

Marijuana and Health

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Introduction

Worldwide, marijuana is likely the most commonly used “illicit” psychoactive substance. This is certainly the case in the US. The 2015 estimate is that 22.2 million individuals aged 12 or older are current marijuana users (i.e., users in the past 30 days) and the trend data from the National Survey of Drug and Health (NSDUH) survey indicate a general pattern in increased rates over the past decade or so [1]. Among 12th graders, more students smoke marijuana than tobacco [2]. Marijuana’s popularity far surpasses that of all other illicit substances. In concert with the relatively high prevalence rates of marijuana use, many Americans view it as a low- or no-risk drug and as worthy of being made legal [3] and marijuana policies have been shifting across the country in recent years, with reduced penalties for possession, decriminalization, expanded access for the purpose of treating health conditions, and even full commercial sales in some locations. As of the November 2016 elections, 29 states in the U.S. and the District of Columbia either allow medical or recreational use of the drug. Also, the marijuana product has been changing, with increased potency of the plant itself [4] and widespread availability of oral forms of marijuana extracts, often in food products.

The impact of marijuana legalization will be seen across health, social, political and economic domains, and the nature of these effects may be difficult to pinpoint and likely are complex. Supporting data are available for multiple and opposing points of view, but partisan thinking thrives by advancing myths about marijuana and by often ignoring science-based information. It is important to distinguish among different policies related to marijuana: decriminalization, legalization, and medicalization. Decriminalization, though often used interchangeably with legalization, is drastically different. Though some data exist showing emergency room mentions increasing in decriminalized states [5], legalization brings with it features that push up use and consequences – promotion, advertising and physical marijuana stores.

The possible health effects of increased access to marijuana are often at the center of the legalization debate. Advocates for marijuana legalization argue that prevalence of use and addiction will not increase significantly; it will not lead to an increase in underage use, social and health problems will not increase, the black market will be reduced or even eliminated, burdens on courts system jails will be eased, and it’s safer than both legal substances (tobacco and alcohol). Counter arguments challenge

these assertions by pointing out that these pro-marijuana claims are myths are not supported by data.

What does the scientific literature say about the health effects of marijuana, including what could occur if access to the drug is increased? At the risk of over-simplifying complex issues, here is a summary of where experts stand with respect to five prominent pro-marijuana arguments.

Marijuana is medicine

There is growing evidence that components of marijuana may have therapeutic effects, but the supporting evidence is mixed and there numerous complications when the plant is smoked as medicine. According to the recent report by National Academies of Sciences, Engineering, and Medicine [6], there is conclusive or substantial evidence that marijuana and its components are effective for treating chronic pain in adults, chemotherapy-induced nausea and vomiting, and the spasticity symptoms of multiple sclerosis. But evidence is weak or non-existence for numerous other conditions or ailments that purportedly can be improved with marijuana (e.g. improving sleep disturbances; improving symptoms of anxiety or PTSD; producing better outcomes after a traumatic brain injury). Complicating the issue of marijuana as medicine is that whereas cannabis likely contains medical components (e.g. cannabidiol), smoking the plant to deliver the medicine is unhealthy and imprecise. A doctor cannot dose a product that is smoked or used in a crude form. However, components of marijuana can be scheduled for medical use, and that research is fully legitimate. Pill and nose-spray versions of medicinal components of cannabis are being studied for FDA

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approval (e.g. Epidiolex and Sativex®) and Marinol (Dronabinol) and Naboline are FDA-approved medications.

Marijuana is less harmful than tobacco and alcohol

For every comparison of one psychoactive substance to another, there are always isolated comparisons that may make one drug look less harmful than another. For example, there is evidence that hallucinogens are less addictive than cocaine. But it is absurd to base a legitimate public health argument to seek legalization of hallucinogens based on this one point. With marijuana, there are some narrow comparisons that support it as a less harmful drug than others. One example is that a marijuana user cannot lethally overdose on the drug. And this is the case for tobacco also. Yet there is no disputing that tobacco can kill or hurt you, and we all know that tobacco is not a harmless drug.

Caulkins reported in a working paper that using the National Survey of Drug Use and Health, self-reported alcohol users reported more harms (among several domains relevant to the DSM criteria) than marijuana users [7]. But the empirical basis for examining a direct link between negative health effects and a drug is always fraught with complications. Many marijuana studies report mixed findings, or the issue is based on a single and weak study. Also complicating matters is that a reasonably large body of literature on a given issue is weakened because of uncertainty due to chance, bias, and confounding factors. Nonetheless, it is our contention that decades of research support the indisputable fact that marijuana is not a harmless drug. The legitimate debate is how harmful it is and for what health domains and social issues. For interested readers, rigorous reviews of the literature on the connection between marijuana use and health effects are provided by Volkow et al. [8] and the report by the National Academies of Sciences, Engineering and Medicine [6].

Legalization will not increase use and rates of addiction

Whether policy shifts toward legalization of marijuana are associated with increased rates of marijuana use and rates of addiction in the United States is an ongoing debate by researchers and public health officials. Yet national data on adults indicated that use of marijuana is on the rise. Based on the NSDUH data, which is the most comprehensive and rigorous national survey across all age groups, increases are observed in recent years among adults 18 years of age and older in the past 30-days in terms of overall prevalence use and heavy marijuana use (defined as daily or near daily use) [1].

The issue of changes in addiction is less clear; the NSDUH data show that the prevalence rates of marijuana abuse or dependence (as defined by DSM-IV) remained relatively steady. Yet the legal status of marijuana allows more widespread exposure to the drug, and more exposure is likely to lead to an increase in problems and symptoms of abuse or dependence. The extant epidemiological data may represent too narrow a window of observation at this point to fully understand the impact of expanded access to marijuana on rates of addiction.

The impact of policy shifts on behavior may not occur until more time has passed.

A related topic is whether legalization will increase rates of marijuana use among *underage youth*. This issue is significant because of concerns that marijuana use during youth contributes to elevated risks for impaired development [8]. The data are equivocal here. The NSDUH study of 2015 reported that prevalence rates of marijuana use and rates of marijuana abuse or dependence among adolescents 12-17 years of age have remained steady in recent years. But national surveys may not reflect national trends, which is important given that marijuana legalization occurs at the state level. An example is the state of Washington, where legalization of marijuana for recreational and medical purposes recently went into effect. Based on comparisons of monitoring the Future Study data between 2010-2012 (pre-legalization) and 2013-2015 (post-legalization) [9], marijuana use (past month) significantly increased among 8th and 10th graders following legalization of recreational marijuana use. Rates among 12th graders remained the same. According to state estimates of NSDUH data, Colorado is now the top state in the nation for youth use aged 12-to-17, and use is up there over the past ten years [1]. Overall prevalence of marijuana use is higher in legal or lax marijuana states than states without such laws. Several factors that may contribute to increased marijuana use among teenagers are worth watching; these include a shift in social norms that marijuana is harmless; greater acceptance by adults that marijuana use among youth is normal; increased rates of use by adults; increased advertising of marijuana for recreation and medical purposes; and greater availability of cannabis products.

Our jails and prisons are clogged with marijuana users

The data do not support this contention; state and federal prisons house a very small number of individuals for marijuana-related crimes. It is informative to look at all drug offenses for context. Drug offenders in State prisons serving time for drug law violations involving marijuana was 12% in 2004; yet drug law violations for other drugs were much higher - 19% for stimulants and 62% for cocaine [10]. More recent data show similar trends; among sentenced prisoners under state jurisdiction in 2008, 18% were sentenced for drug offenses [11]. Other independent research has shown that the risk of arrest for each "joint," or marijuana cigarette, smoked is about 1 arrest for every 12,000 joints [12].

Legalization would remove the black market and stop enriching gangs

Also, a legal marijuana environment has little hope of eliminating or greatly reducing the black market for several reasons: with legal marijuana taxed, the black market will continue to thrive by offering cheaper, untaxed marijuana; the dealers can find markets where restrictions in legal access exist, including underage teenagers and where medical marijuana is dispensed with strict restrictions; and heroin or other illicit drug dealers can thrive in an environment where general drug use is on the rise [13,14].

Conclusion

There is much we still do not know about marijuana policy changes, yet the U.S. government has no plans for a rigorous system to monitor marijuana policy outcomes. We support plans for such a system, such as the one offered by the Institute of Behavior and Health, founded by the first director of the National Institute on Drug Abuse and former White House drug chief, Bob DuPont. Included in this plan is the need for Congress to establish a science-based committee that would monitor federal and state data on the effects of changes in marijuana policy in the United States, the nature and extent of compliance with marijuana laws

at the local and state level, and issue annual reports pertaining to the effects of marijuana use on health and if changes in marijuana policy have impacted health indicators. We also strongly believe that the marijuana industry should be restrained from having too much influence on policy. Several states allow marijuana industry representatives to sit on rule-making bodies, for example. Stanton Glantz reminds us of the mistakes of Big Tobacco having too much power in the formation of regulations; we shouldn't repeat this experience with marijuana. However this nation and other countries proceed on the question of marijuana in the next several years, it will be vital for decisions to be guided as much as possible by current science.

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