

The changing views on medical and recreational marijuana

The early use of marijuana

The first documented use of marijuana was ~4000 BCE, but like any other drug from plant origin it may have been ingested for over 10,000 years. It is believed that hemp seeds were used for a food in China as early as 6000 BCE. During the first millennium CE the use of cannabis spread throughout the Arab world. It is believed that Christopher Columbus brought Cannabis Sativa to America, in the form of hemp, strong fibrous cannabis containing very little psychoactive components. It is also believed that George Washington cultivated hemp at Mount Vernon, but no evidence has been found demonstrating that he used it for its psychoactive properties. By the 1840's-medicines with a cannabis base were available in pharmacies in the United States. Given the scarcity of drugs, the ones that were available, were many times combined in elixirs (10% alcohol) known as "snake oil", and were purported to cure various ailments. In addition to cannabis, opium, and cocaine were also found in these concoctions. Until the civil war, hemp was the second largest crop in the United States, exceeded only by cotton. Cannabis was not smoked to any extent until around 1910 in Texas. Mexican laborers brought cannabis into the US after the WW I and promulgated the habit of smoking it.

The propaganda filled 1930's against the use of marijuana

In 1933, the Volstead act that established prohibition in 1920 with the creation of the 18th amendment to the constitution was repealed. This led to the potential loss of various governmental jobs because there was no longer a need for locating and destroying clandestine stills, and persecuting the offenders of the 18th amendment. These individuals needed something else to do. So, it is quite possible that this and other issues dealing with prejudicial beliefs led to a significant propaganda campaign against cannabis, asserting that marijuana was a "killer weed". Many propaganda films in the 1930's dealt with "the terrible drug that is marijuana", most especially the 1936 film *Refer Madness*.

On August 12, 1930, Harry Anslinger (May 20, 1892 – November 14, 1975) became the first Commissioner of the Treasury Department's Federal Bureau of Narcotics and stated in the *Washington Herald* "If the hideous monster Frankenstein came face to face with the monster marijuana, he would die of fright". He also stated that Cannabis caused "murder, insanity and death", and made numerous racist remarks against African Americans and Hispanics. He created the "gore files" with quotes like the following showing up in newspapers across the country: "...the primary reason to outlaw marijuana is its effect on the degenerate races." In 1937 he championed the Marijuana Tax Act before Congress that banned all use of marijuana except as sterile bird seed. By 1936, 38 states added marijuana to most dangerous drug lists. Another proponent of anti-marijuana propaganda was Publisher William Randolph Hearst (April 29, 1863 – August 14, 1951). He waged an anti-marijuana campaign that popularized the Mexican word "marijuana" for cannabis. He used it to make cannabis sound "foreign" and as a tactic against immigration. The psychedelic revolution of the 1960's and 1970's In the late 1960's

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and 1970's marijuana became the recreational drug of choice of the young generation and became a symbol of youthful rebellion. It was popularized in films of the day most especially in the 1978 *Cheech and Chong's Up in Smoke*. In 1978, the 30day prevalence of marijuana/hashish use in 12th graders peaked at 37.1%.

The prohibition against marijuana use

Prohibition causes hard drugs to drive out soft. During the 1920's prohibition against alcohol, the overall use of alcohol decreased, but for those who did imbibe tended to switch from wine and beer to harder liquor. This switch was due to the fact that booze (e.g. vodka, and tequila) was more potent, so that a greater amount of ethanol can be more easily transported for sale in this form, then the equivalent amount of beer or wine. During the 1980's and 1990's, given that marijuana remained an illicit drug, and given that hard drugs drive out soft, the concentration of Δ -9-Tetrahydrocannabinol (THC), the psychoactive component was induced to increase. Some of the methods employed to increase the THC content included hydroponic gardening, but much more importantly by removing the male plants, and only growing, and harvesting female plants. Cannabis sativa propagates by the release of spores from male plants, the spores are caught on the resin produced by female plants. In response to the lack of spores, females produce more resin. The resin from female plants contains the highest concentration of THC. In the 1960's the THC content varied from 1-3%, the average THC content in 1995 increased to an average of 3.96%, and in 2013 to an average of 12.55%. Just as the prohibition against alcohol in the 1930's led to the switch to consuming beverages with higher concentration of ethanol, the prohibition against marijuana led to cultivating plants with higher concentration of THC. The medical use of marijuana beginning in 1996. In 1996, California became the first state to legalize the medical use of marijuana. Currently 23 states and Washington, DC, have legalized the medical use of marijuana. Among the most common indications include: nausea and vomiting due to chemotherapy (23 states), spasticity due to multiple sclerosis or paraplegia (22 states), cachexia (21 states), glaucoma (21 states), gastrointestinal disorders (15 states), other indications include appetite stimulation in HIV/AIDS, chronic pain, depression, anxiety disorders, sleep disorders, psychosis and Tourette's syndrome. According to an

article published in the Journal of the American Medical Association (JAMA) in 2015, there exists moderate-quality evidence supporting the use of Cannabinoids for chronic pain, spasticity, and low-quality evidence showing some potential for improvements in: nausea and vomiting due to chemotherapy, weight gain in HIV, sleep disorders, and Tourette's syndrome. Findings of another study also published in JAMA in 2015 stated: "Use of marijuana for chronic pain, neuropathic pain, and spasticity due to multiple sclerosis is supported by high-quality evidence." There is very little data available for optimal dosing of marijuana for specific medical conditions. The usual method employed is allowing the patient to titrate their own dose until the desired clinical effect is achieved. Note that the concentration of the various Cannabinoids contained in marijuana varies substantially from crop to crop and also are effected by smoking dynamics (e.g. how long smoke held in the lungs). Short-term adverse effects associated with the use of medical marijuana include: dizziness, dry mouth, nausea, fatigue, somnolence, euphoria, vomiting, disorientation, drowsiness, and confusion, loss of balance, hallucinations, impaired short-term memory, motor coordination, and impaired judgment. The use of medical marijuana has been shown to more than double the risk of a motor vehicle accident. Potential health risks from long-term regular (daily or nearly every day) marijuana use include: marijuana use disorder, worsening of some psychiatric illnesses such as anxiety, mood and psychotic disorders. Additionally, the use of marijuana may be problematic for young people, because their brains continue to develop into their third decade of life.¹⁻⁷

The legalization of the recreational use of marijuana beginning in 2012

In November 2012, Washington and Colorado legalized the recreational use of marijuana, following by Alaska in February 2015. Many other states and cities have decriminalized the recreational use of marijuana. Proponents against the legalization of marijuana state that the following negative consequences will occur if it becomes legalized: increase in marijuana use, increase in marijuana-impaired driving fatalities, rise in number of marijuana-addicted users in treatment, diversion of marijuana for unintended purposes, adverse impact and cost of the physical and mental health damage, and the economic cost to society will far outweigh any potential revenue generated. The proponents for legalization site the following arguments: legalization will eliminate arrests for possession and sale, resulting in fewer citizens with criminal records and a reduction in the prison population; it will also free up law enforcement resources to target more serious and violent criminals. Legalizing will reduce traffic fatalities since users will switch from alcohol to marijuana (which does not impair driving to the same degree), there will not be an increase in use, even among youth, because of tight regulations, legalizing it will add revenue generated through taxation, and it will reduce profits for the drug cartels trafficking marijuana, and marijuana is less addictive than tobacco or alcohol, both of which are legal to use. The impact that legalization of marijuana had in Colorado was detailed in: The Legalization of Marijuana in Colorado: The Impact, Rocky Mountain High Intensity Drug Trafficking Area, and Vol. 2/ August 2014. Some of the findings follow: States that have legalized marijuana for medical or recreational use generally experience an increase in use in every age group.

In Colorado the following have occurred:

- a. The past-year prevalence of marijuana use significantly increa-

sed ($P < .05$) over all demographic subgroups (12 to 17, 18-25 years and ages 26 and over).

- b. Over the years 2007 to 2012, traffic fatalities involving operators testing positive for marijuana increased 100%.
- c. Over the years 2011 to 2013 individuals testing positive for marijuana increased 16%.
- d. Over the years 2008 to 2013 there was a 32% increase in drug-related suspensions/expulsions during school years, mostly due to marijuana.
- e. Over the years 2011 to 2013 there was a 57% increase in marijuana-related emergency room visits.
- f. Hospitalizations related to marijuana increased 82% over the years 2008 to 2013.
- g. Over the years 2006 to 2013, marijuana-related exposures in children less than 5 years old increased 268%. Colorado's rate of marijuana-related exposures is three times higher than the national average.
- h. From 2013 to 2014 the prevalence of DSM-IV defined marijuana use disorder significantly increased ($P < .05$) over most demographic subgroups.
- i. Over the years 2008 to 2013 highway interdiction seizures of Colorado marijuana destined to 40 other states increased 397%. Marijuana has been shown to be effective for various ailments, but legalizing it for medical and/or recreational has been shown to have a significant negative impact on society.

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Conflict of interest

Author declares that there is no conflict of interest.

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