

Marijuana vs Tobacco in the U.S

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Abstract

With the rise of legal marijuana use throughout the UNITED STATES, the substance is becoming more thoroughly explored by all areas and ages of society – for both social and medical purposes. However, the risks and benefits have not been fully explored; how will they affect society and the medical world? Will marijuana go the way of alcohol and tobacco use and become the next big, legalized liability? This paper evaluates the effects of marijuana inhalation in comparison to inhaled tobacco on lung health, addiction, and an altered state of mind, to reveal its risks and benefits. Ultimately, smoking and inhaling marijuana may be the newest legal trend, but it's not the ideal form of use for this herb.

Keywords: *Marijuana; Tobacco; Smoke; Cancer; Lung Health; Addiction; Altered State of Mind*

Introduction

Inhaling any noxious fume is simply not healthy for human lungs; so why is an increasing amount of today's American culture pushing to legalize marijuana, (or cannabis, or pot), for recreational use while continuing to push for bans on tobacco use?

Ample findings exist that prove that tobacco use is not healthy; it causes COPD, cancer, and other life-threatening health problems. Similarly, inhaling marijuana smoke "has been linked to lung changes, memory loss, and a number of other health problems" [1]. So why would one be banned, and not the other?

Smoking bans (or smoke-free laws) are public policies established at the societal level to prohibit tobacco smoking in work environments and publicly used spaces. Some legislation might also define smoking as carrying or possessing any lit tobacco product [2].

There was a time when tobacco was touted as not harmful, or less harmful than other brands. In the 1920s and 1930s, major brands paid physicians to say that they smoked tobacco (so it must be okay), or that cigarettes soothed irritated throats; but by the 1950s studies started connecting cigarette smoking with lung cancer. By 1970 cigarette ads were no longer allowed on television [3]. By the mid-2000s, most states had some type of tobacco smoking ban. These factors should be similarly and thoroughly investigated for marijuana smoking, while the race to legalize marijuana continues.

Currently, 29 US states and DC have legalized medical marijuana, and 9 have legalized recreational marijuana. Of those 29 marijuana state laws, only one specifies "non-smokable marijuana" in its list of possession limits [4].

If the use of inhaled marijuana provides such great benefits, then shouldn't the plant more safely be processed and legalized as a pill or injection? Why hasn't the American Society for Pharmacology done this? Because access to researching marijuana (unlike tobacco) is still limited. As of January 4th, 2018, the Attorney General still sees marijuana's status as a Schedule I drug [5].

So, while a large percentage of the United States population lives under a ban on smoking tobacco in work environments and restaurants/bars as either a state, commonwealth, or local law, and over half of the United States population live under a ban covering all workplaces, restaurants and bars, the jury on the use or subsequent ban on smoking marijuana is less definite, and the reasons for its illegality in the first place are debatable. In fact, there is evidence out there that indicates cannabis is safer than alcohol (which has never been illegal under federal law); and “alcohol kills 40,000 people every year in the US” [6]. In other words, the reasons for legalizing some substances but not others is a completely separate and lengthily-discussible issue, but for the purpose of this paper, the subject of inhaling tobacco smoke versus inhaling marijuana smoke remains the sole intent. Is there sufficient reasoning for legally allowing users to smoke one herb but not the other?

While legalization for recreational smoking of marijuana is brewing around the country, the history and results of tobacco use should be reviewed and considered as a predictor of what to expect with increased use of marijuana as another inhalant. In particular, three important factors should be considered when comparing the inhalation of marijuana versus tobacco:

1. Lung health
2. Addiction
3. Altered state of mind

Lung Health

The Effects of Tobacco on the Lungs

Smoking tobacco affects – and even scars – your lungs and increases troubles with breathing. Smoking causes chronic obstructive pulmonary disease (COPD), pneumonia, and asthma. The chemicals in tobacco smoke harm blood cells and damage heart function. This damage increases the risk of atherosclerosis, aneurysms, high blood pressure, angina, and other heart-related chest pains. Peripheral arterial disease (PAD), and stroke, and breathing tobacco smoke (including second-hand smoke) can damage blood vessels and change the chemistry of the blood. Inhaling smoke raises your blood pressure and increases your heart rate as your blood vessels react to the chemicals in the smoke [7].

And -- What about those who are nearby, but not directly smoking the cigarettes? According to the latest television commercial by TobaccoFreeCA.com, which I recently viewed on Channel ABC7 on March 17th, 2018, it says: “Second-hand smoke can be closer than you think. Second-hand smoke can enter your home through air vents, light fixtures, or even cracks in the walls and floors... and is toxic, especially to children” [8]. So, even if smoked in a private location, the smoke can find you. The definition of second-hand smoke should not be limited to tobacco.

The Effects of Marijuana on the Lungs

Though marijuana has been mostly identified as a recreational drug in the United States, it has been used for thousands of years for its medical benefits. Although some states have legalized it for medical use to relieve symptoms, such as chronic pain, nausea, muscle spasms, and many other conditions (but not to cure disease), the Food and Drug Administration (FDA) hasn't approved it as a medicine [9].

Similar to tobacco smoke, marijuana smoke contains toxic chemicals and carcinogens (any substance that can cause cancer in living tissue) such as ammonia and hydrogen cyanide. Regularly smoking either substance usually causes coughing, wheezing, and extra phlegm. Illnesses involving lung infections and bronchitis are also more common and individuals with cystic fibrosis or asthma can experience much more notable adverse effects from smoking. Additionally, when smoking marijuana, THC enters your bloodstream through the alveoli in your lungs. “Within minutes, your heart rate may increase by 20 to 50 beats per minute. That rapid heartbeat can continue for up to three hours” and increase your risk of heart attack [10].

The overall conclusions regarding lung cancer have been mixed and uncertain, as marijuana remains illegal in the United States under federal law; thus, it's difficult to collect controlled data similar to what's been collected for tobacco [11]. Thus, whereas the connection between smoking tobacco and developing cancer has been directly linked, the connection between smoking marijuana and developing cancer has not been as sufficiently studied as tobacco, to make a comprehensive conclusion [12].

However, certain information has been learned about marijuana as it relates to lung cancer, as well as its use as an aid with the side effects of cancer treatments. With regard to lung cancers, many of the carcinogens found in tobacco smoke are also found in marijuana smoke, and marijuana does cause inflammation and cell damage, which is associated with pre-cancerous changes in lungs; and compared to non-smokers, long-term marijuana smokers more often show cellular abnormalities in the lungs [12]. With regard to marijuana's cancer-related benefits, some studies have found that smoking marijuana after chemotherapy may help ease nausea or vomiting; and although studies in this area are still in the early phases, some clinical trials have shown that the cannabinoids in marijuana may slow growth of some forms of cancer [13].

Comparison

The similarities in some of the carcinogens, and the lung damage that the inhalation of both tobacco and marijuana produce, are relatively clear: Neither is good for your lungs. However, although at odds with the risks of inhaling carcinogens, marijuana may have some benefits in managing the side effects of cancer treatments such as chemotherapy and may help in treating some forms of cancer.

Addiction

Tobacco Addiction

Ask any smoker why they don't "just quit," and they'll mention addiction. The nicotine in the cigarette is a highly addictive substance. Addiction is typified by "compulsive drug-seeking and use, even when you know the negative consequences" [14]. Most smokers want to stop smoking, and every year about half try to quit. However, according to drugabuse.gov, "only about 6% of smokers are able to quit in any given year." Medications including smoking cessation medications, some antidepressants, and nicotine-replacement therapy, may help in many cases [14].

Nicotine causes an increase of endorphins in the brain, which causes a brief euphoria. It also increases levels of dopamine, and this reinforces the repetitive behavior of smoking. Many tobacco smokers who are exposed to this nicotine "rush" become addicted. When they don't smoke, they go through withdrawal symptoms. They have become dependent on having the regular dose of nicotine in their bloodstream. Not having the regular levels in the system causes the user to be irritable and anxious and crave the cigarette. They may not be able to sleep well and may feel the need to eat more [14]. These withdrawal symptoms may quickly send the smoker back to smoking tobacco, as they often conclude that smoking is the lesser of their problems.

Marijuana Addiction

Addiction to marijuana, or "marijuana disorders" seem quite similar to tobacco addiction – there is a dependence and need to maintain a regular level of the chemicals in marijuana in the bloodstream, and when not maintaining such levels, the person will feel withdrawal symptoms. People who use marijuana and attempt to quit, often report (similar to tobacco users) feeling restless, irritable, and moody; they may have problems sleeping and either a decreased appetite, or increased cravings. Usually, these symptoms "peak within the first week after quitting and last up to 2 weeks". When the brain adapts to the amounts of marijuana being used, and loses sensitivity to its endocannabinoid neurotransmitters, the brain becomes dependent on an increasing amount of the drug [15].

In severe cases, smoking marijuana can progress from what is called a "marijuana use disorder" to addiction. This progression is clarified by an individual's inability to stop using marijuana, even if it is negatively affecting the user's lifestyle. "Recent data suggest that 30% of those who use marijuana may have some degree of marijuana use disorder" [15].

The estimated number of people addicted to marijuana varies, as many of the studies use the term "dependence" instead of addiction, and dependence and addiction are considered separate conditions. According to a drug treatment website called spiritmountainrecovery.com, "In 2015, about 4 million people in the United States met the diagnostic criteria for a marijuana use disorder, and 138,000 voluntarily sought treatment for their marijuana use" [15].

Another study stresses that “the debate over whether cannabis is physically or psychologically addictive is ongoing.” The National Institute of Drug Abuse also cites research indicating that one-third of those who use marijuana may become addicted. Users who start smoking marijuana before the age of 18 are 40 - 70% more apt to develop a marijuana use disorder [9].

Comparison

The similarities in addiction that results from the inhalation of tobacco or marijuana are questionable due to the language and definitions of “addiction” versus “dependence,” but overall, smoking either herb does appear to enforce the ongoing need for the individual to continue using. Thus, both are addictive.

Altered State of Mind

Tobacco and The Altered State of Mind

Social and physical environments, and the way mass media shows tobacco use as a normal, and even “hip” activity can promote smoking among young people. Kids and young adults are more apt to smoke tobacco if they see their peers and friends using tobacco, or when parental smoking is present. However, getting “buzzed” from tobacco is not the common description, and you won’t be pulled over by the authorities for smoking a cigarette while driving. There is also a “strong relationship between youth smoking and depression, anxiety, and stress” [16]. Other than that, there is no known “high” that you can get from tobacco use.

Marijuana and the Altered State of Mind

After recreational pot became legal in Colorado in 2014, the Colorado Department of Transportation launched a “Drive High, Get a DUI” campaign. Yes; there is such a thing as a marijuana-related DUI [17].

The brain is directly affected by marijuana use; it affects learning, emotions, reaction time and other mental aspects. According to epilepsy.com, “evidence from laboratory studies, anecdotal reports, and small clinical studies... suggest that cannabidiol, a non-psychoactive compound of cannabis, could potentially be helpful in controlling seizures”. However, whether it’s for medical reasons or recreational use, smoking marijuana can result in both immediate and long-term effects, including modified perception and an increased heart rate [18,19].

Heavy users of marijuana can experience – among other things – paranoia. Marijuana also affects brain development in youth. Teenagers who start using the drug may experience a reduced attention span, and decreased memory and learning functions; smoking marijuana can also affect how the brain builds connections for these particular functions [19].

The level of social and medical impact depends on many factors, including the amount (and potency) of the ingredient in marijuana called tetrahydrocannabinol (THC), as well as the frequency of use, the age that a person first used it, and whether the individual used other substances such as tobacco or alcohol at the same time [19].

With the legalization of marijuana, there is concern that once it becomes readily available, the same issues that arose with the use of alcohol (and on other levels, tobacco) will arise with marijuana use. “Alcohol is the third leading preventable cause of death in the United States.” The first is tobacco, and the second is poor diet and physical inactivity [19,20]. On last review, roughly 88,000 people (approximately 62,000 men and 26,000 women) die from alcohol-related causes each year [21]. What is to stop another legally-obtained, but still addictive substance from becoming another increased cause of death?

Comparison

Tobacco does not cause a notable altered state of mind, and the argument can be made for its legal recreational use. Ironically, its invasiveness as it relates to others who may be near the actual smoker, is what has law makers limiting where smokers can use this herb.

Marijuana causes a notable altered state of mind, including a sensation of being “high” and having a slow reaction time, among other things. Its potential invasiveness as it relates to others who may be near the actual smoker does not seem to be an issue that is currently being addressed when it comes to legalizing this herb; even though, when smoked, it could be just as invasive as tobacco smoke, and some may say provide a “contact high”.

Conclusion

In conclusion, tobacco and alcohol are legal throughout the country. These are two of the top health issues in the United States. If the United States legalizes smokable marijuana, then it will most likely join the list of the leading causes of death and injury due to lung problems and addiction. We can also expect to see increased legal issues related to “buzzed driving” and other possible side effects like paranoia. Additionally, the increased legal use of marijuana may very likely impact the healthcare industry by increasing the number of patients visiting emergency rooms and trauma centers. Insurance, treatment, and rehabilitation costs will also need to be considered, as well as long-term care for chronic lung-related issues. We may learn of additional positive and negative side effects for the use of marijuana, as more studies involving the legal use of marijuana are legitimized and confirmed. However, in general, smoking marijuana is not the ideal form of use for this herb. To reiterate: Inhaling any noxious fume is simply not healthy.

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