronchial symptoms after switching to a vaporizer for one month (Van Dam and Earleywine, 2010). A review of the literature on vaporizers turns up only one prominent concern about safety. In

Download English Version:

<https://daneshyari.com/en/article/7505363>

Download Persian Version:

<https://daneshyari.com/article/7505363>

[Daneshyari.com](https://daneshyari.com)