

Marijuana: The Facts



Marijuana is the most commonly used illegal drug in the U.S.ⁱ and the world,ⁱⁱ and was a well-established medicine until it was federally criminalized in 1937.ⁱⁱⁱ A majority of Americans believe marijuana should be legally regulated.

Quick Facts

- More than forty-five percent of American adults report that they have used marijuana.^{iv}
 - Marijuana has been consumed for at least 5,000 years and has a long history of traditional uses throughout Asia, Africa, Europe and the Americas.^v
 - The marijuana plant contains more than 70 compounds, called cannabinoids, in its leaves and flowers.^{vi} The most commonly known of these cannabinoids is tetrahydrocannabinol (THC), which is psychoactive. However, there are numerous non-psychoactive, yet highly therapeutic cannabinoids in marijuana as well.^{vii}
 - U.S. marijuana policy is unique among American criminal laws – no other law is enforced so widely and harshly, yet deemed unnecessary by such a substantial portion of the population.
 - The price tag of marijuana prohibition is currently estimated at [\\$20 billion](#) per year, including costs to law enforcement and lost potential tax revenue.^{viii}
- Recent polls suggest that between 46% and 58% of the American population believe marijuana should be legally regulated, while support for allowing the medical use of marijuana is about 80%.^{ix}
 - Twenty-three states and Washington D.C. have approved the medical use of marijuana, 16 states and D.C. have decriminalized its use, and in 2012 Colorado and Washington voters made their states the first political jurisdictions anywhere in the world to legally regulate the production and distribution of marijuana.

Will legalizing marijuana lead to increased use?

There is no evidence that implementing medical marijuana laws impacts the rate of adolescent use.

A common concern raised by people opposed to removing marijuana from the illicit market is the impact on teen marijuana use. Several recent reports have examined that question and found that, in the majority of medical marijuana states, youth used *decreased* after the medical marijuana law was passed. This has been attributed to a diminishing of the “forbidden fruit” effect, and decreased access as marijuana moved from the streets to inside licensed dispensaries.^x

A recent [study](#) sought to determine the effect of medical marijuana laws on adolescent marijuana use. The authors concluded, “Our results are not consistent with the hypothesis that the legalization of medical marijuana caused an increase in the use of marijuana and other substances among high school students. In fact, estimates from our preferred specification are small, consistently negative, and are never statistically distinguishable from zero. Using the 95 percent confidence interval around these estimates suggests that the impact of legalizing medical marijuana on the probability of marijuana use in the past 30 days is no larger than 0.8 percentage points, and the impact of legalization on the probability of frequent marijuana use in the past 30 days is no larger than 0.7 percentage points.”^{xi}

In addition to the impact on youth use, the decriminalization of marijuana has not been found to have an impact on adult use.^{xii} A [study](#) conducted by the Institute of Medicine concluded, “In sum, there is little evidence that decriminalization of marijuana use necessarily leads to a substantial increase in marijuana use.”^{xiii}

Is marijuana a gateway drug?

Most marijuana users never use any other illicit drug.

Marijuana is the most popular and easily accessible illegal drug in the United States today. Therefore, people who have used less accessible drugs such as heroin, cocaine and LSD, are likely to have also used marijuana. Most marijuana users never use any other illegal drug, and the vast majority of those who do try another drug never become addicted or go on to have associated problems. Indeed, for the large majority of people, marijuana is a terminus rather than a so-called gateway drug.^{xiv} New evidence suggests that marijuana can function as an “exit drug” helping people reduce or eliminate their use of more harmful drugs by easing withdrawal symptoms.^{xv}

Are more people becoming dependent on marijuana?

Rates of marijuana dependence have not increased over the past 10 years.

A landmark, Congressionally-mandated Institute of Medicine study found that fewer than 10 percent of those who try marijuana ever meet the clinical criteria for dependence, while 32 percent of tobacco users and 15 percent of alcohol users do.^{xvi} As a result of treatment-instead-of-incarceration policies implemented over the past two decades to stem the skyrocketing U.S. prison population, marijuana treatment admissions referred by the criminal justice system rose from 48 percent in 1992 to [52 percent](#) in 2011.^{xvii} Just 45 percent of people who enter marijuana treatment meet the criteria for marijuana dependence. More than a third hadn’t used marijuana in the 30 days prior to admission for treatment. Many people are “discovered” due to the smell of marijuana and forced to choose between jail and treatment. Treatment providers support drug courts because they ensure a steady stream of clients. Even with this increase in court-mandated marijuana treatment, only 1.1% of marijuana users 12 and older in 2011 went to treatment for it. Twice as many people were arrested for simple marijuana possession that year than entered treatment for marijuana dependence (750,000 vs. 333,578).^{xviii} Increases in treatment access and emergency room visits related to marijuana use can be the result of the decriminalization of marijuana

consumers and the destigmatization of marijuana use. Both of these phenomena would result in consumers feeling more comfortable admitting use and seeking help related to their use.

Does marijuana use have long-term cognitive effects?

Marijuana does not cause long-term cognitive impairment in users that start after 21 years old.

The short-term effects of marijuana include immediate, temporary changes in thoughts, perceptions and information processing. The cognitive process most clearly affected by marijuana is short-term memory. In laboratory studies, subjects under the influence of marijuana have no trouble remembering things they learned previously. However, they temporarily display diminished capacity to learn and recall new information. This diminishment only lasts for the duration of the intoxication. There is no convincing evidence that heavy long-term marijuana use permanently impairs memory or other cognitive functions.^{xix} A recent, large-scale, longitudinal study of adult marijuana users corroborates earlier findings that marijuana produces no long-term negative effects on cognition, stating, “The adverse impacts of cannabis use on cognitive functions either appear to be related to pre-existing factors or are reversible . . . even after potentially extended periods of use.”^{xx} However, it is not recommended that adolescents use marijuana unless under the care of a physician, as some research suggests potentially negative cognitive effects for adolescents who use marijuana. It is recommended that individuals delay their marijuana use until adulthood.

What is the relationship between marijuana and cancer?

Marijuana use is not associated with elevated cancer risk as shown in preclinical studies.

Several longitudinal studies have established that even long-term marijuana smoking is not associated with elevated cancer risk, including tobacco-related cancers or with colorectal, lung, melanoma, prostate, breast or cervix. A 2009 population-based case-control study found that moderate marijuana smoking over a 20-year period was associated with reduced risk of head and

neck cancer.^{xxi} And a five-year-long population-based case-control study found even long-term heavy marijuana smoking was not associated with lung cancer or upper aerodigestive tract cancers.^{xxii} In fact, some of the chemicals in marijuana, such as THC and especially CBD, have been found to induce tumor cell death and show potential as effective tools in treating cancer.^{xxiii} Scientists who have conducted this type of research, such as UCLA’s Donald Tashkin, [hypothesize](#) that the anti-oxidant properties of cannabis might override any cancer causing chemicals found in marijuana smoke, therefore protecting the body against the impact of smoking.^{xxiv} Newer research indicates that marijuana has anti-cancer properties and could one day unlock new cancer treatments.^{xxv}

Moreover, marijuana smoking is not associated with any other permanent lung harms, such as chronic obstructive pulmonary disorder (COPD), emphysema or reduced lung function – even after years of frequent use.^{xxvi}

Does marijuana affect mental health?

The majority of adults who use marijuana do not have adverse mental health issues.

Many opponents of medical marijuana make much of the purported link between marijuana use and mental illness. But there is simply no compelling evidence to support the claim that marijuana is a causal risk factor for developing a psychiatric disorder in otherwise healthy individuals.^{xxvii} Most tellingly, population-level rates of schizophrenia or other psychiatric illnesses have remained flat even when marijuana use rates have increased.^{xxviii} Emerging evidence indicates that patients who have tried marijuana may show significant improvements in symptoms and clinical outcomes (such as lower mortality rates^{xxix} and better cognitive functioning^{xxx}) compared with those who have not. In fact, some of the unique chemicals in marijuana, such as cannabidiol (CBD), seem to have *anti-psychotic* properties.^{xxxi} Researchers are investigating marijuana as a possible source of future schizophrenia treatments; until it is legalized, however, this research is significantly impeded.

Rates of mental illness have remained stable in light of changes in marijuana consumption levels. For example, when marijuana use rates have increased,

there have been no increases in schizophrenia diagnoses.^{xxxii} We do see these types of correlations, however for other behaviors that are connected. For example, rates of diabetes in the U.S. have increased as obesity rates have increased. This is not to say, however, that there is no relationship between psychoactive substances and mental functioning. Some effects of marijuana use can include feelings of panic, anxiety and paranoia. Such experiences can be frightening, but the effects are temporary.

Some psychoactive substances have been shown to improve mental health functioning and some do not. [Recent research](#) at the University Medical Center Utrecht in the Netherlands concluded that the endocannabinoid system is responsible for making chemicals that combat mental health conditions such as depression. Stimulating the endocannabinoid system via the use of cannabinoids found in the cannabis plant might hold promise as a treatment for depressions and other mental health conditions.^{xxxiii}

Part of the reason that is it so difficult to detangle psychoactive substance use from mental health is age of onset. For most people, symptoms of mental disturbance occur in the late teens and early 20's. While it is impossible to predict who will develop a mental disturbance, there seem to be some ties to genetics and to behavioral cues in early childhood.

Those who have risk factors, such as a family history of mental health issues, should be cautious in their exposure to all substances that have any intoxicating effects. Unfortunately, in adolescence, teens are more likely to experiment with intoxicants and less likely to be open with their parents about their drug use and/or any symptoms of mental disturbance they may be experiencing. As a result, drug and alcohol use has usually already started by the time symptoms of mental illness become noticeable. This is why we see so many studies that confirm that most people diagnosed with severe mental illness have had a history of alcohol and drug use. The alcohol and drug use was not the cause of the mental illness, but rather a behavior that coincides with the undetected development of mental health symptoms.^{xxxiv} In fact, research suggests that those with mental illness might be self-medicating with marijuana. One study demonstrated that psychotic symptoms [predict later use of marijuana](#), suggesting that people might turn to the plant for help rather than become ill after use. However, it should be noted that studies of marijuana

as a "treatment" for certain mental health disorders are in preliminary phases, and there is no mental health condition for which marijuana is a standard of care treatment.

These findings have been replicated by myriad other studies, including a new study conducted by Harvard University researchers, which found that marijuana "is unlikely to be the cause of illness," even in people who may be genetically predisposed to schizophrenia or other psychotic disorders. The researchers concluded, "In summary, we conclude that cannabis does not cause psychosis by itself. In genetically vulnerable individuals, while cannabis may modify the illness onset, severity and outcome, there is no evidence from this study that it can cause the psychosis."^{xxxv}

Finally, available evidence indicates that medical marijuana laws may *reduce* rates of suicide among young adult males, who are most vulnerable to suicide.^{xxxvi}

Encouraging an open dialogue with adolescents about their drug use and paying attention to their behavior during the teen years are better prevention tools toward the future development of mental illness than to simply blame marijuana.

How strong is today's marijuana?

Marijuana regulation allows for a wider variety of THC levels in products.

Although marijuana potency has reportedly increased in recent decades, this is largely due to prohibition.^{xxxvii} When access to a particular substance is sporadic, risky and limited, both consumers and producers are incentivized to use or sell higher potency material. We saw a similar trend during alcohol prohibition, when beer and cider were largely replaced by spirits and hard liquor, which was easier and more profitable to transport.^{xxxviii} When access is regulated and controlled, like in medical marijuana states, we see a wider variety of potencies, including marijuana with virtually no traces of psychoactive THC but high in cannabidiol (CBD), which is highly therapeutic but not psychoactive.

While THC is virtually non-toxic to healthy cells or organs, and is incapable of causing a fatal overdose, marijuana's health impact is wide ranging and depends

on the way marijuana is ingested, as well as the specific constituents in the marijuana. Health effects of marijuana are related to the route, dose, frequency and duration of marijuana use. Currently, doctors may legally prescribe Marinol, an FDA-approved pill that contains 100 percent THC – but, critically, lacks other therapeutic, non-psychoactive compounds found in marijuana.^{xxxix} The Food and Drug Administration found THC to be safe and effective for the treatment of nausea, vomiting and wasting diseases. When consumers encounter strong varieties of marijuana, they adjust their use accordingly and smoke less.^{xi}

Is it true that marijuana has medicinal properties?

Marijuana has been proven helpful for treating the symptoms of a variety of medical conditions. The body's endocannabinoid system may explain why.

For many seriously ill people, medical marijuana is the only medicine that relieves their pain and suffering, or treats symptoms of their medical condition, without debilitating side effects. Marijuana's medicinal benefits are incontrovertible, now proven by decades of peer-reviewed, controlled studies published in highly respected medical journals.^{xii} Marijuana has been shown to alleviate symptoms of wide range of debilitating medical conditions including cancer,^{xiii} HIV/AIDS,^{xiiii} multiple sclerosis,^{xlv} Alzheimer's Disease,^{xlv} post-traumatic stress disorder (PTSD),^{xlvi} epilepsy,^{xlvii} Crohn's Disease,^{xlviii} and glaucoma,^{xlix} and is often an effective alternative to narcotic painkillers.^l

Evidence of marijuana's efficacy in treating severe and intractable pain is particularly impressive. Researchers at the University of California conducted a decade of randomized, double-blind, placebo-controlled clinical trials on the medical utility of inhaled marijuana, concluding that marijuana should be a "first line treatment" for patients with painful neuropathy, who often do not respond to other available treatments.ⁱⁱ

Marijuana has been shown to be effective in reducing the nausea induced by cancer chemotherapy, stimulating appetite in AIDS patients, and reducing intraocular pressure in people with glaucoma.ⁱⁱⁱ There is also appreciable evidence that marijuana reduces muscle spasticity in patients with neurological disorders.ⁱⁱⁱⁱ Marijuana has also been shown to help with mental health conditions, particularly PTSD.^{lv} In 2013, both Maine and Oregon added PTSD to the list

of conditions that qualifies for medical marijuana. A synthetic capsule is available by prescription, but it is not as effective as smoked marijuana for many patients.^{lv}

Our bodies contain a regulatory framework called the endocannabinoid system. This system is responsible for maintaining balance or homeostasis in the body. Some scientists theorize that a deficiency in the endocannabinoid system may contribute to certain diseases, such as Crohn's disease, which may explain why the introduction of phyto-cannabinoids (from the marijuana plant) help alleviate the symptoms of these conditions.^{lvi}

Although an overwhelming majority of Americans support medical marijuana, the federal government continues to impede state medical marijuana laws. Marijuana prohibition has also thwarted research within the United States to uncover the best and most effective uses for marijuana as a medicine, making efforts to reform medical marijuana laws particularly difficult.

[Learn more about medical marijuana.](#) ^[6]

Does marijuana impair driving the way alcohol does?

Marijuana's effects on driving are subtle but real.

At some doses, marijuana affects perception and psychomotor performance – changes that could impair driving ability.^{lvii} However, in actual driving studies, marijuana produces little or no car-handling impairment – consistently less than produced by moderate doses of alcohol and many legal medications.^{lviii} In contrast to alcohol, which tends to increase risky driving practices, marijuana tends to make subjects more cautious.^{lix} Surveys of fatally injured drivers show that when THC is detected in the blood, alcohol is almost always detected as well.^{lx} For some individuals, marijuana may play a role in bad driving, yet the overall rate of highway accidents appears not to be significantly affected by marijuana's widespread use in society.^{lxi} Frequent marijuana consumers, moreover, appear to develop a tolerance to marijuana's impairing effects.^{lxii} However, while the impairing effects of marijuana vary across users, no safe amount of marijuana use or intoxication level has been established. As a result of marijuana's

criminalization, harm reduction options that exist for alcohol consumption – such as designated driver education, alternate transportation from drinking establishments, and easily accessible information about how alcohol dosage effects one’s physical and mental functioning – are not available for marijuana use. If marijuana were legally controlled and regulated, public education about using marijuana safely could be provided. Finally, available evidence indicates that medical marijuana laws do not increase – and in fact may decrease – traffic fatalities.^{lxiii}

How many people are getting arrested for marijuana every year?

Roughly 750,000 people are arrested for marijuana each year, the vast majority of them for simple possession, with racial minorities over-represented.

Approximately 750,000 people were arrested for marijuana law violations in 2012 according to the Federal Bureau of Investigation’s annual Uniform Crime Report – comprising about half (48 percent) of all drug arrests in the United States; that’s one marijuana arrest every 42 seconds. A decade ago, marijuana arrests comprised just 44 percent of all drug arrests. Approximately 42 percent of all drug arrests nationwide are for marijuana possession. Of total arrests for marijuana law violations, more than 87 percent were for simple possession, not sale or manufacture. There are more arrests for marijuana possession every year than for all violent crimes combined.^{lxiv}

A marijuana arrest is no small matter. Most people are handcuffed, placed in a police car, taken to a police station, fingerprinted and photographed, held in jail for 24 hours or more, and then arraigned before a judge. The arrest creates a permanent criminal record that can easily be found on the internet by employers, landlords, schools, credit agencies and banks. The collateral sanctions of a marijuana possession arrest can include loss of employment, financial aid, housing and child custody.^{lxv}

The criminalization of marijuana in the early 20th century was not based on any scientific assessment of its risks – but rather racial prejudice and politics. The first anti-marijuana laws, in the Midwest and the Southwest during the 1910s and 20s, were directed at

Mexican migrants and Mexican Americans. Artists and performers – especially black jazz musicians – were common targets.^{lxvi} Today, Latino and black communities are still subject to wildly disproportionate marijuana enforcement practices, even though these groups are no more likely than whites to use or sell marijuana.

According to a [2012 ACLU report](#), black people are 3.7 times more likely to be arrested for marijuana possession than white people despite comparable usage rates. Furthermore, in counties with the worst disparities, blacks were as much as 30 times more likely to be arrested.^{lxvii}

States spent an estimated \$3.61 billion enforcing marijuana possession laws in 2010 alone. New York and California combined spent over \$1 billion.^{lxviii}

ⁱ Substance Abuse and Mental Health Services Administration, "Results from the 2012 National Survey on Drug Use and Health," (Rockville, MD: Substance Abuse and Mental Health Services Administration, 2013), Tables 1.1A and 1.1B.

ⁱⁱ United Nations Office on Drugs and Crime, "World Drug Report 2013," (UNODC, 2013).

ⁱⁱⁱ Richard J. Bonnie and Charles H. Whitebread, *Marijuana Conviction: A History of Marijuana Prohibition in the United States* (1999); David F. Musto, "Opium, cocaine and marijuana in American history," *Scientific American* 265, no. 1 (1991).

^{iv} Substance Abuse and Mental Health Services Administration, "Results from the 2012 National Survey on Drug Use and Health," Tables 1.28B.

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