

Brewing a pot of hysteria

On June 6th, the US Supreme Court dealt a blow to patients who use marijuana for medical purposes, ruling that a doctor's approval is no protection against legal action by federal authorities such as the Drug Enforcement Administration (DEA). The court ruled that using marijuana to treat medical conditions violates federal law, despite laws in several states allowing the use of marijuana to treat symptoms of diseases like cancer.

Both sides of this controversy cite scientific findings to support their positions, but selective citations can act as a smokescreen for moral beliefs about drug use that it would be more productive to discuss directly. Because of marijuana's popularity as a recreational drug—according to one news report¹, 95 million Americans over the age of 12 have tried it at least once—the debate over medical marijuana rapidly gets bogged down in politics. Scientific results need not be the last word in such decisions, but they should be represented fairly in the debate.

The 1970 Controlled Substances Act (CSA) lists marijuana and its most active ingredient THC (Δ^9 -tetrahydrocannabinol) as schedule I drugs, indicating that they have no medical value, are illegal to possess and/or distribute, and are not considered safe for use under medical supervision.

Does this accurately reflect the scientific evidence? Marijuana and THC clearly can cause harm. A single marijuana exposure can affect driving ability in humans² or impair spatial navigation in rats. Although researchers disagree on whether moderate marijuana use causes cognitive impairment, heavy users have lower overall IQ scores than non-users and are slower at immediate and delayed memory tasks³. Prolonged exposure to THC or marijuana may also cause addiction. Squirrel monkeys can learn to self-administer THC at doses comparable to those found in marijuana smoke inhaled by humans, and synthetic CB1 cannabinoid agonists have reinforcing effects in rats and mice⁴. Withdrawal from marijuana causes relatively mild symptoms, including loss of appetite, irritability and depression.

Although the benefits of smoking marijuana remain controversial, the government has already decided that THC itself has medical benefits. Marinol—a synthetic derivative of THC—is federally approved to reduce nausea and stimulate appetite in patients suffering from cancer or HIV infection. (Curiously, Marinol is classified as a schedule III drug, indicating that it is considered less dangerous than THC, with which it shares both chemical structure and biological activity.) Marinol is effective in treating vocal and physical tics due to Tourette's syndrome⁵. In clinical trials, oral sprays of a marijuana plant extract called Sativex reduce muscle spasms in patients with multiple sclerosis⁶. THC also seems to be beneficial in treating neuropathic pain or glaucoma. Moreover, THC is a relatively safe drug: according to Daniele Piomelli, the director for the Center for Drug Discovery at the University of California, Irvine, it would take about 70 grams of pure THC to cause serious damage to a 150-pound adult. It is therefore difficult to justify the DEA classification of THC as a class I drug with no medical value.

This decision has potentially dangerous implications for science. It reflects a belief that there can be no value in investigating the medical properties of marijuana because the issue is settled. Igor Grant, the Director for the University of California Center for Medicinal Cannabis Research in San Diego, notes that even though the US National Institutes of Health continue to fund cannabinoid research, investigators are bound to have some reluctance to move into such a charged area, particularly when budgets are tight and the paperwork burdens intense. The extra bureaucratic hurdles involved in getting permission to obtain and use schedule I drugs can deter even established scientists. Piomelli once dropped a project on cannabidiol because the paperwork would have required an extra year. Donald Abrams, the chief of Oncology at the San Francisco General Hospital, points out that he sometimes needs as many as eight different agencies to approve his projects. This intellectual atmosphere cannot help but delay progress in understanding how cannabis works and whether it has medical benefits.

The federal government, moreover, would prefer to steer clear of all other marijuana substitutes; this June, John Walters, the director for the US National Drug Control Policy issued a statement that "Our national medical system relies on proven scientific research, not popular opinion. Marinol—the synthetic form of THC and the psychoactive ingredient contained in marijuana—is already legally available for prescription by physicians whose patients suffer from pain and chronic illness..." (<http://www.whitehousedrugpolicy.gov/pda/060605.html>). However, advocates of medical marijuana point out that natural marijuana contains other ingredients such as cannabidiol, which may not only counterbalance the psychotropic effects of pure THC, but may also afford some therapeutic benefits on its own. Smoking also provides relief quickly, whereas orally administered THC may take hours to produce an effect and has variable effects across individuals.

In light of the data, more research into the medical effects of marijuana is clearly warranted. Indeed, a report from the US National Academy of Sciences (<http://books.nap.edu/html/marimed>) on medical marijuana concluded that "...the existing data are consistent with the idea that this would not be a problem if the medical use of marijuana were as closely regulated as other medications with abuse potential." Thus it seems hard to justify regulations that allow doctors to prescribe cocaine and morphine, but not marijuana. Lumping marijuana and THC in the same category as LSD and heroin also reflects a failure to identify the different degrees of danger posed by the different substances. As Piomelli notes⁷, "Any young person who has smoked marijuana and seen a friend ravaged by heroin can tell the difference between these drugs. Why can't we?"

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