



MARIJUANA IN THE DISTRICT OF COLUMBIA

Government of the District of Columbia
Department of Health
Center for Policy, Planning and Evaluation
Behavioral Risk Factor Surveillance System

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Executive Summary

In recent years, marijuana related policies have gone through many transformations throughout the United States, with the District of Columbia being no exception. This report provides insight through current research and data that outlines the disadvantage, benefits and societal ramifications that accompany decriminalization and legalization of marijuana in the District of Columbia. Factors that have been analyzed include short-term and long-term health consequences, public safety issues like driving while under the influence of the substance, marijuana's co-use relationship with other drugs, and effects on fetal, infant, and adolescent development.

Highlights

- 53.8% of adults in the District have ever tried marijuana and 17.8% currently use it.¹
- Marijuana was the second most commonly detected drug in traffic accidents that resulted in fatalities, District of Columbia in 2012.²
- Medical marijuana has demonstrated promising results for various ailments, including neuropathic pain, nausea due to chemotherapy, and muscle spasms.³
- Short term marijuana-related effects can include cyclic vomiting, disorientation, impaired body movement, increased heart rate, and difficulty thinking or problem-solving.⁴
- There is some evidence that marijuana use may increase cancer risk.⁵
- Among individuals at risk for mental illness, marijuana use may worsen symptoms.⁶
- 8.9% of marijuana users will transition from casual use to dependence.⁷
- Cigarette use and binge drinking are significantly higher among marijuana users than non-users.¹
- Marijuana use among expecting mothers has demonstrated various adverse effects, including low birth weight and pre-term delivery.⁹
- Marijuana use has been associated with a decline in IQ when regularly used among individuals under the age of 18.¹⁰
- Throughout the U.S., marijuana possession arrests tend to occur significantly more among African Americans than any other race/ ethnicity despite rates of use are fairly similar across all categories.¹¹

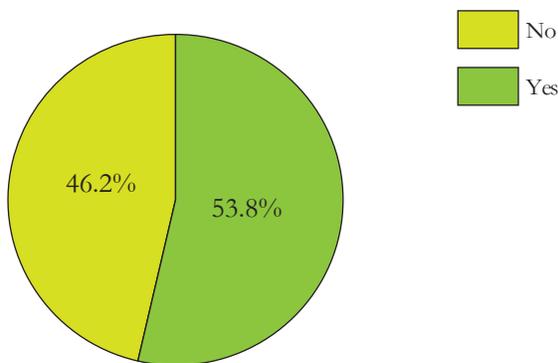
Introduction

Ganja, pot, weed, grass, and hash are just a few of the nicknames given to the plant *Cannabis sativa*, most commonly known as marijuana. An estimated 48% of the adult population in the United States has tried the drug in their lifetime, making it one of the most widely used illegal substances. Additionally, 12% of the general public has done so within the past year.¹¹ The District of Columbia shares similar statistics, with 53.8% of adults claiming they have tried marijuana and 17.8% stating they currently use the substance (Figures 1 and 2).¹² A poll done by the Pew Research Center also found that 53% of American adults are in favor of legalization, and 77% believe that marijuana has legitimate medical purposes.¹¹

Nationally among youth, 56% have tried marijuana with 27% saying they have done so in the past year.¹³ According to the Youth Risk Behavior Surveillance System (YRBSS), an estimated 32.3% of high school students in the District have smoked marijuana at least once in the past 30 days and 17.5% first tried marijuana before the age of 13.¹⁴ Furthermore, in 2012 marijuana was the most used substance among high school students.¹⁴

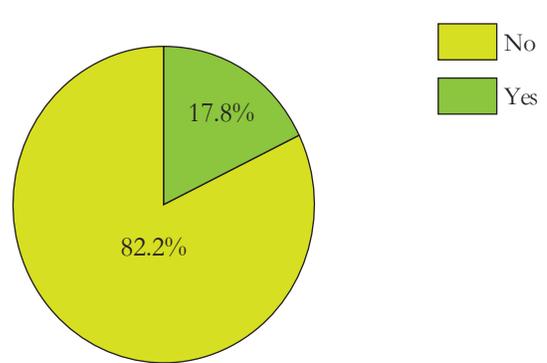
Although generally thought of as a harmless way to reach intoxication, marijuana abuse can have significant consequences. This report aims to examine such effects and the repercussions of the continuously changing policies surrounding the substance.

Figure 1. District Adults who have Used Marijuana at least Once in Their Lifetime, DC BRFSS 2013



Source: DC BRFSS survey, 2013

Figure 2. Marijuana Current Use DC BRFSS 2013



Source: DC BRFSS survey, 2013

Methodology

Behavioral Risk Factor Surveillance System (BRFSS):

Data collected from the BRFSS from 2011-2013 were analyzed using IBM SPSS Statistics 20. Complex samples were utilized in order to calculate frequency tables, cross tabulations, and Pearson chi-square analyses to test for statistical significance (p-value 0.5). The variables used in this report include:

- Marijuana use
- Sex
- Race/ethnicity
- Age
- Education
- Income
- Ward
- Cancer
- Depression
- Coronary heart disease/angina
- Cigarette use
- Binge drinking

Youth Risk Behavior Surveillance System (YRBSS):

Data regarding marijuana use among students were obtained from the 2012 District of Columbia YRBSS Report, and the 2013 Youth Online: High School YRBSS District of Columbia Results. The topics used in this report include information regarding marijuana and synthetic marijuana frequency of use, age of initiation, and perceived risks. The 2012 YRBSS Report also included data on academic grades and marijuana use.

Limitations of the Data:

The information provided by the BRFSS and YRBSS could have potential limitations, as both surveys are self-reported, which can lead to biases.

District of Columbia Office of the Chief Medical Examiner (OCME):

Data were obtained from the “2013 Annual Report, Office of Chief Medical Examiner” regarding drugs detected in traffic accidents.

Crime Data:

Arrest data were provided by the Metropolitan Police Department (MPD).

Substance Abuse Data:

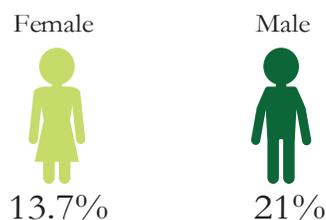
Data regarding individuals enrolled in treatment services for marijuana were provided by the Addiction Prevention and Recovery Administration (ARPA) of the District of Columbia Department of Behavioral Health. Data reported in this report is not inclusive of everyone in the District of Columbia receiving treatment.

Demographics

In general, men were more likely to use marijuana than women (Figure 3). African Americans have shown higher rates of use than other races/ethnicities (Figure 4). Adults aged 18-24 years old were more likely to use marijuana but the trend declines as age increases (Figure 5). Individuals who did not graduate high school, respondents who had a household income between \$15,000- \$24,999 and respondents who resided in Wards 7 and 5 respectively, were more likely to use marijuana, (Figures 6, 7 and 8).

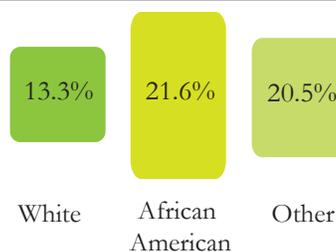
In the District, it has been 10 years or more (Figure 9) since the majority of respondents last used marijuana; however, over the years rates of use have fluctuated, peaking in 2012 at 20.9% of current use of the substance (Figure 10). Marijuana use rates increased among both men and women from 2011-2013; however, in 2013, use among women decreased while men remained the same (Figure 11). From 2011-2013, marijuana use has increased among all races/ethnicities (Figure 12). Although use among adults aged 18-34 years old has fluctuated over the years, all other age groups have seen an increase from 2011-2013 (Figure 13).

Figure 3. Current Marijuana Users by Gender, 2011-2013 Summed



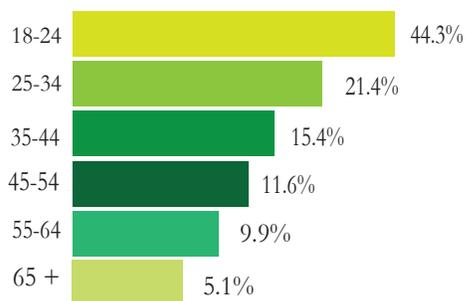
Source: DC BRFSS survey, (summed 2011-2013)

Figure 4. Current Marijuana Users by Race/Ethnicity, 2011-2013 Summed



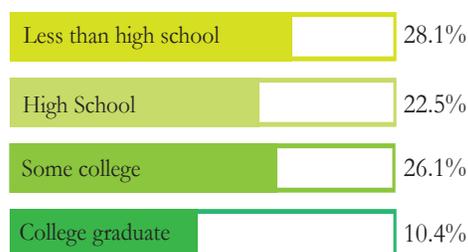
Source: DC BRFSS survey, (summed 2011-2013)

Figure 5. Current Marijuana Users by Age, 2011-2013 Summed



Source: DC BRFSS survey, (summed 2011-2013)

Figure 6. District Current Marijuana Users by Education. 2011-2013 Summed



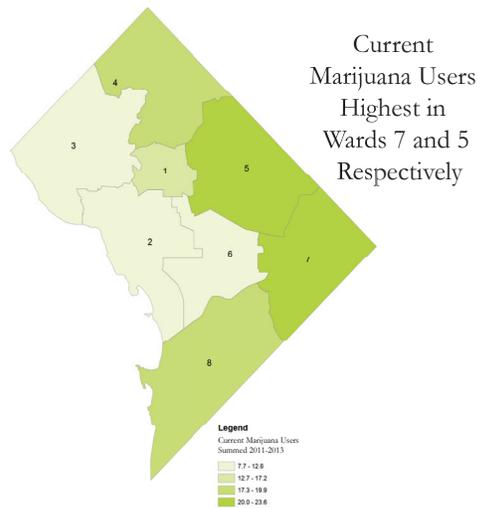
Source: DC BRFSS survey, (summed 2011-2013)

Figure 7. Current Marijuana Users by Income, 2011-2013



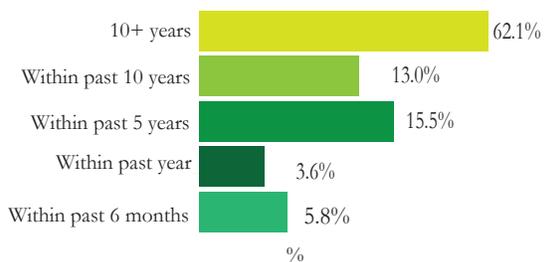
Source: DC BRFSS survey, (summed 2011-2013)

Figure 8. Current Marijuana Users by Ward, 2011-2013 Summed



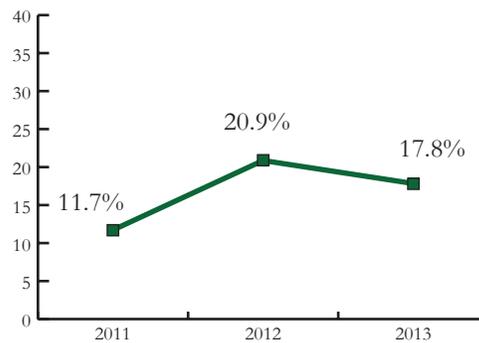
Source: DC BRFSS survey, (summed 2011-2013)

Figure 9. District Adults Time Since Last Marijuana Use, (Summed 2011-2013)



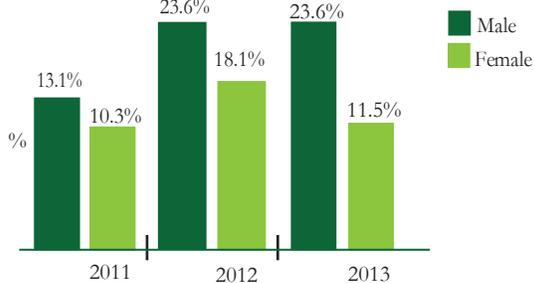
Source: DC BRFSS survey, 2011-2013, Summed results

Figure 10. District Adults Marijuana Use Trends DC BRFSS, 2011-2013



Source: DC BRFSS survey, 2011-2013

Figure 11. District Adults Marijuana Use Trends by Gender, DC BRFSS 2011-2013



Source: DC BRFSS survey, 2011-2013

Figure 13. District Adults Marijuana Use Trends by Age, DC BRFSS 2011-2013



Source: District of Columbia BRFSS survey, 2011-2013

Figure 12. District Adults Marijuana Use Trends by Race/Ethnicity, DC BRFSS 2011-2013



Source: DC BRFSS survey, 2011-2013

Decriminalization and Legalization

Within the past decade, nationwide policies on marijuana have gone through many transformations. In the District of Columbia, possession of less than one ounce of the substance was decriminalized from up to a year in prison to a civil fine of \$25 through the “Simple Possession of Small Quantities of Marijuana Decriminalization Amendment Act.” This act was signed into law by former Mayor Vincent C. Gray in July of 2014. Since this change, the average number of marijuana arrests went from 15 to just over one a day.¹⁴

On February 26, 2015 the District made significant changes to its policy on marijuana. Due to a voter approved initiative titled “the Legalization of Possession of Minimal Amounts of Marijuana for Personal Use Initiative,” also known as Initiative 71, the recreational use of the drug was legalized. The current law now states that individuals over the age of 21 may:

- “Possess two ounces or less of marijuana;
- Transfer one ounce or less of marijuana to another person who is at least 21 years old, as long as there is no payment made or any other type of exchange of goods or services;
- Cultivate within their residence up to six marijuana plants, no more than three of which are mature;
- Possess marijuana-related drug paraphernalia – such as bongs, cigarette rolling papers, and cigar wrappers – that is associated with one ounce or less of marijuana; or
- Use marijuana on private property.”¹⁵

The law also sets limitations for marijuana use. It is still illegal for individuals under the age of 21 to use or possess marijuana. It is also illegal to operate a car or boat under the influence of the drug.

Unlike many of these states, D.C. operates on a “home grown, home use” policy as opposed to creating state-owned marijuana dispensaries. Despite the District’s policy, marijuana is still illegal federally. This means that regardless of one’s age, they could be arrested for possession on federal land, which makes up 18.6%* of the District.¹⁶ Marijuana was classified as a schedule one drug in 1970, along with heroin and LSD. This category is defined as “drugs with no current accepted medical use and a high potential for abuse.”¹⁷

*Federal land includes roads/streets

Driving Under the Influence of Marijuana

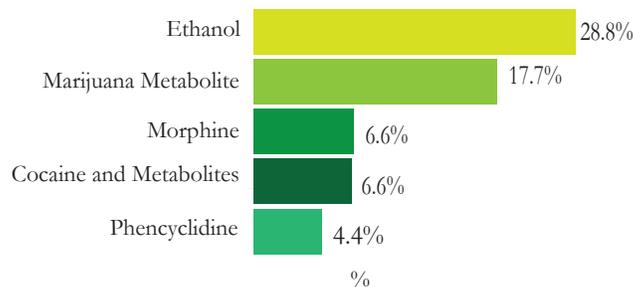
The legalization of marijuana inherently creates a public safety issue for drivers. Marijuana intoxication can lead to impaired cognition and thus negatively affect one’s mental capacity to operate a car.¹⁸ Although the law in the District of Columbia states that it is illegal to operate a car or boat under the influence of marijuana, it fails to disclose what amount is considered acceptable similar to laws related to alcohol legal limits.¹⁹ Unlike alcohol, which can easily be measured through blood alcohol content (BAC), there is no equivalent test for marijuana. Testing one for tetrahydrocannabinol (THC), the psychoactive ingredient in marijuana, involves drawing blood or measuring urine samples, neither of which are standard roadside procedures. Compared to a breathalyzer test, checking for marijuana is more costly and may require a licensed phlebotomist.²⁰

The level of impairment in relation to marijuana use is unclear. Although states like Colorado have tried to put a number on the legal driving limit at 5 nanograms of active THC per milliliter of blood, it is unclear if this value is a true and acceptable threshold for intoxication. While some may be impaired to drive at 5 nanograms, frequent marijuana users and medical patients may exhibit a high tolerance and remain functional.²¹ Some experimental studies have even suggested that using marijuana while driving is not as dangerous as driving under the influence of alcohol because marijuana users tend to “overestimate their impairment, and consequently employ compensatory strategies.”²²

Additionally, whether or not the legalization of marijuana leads to increased traffic accidents and motor vehicle fatalities remains to be determined. One study published by the British Medical Journal found that, “acute cannabis consumption is associated with an increased risk of a motor vehicle crash, especially for fatal collisions.”²³ However, in Colorado the results were more complex. Although traffic fatalities involving marijuana increased by 100% from 2007-2012, the overall number of traffic fatalities decreased by 14.8%.²⁴ In fact, some research has found that the first year after legalization is associated with an 8%-11% decrease in traffic fatalities.²⁵

In the District of Columbia, roughly 17.7% of traffic fatalities involving drugs were positive for marijuana metabolites in 2013, making it the second most commonly found substance behind alcohol (Figure 14).²⁶ However, it is worth noting that these metabolites can stay in an individual’s blood or urine for “several days and sometimes weeks for heavy marijuana users.”²⁷ Therefore, the driver may not have been intoxicated at the time of the accident.

Figure 14. Most Commonly Detected Drugs in Traffic Fatalities*
District of Columbia, Chief Medical Examiners Report, 2013



*Investigated by the OCME and toxicology analysis were performed
Source: District of Columbia Chief Medical Examiners Annual Report, 2013

Medical Marijuana

Despite some of the risks associated with legalization of marijuana, it is important to remember that the substance does have legitimate medical uses. Currently, the District of Columbia and 23 other states have legalized the substance for medical purposes.²⁸ In 1999, independent scientists from the Institute of Medicine reported that marijuana:

- Was effective in controlling some forms of pain
- Alleviating nausea and vomiting due to chemotherapy
- Treating wasting due to AIDS, and
- Combating muscle spasms associated with multiple sclerosis²⁹

There has also been research that suggests marijuana may be helpful for individuals suffering from Alzheimer's, arthritis, asthma, Crohn's disease, epilepsy, and glaucoma.³⁰ In addition, a strain of marijuana low in THC has shown promising results for managing seizures in children.³¹

Medical marijuana has been shown to be particularly useful in terms of neuropathic pain management.³² In states that have legalized the substance for medical purposes, they have witnessed significant decreases (95% CI, -37.5% to -9.5%; $P = .003$) in deaths from overdoses on prescription opioid pain medication.³³ Studies show that marijuana is a good alternative for prescription pain drugs as it has a relatively low risk for addiction and it is nearly impossible for an individual to overdose.³⁴ Unlike marijuana, those who become addicted to prescription opiates are more likely to progress to using heroin because it is cheaper, easier to access, and both drugs cause an opiate high.³⁵

Historically, studies that have been done on marijuana have focused on the health risks rather than the benefits. Presently, researchers struggle with getting approval to study medical marijuana. On July 8, 2015 a Congressional bill that would have "reclassified marijuana so that national laboratories could conduct credible scientific research on its safety and efficacy as a medical treatment," died on the House floor.³⁶

In 2010, the District introduced the Legalization of Marijuana for Medical Treatment Amendment Act.³⁷ As of July 13, 2015 there were 3,844 patients enrolled in the program.³⁸ In order to qualify, the patient must be living with "any condition for which treatment with medical marijuana would be beneficial as determined by the patient's physician."³⁹ The patient also must be a resident of the District of Columbia and complete an application provided by the Department of Health to submit along with their physician's recommendation.⁴⁰

Once a patient receives approval for their application, they chose a dispensary to receive their dosage. Regardless of the current legalized status of the substance, these dispensaries are only for the use of patients, who are also limited in the amount they can purchase.⁴¹

Marijuana and Heart Disease

Marijuana use can cause immediate health consequences. Though it is highly unlikely to overdose on the substance, large amounts can cause severe side effects that can send individuals to the emergency room.⁴² Some effects can include cyclic vomiting, disorientation, impaired body movement, increased heart rate, difficulty thinking or problem-solving, and intoxication.⁴³ Some reports have also linked marijuana use with atrial fibrillation, an abnormal heart rhythm.⁴⁴ Symptoms of atrial fibrillation include dizziness, shortness of breath, and angina pectoris.⁴⁵ In the District, there was no significant difference between marijuana users and non-users in relation to coronary heart disease or angina (Figure 15).¹

However, marijuana can pose immediate risks for children. For example, if a child accidentally consumes marijuana laced edibles they may experience extreme sedation or agitation and require intensive care unit services.⁴⁶

Figure 15. District Adults Marijuana Use by Diagnosed Heart Disease, 2011-2013 Summed



Marijuana User

Non-Marijuana User



2.7%



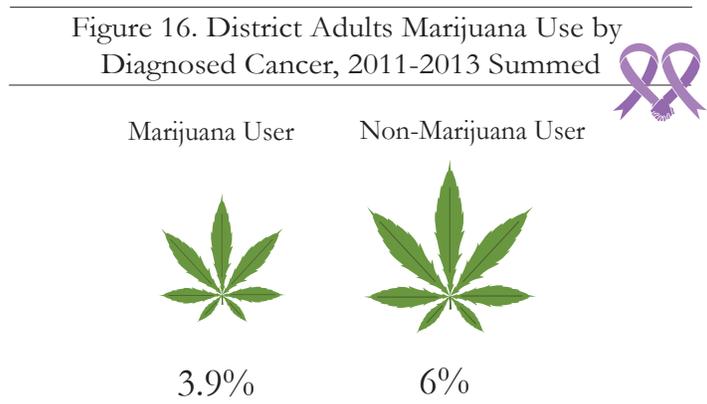
3%

District of Columbia BRFSS survey 2011-2013 summed results

Marijuana and Cancer

One of the most contested issues when it comes to marijuana use is whether or not it is linked to an increased risk in cancer. One study published in the Journal of Cancer Epidemiology, Biomarkers, and Prevention found that extended marijuana use was linked with an increased risk of squamous cell carcinoma of the head and neck. The study found that the association followed a dose-response relationship. The researchers theorized that this may be because marijuana interacts with mutagen sensitivity. However, the study also cautioned that their results could have been confounded by other factors like cigarette smoking.⁴⁷

Various studies have yielded mixed results on the relationship between smoking marijuana and lung cancer. One study published in the European Respiratory Journal found that “the risk of lung cancer increased 8% for each joint-year of cannabis smoking, after adjustment for confounding variables including cigarette smoking.”⁴⁸ However, a similar study done through the Department of Epidemiology at the University of Michigan found that the association between marijuana and lung and upper aerodigestive tract cancers may be too small and below detectable limits.⁴⁹ In the District of Columbia, there was no association between marijuana users and non-users diagnosed with cancer (Figure 16).¹ However, the data results do not specify type of cancer, which could be a confounding factor and hence, impacting statistical significance.



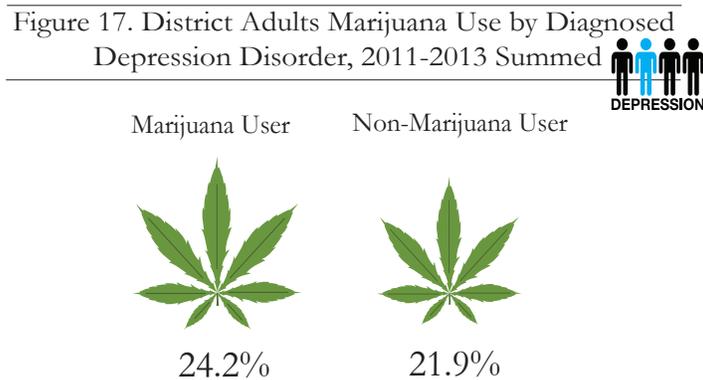
DC BRFSS survey 2011-2013 summed results

Marijuana and Mental Health

Another concern associated with marijuana is its effects on mental health. Although marijuana has not been proven to cause mental illness for individuals who already have or may be likely to develop conditions like depression or panic anxiety disorders, using the substance can exacerbate their symptoms and can lead to depressed mood, shortness of breath, anxiety, heart palpitations, and paranoia.⁵⁰

Marijuana may also worsen psychotic symptoms among individuals with schizophrenia, including hallucinations, paranoia, and disorganized thinking.^{51 52} Furthermore, individuals at risk of developing schizophrenia who regularly use marijuana are “diagnosed with schizophrenia at a younger age, hospitalized more frequently for their illness and are less likely to experience complete recovery even with high quality treatment.”⁵³

Conversely, there is research that does not link marijuana use to mental illness. A study done by the University of Pittsburgh Medical Center, which followed its participants from early adolescence and mid-20s up until mid-30s, found that there was no correlation with marijuana use and the diagnosis of anxiety disorders, mood disorders, or psychotic disorders.⁵⁴ In the District, among individuals who use marijuana, there was no association between those diagnosed with a depressive disorder and those not (Figure 17).¹

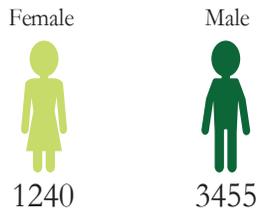


Dependence and Addiction

Although marijuana is generally less addictive than opiate prescription drugs, it is possible for individuals to become addicted. On average, 8.9% of marijuana users will transition from casual use to dependence. In comparison to other drugs, addiction occurs for roughly 67.5% of nicotine users, 22.7% of alcohol users, and 20.9% of cocaine users.⁵⁵ Although the statistics on marijuana may appear low, the risk of addiction increases with earlier onset of use. Among individuals who began using the substance as teenagers, their risk of dependence is about 17%.⁵⁶ While rates of use have remained relatively stable, marijuana use disorders increased by 18% from 1992 to 2002. This trend was most notable among young African American men and women and young Hispanic men.⁵⁷ Individuals with marijuana dependencies may also experience various symptoms of withdrawal, including anxiety, decreased appetite, depression, irritability, difficulty sleeping, and stomach pain.⁵⁸

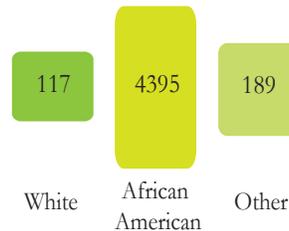
In the District of Columbia, from 2011 through the third quarter of the fiscal year 2015 there were 4,701 individuals enrolled in treatment services for primary and secondary marijuana use. The majority of these individuals were male (Figure 18) and African American (Figure 19), and between 26 and 64 years old (Figure 20). Ward 8 also experienced the highest proportion of individuals in treatment (Figure 21).⁵⁹

Figure 18. Number of Individuals Enrolled in Treatment Services for Primary and Secondary Marijuana Use by gender 2011-Quarter 3 of Fiscal Year 2015, District of Columbia



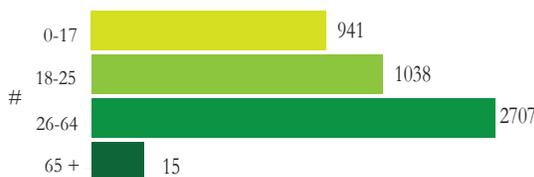
Note: 6 Unknown
Source: District of Columbia Addiction, Prevention and Recovery Administration
Department of Behavioral Health

Figure 19. Number of Individuals Enrolled in Treatment for Primary and Secondary Marijuana Use by Race/Ethnicity, 2011-Quarter 3 of Fiscal Year 2015, District of Columbia



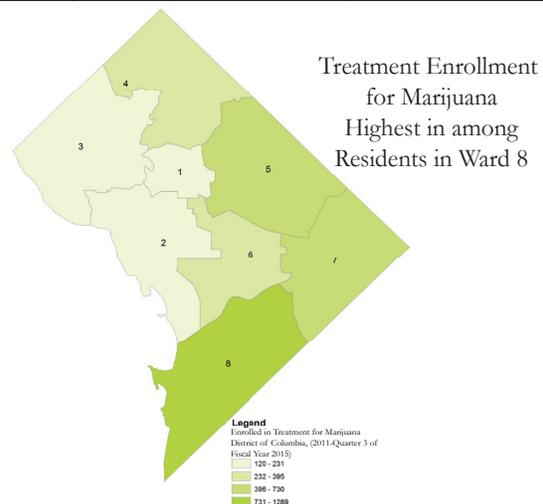
Source: District of Columbia Addiction, Prevention and Recovery Administration
Department of Behavioral Health

Figure 20. Number of Individuals Enrolled in Treatment for Primary and Secondary Marijuana Use by Age, 2011-Quarter 3 of Fiscal Year 2015, District of Columbia



Source: District of Columbia Addiction, Prevention and Recovery Administration
Department of Behavioral Health

Figure 21. Number of Individuals Enrolled in Treatment Services for Primary and Secondary Marijuana Use by Ward, 2011-Quarter 3 of Fiscal Year 2015, District of Columbia



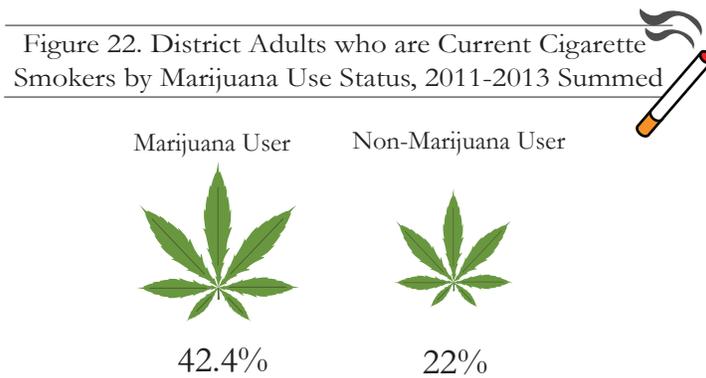
Source: District of Columbia Addiction, Prevention and Recovery Administration
Department of Behavioral Health

Marijuana and Other Drugs

The relationship between marijuana and other drugs has long been debated. Many have hypothesized that for young people marijuana may act as a “gateway drug” eventually leading to other substances, such as heroin, cocaine, and methamphetamines. Recent studies however, pointed out that nearly all-hard drug abusers tried marijuana first; there are alternative hypotheses that seek to explain the correlation.⁶⁰ Some of the factors that may be more likely to influence youth include poverty, poor social environment, association with people who use drugs, and certain mental illnesses.⁶¹ Furthermore, the majority of people who use marijuana do not go on to use or abuse other illicit drugs.⁶³ However, the National Institute on Drug Abuse states that “further research is needed to explore this question.”⁶²

Nevertheless, methamphetamines and cocaine are not the only drugs to be concerned with regard to their relationship to marijuana. Studies have also tried to analyze the substance’s correlation with tobacco and alcohol. More specifically, researchers have been trying to determine whether marijuana acts as a substitute or a compliment for these drugs. In other words, this debate questions whether the legalization of marijuana will lead people to smoke marijuana instead of cigarettes, or smoke both at a greater rate. The same scenario can be applied to alcohol.⁶³

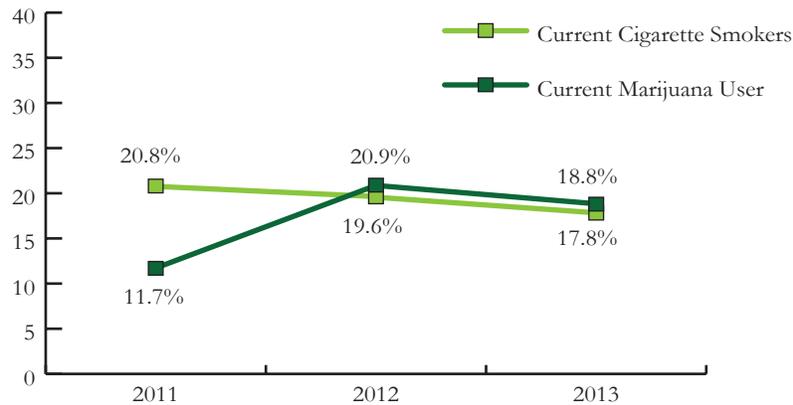
In terms of tobacco use, the general consensus of the research is that it acts as a compliment to marijuana; the two substances tend to be used together. One reason, those who are current marijuana users had less success in quitting cigarette smoking than non-cigarette smoker because nicotine may enhance marijuana high.⁶⁴ According to the DC BRFSS, marijuana users have a cigarette-smoking rate nearly double that of their non-users (Figure 22). Marijuana users were more likely to be cigarette smokers at 42.4% compared to non-users at 22%, is statistically significant ($p < 0.01$).¹ These data finding pinpoints potential health burden among tobacco and marijuana users.



District of Columbia BRFSS survey 2011-2013 summed results

Cigarette and marijuana use trends from 2011-2013 show cigarette use has seen a steady decline over the years but marijuana use has increased in 2012 and has since gradually subsided (Figure 13).¹ Sharp differences in marijuana use could be tied to admitting use of an illegal substance. Also, as the substance becomes socially acceptable more individuals may be forthcoming with divulging frequency of use.

Figure 23. Marijuana Use Compared to Cigarette Use
DC BRFSS, 2011-2013

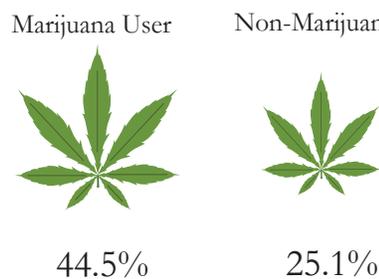


Source: District of Columbia BRFSS survey, 2011-2013

Furthermore, smoking marijuana is associated with many of the same health complications as cigarette smoking. For example, extended marijuana use can cause significant airway inflammation, chronic bronchitis, and worsen asthma.^{65, 66} Smoking marijuana deposits roughly four times the amount of tar in the lungs compared to cigarettes; many of the chemicals, which have been linked to lung cancer.⁶⁷ Conversely, the relationship between marijuana and alcohol is less conclusive. While some evidence suggests that individuals may replace alcohol with marijuana,⁶⁸ alternate studies have shown that individuals tend to use the two substances together.⁶⁹

The data collected in the DC BRFSS support the idea that the two compliment one another. Like with tobacco, marijuana users tend to binge drink at a rate nearly twice as much as non-users (Figure 24). Marijuana users were more likely to binge drink at 44.5% compared to non-users at 25.1%, statistically significant ($p < 0.01$).¹ These findings have public health ramification, as long-term heavy alcohol use has been linked to liver disease and serious brain disorders.⁷⁰

Figure 24. District Adults Marijuana Use by Binge Drinker, 2011-2013 Summed



District of Columbia BRFSS survey 2011-2013 summed

Effects of Marijuana on Fetal and Infant Development

Marijuana can have deleterious effects when used during pregnancy, with some studies showing impact on birth weight, gestation, behavior and cognition. Literature has suggested an association between marijuana use and an increased risk of low birth weight, small for gestational age, preterm labor and thus, admission into the neonatal intensive care unit. (Hayatbakhsh, 2012).⁷² Even more alarming, a study done through the Boston University School of Medicine and Public Health found that “women who used marijuana during pregnancy were five times more likely to deliver infants with features comparable to fetal alcohol syndrome” compared to non-users, even when confounding variables were controlled.⁷³

Furthermore, exposure to the infants can continue if the mother breast-feeds while using marijuana. One study published in the *Journal of Neurotoxicology and Teratology* found that newborns given marijuana-exposed breast milk in the first month of life were associated with decreased infant motor development for up to one year.⁷⁴ Long-term effects of marijuana impact behavior and school performance. Associations include inattention, impulsivity, deficits in problem-solving skills and academic under achievement.

Unfortunately, the risk of use during pregnancy and how it can affect fetal and infant development has not been clearly articulated. One area of research that is developing is studying how marijuana use impacts maternal health behavior, such as nutritional intake, and how that can impact the developing fetus.

Effects of Marijuana on Adolescents

In recent years, marijuana's reputation as being a natural or organic way to receive a high has led many to believe it poses little threat to their health. In fact, among 12th graders in the District of Columbia, only 11% thought that their health would be compromised if used marijuana once a month.¹³

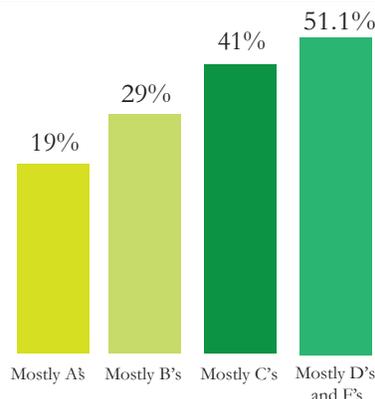
Early exposure and use of marijuana has increased over the years. Results from the DC YRBSS found that among District middle school students who tried marijuana, the average age of first use was 10.9 years old. Marijuana was more popular among high school and middle school students than tobacco products. In 2012, marijuana was the most used substance among high school students in the District. Between 2007 and 2012, there was an 11% increase in marijuana use among high school students, showing a growing trend.¹³

With such widespread use, many parents and teachers are concerned with the potential effects it may have on adolescents, especially in terms of academic performance. A 25-year study supported by the National Institute on Drug Abuse and Addiction found that teenagers who started weekly cannabis use before the age of 18 years lost on average 8 IQ points. Meanwhile, individuals with similar marijuana habits who started using the substance as an adult did not experience a decline in IQ.⁷⁵

Furthermore, one study done through the Department of Psychology at Carleton University found that "current marijuana use had a negative effect on global IQ scores only in subjects who smoked marijuana 5 or more times per week. A negative effect was not observed among subjects who were previous heavy users but were no longer using the substance."⁷⁶ Another study published in the *Journal of Abnormal Child Psychology* in 2015 found that problems related to attention and academics diminished for most adolescents after abstaining from marijuana use for one year.⁷⁷ This suggests that the impact of marijuana use on IQ has a temporary effect.

In the District of Columbia, 51% of students receiving mostly grades of Ds and Fs used marijuana in the past 30 days. Conversely, students receiving mostly grades of As were 19% (Figure 26).¹³ However, when looking at this trend it is important to keep in mind that while there is a major contrast between these two groups, this does not imply that the difference is caused by marijuana. In fact, some studies have found that having poor grades is foretelling of marijuana use, and not the other way around.⁷⁸

Figure 26. District Youth Marijuana Use in the Past 30 Days by Academic Scores, 2012



Source: DC YRBSS survey, 2012
Office of the State and Superintendent (OSSE)

There is also research that suggests early marijuana use may have lasting interpersonal and societal consequences. A study done at Mount Sinai School of Medicine found that early marijuana use was associated with having lower educational and occupational expectations, being suspended or expelled from school, being fired from jobs, receiving welfare, and being an unmarried parent.⁷⁹ Other research, also done in collaboration with Mount Sinai School of Medicine, suggested that early marijuana use “may adversely affect one’s ability to successfully assume conventional adult roles.” This includes behaviors like postponement of marriage, having a child out of wedlock, and unemployment.⁸⁰

Another concern about marijuana use among adolescents is its association with risky sexual behaviors. Studies have shown that under the influence of marijuana, adolescents are more likely to engage in sex without first discussing the risks and without using a condom.⁸¹ These patterns apply to both boys and girls.⁸¹ The implications of these findings suggest risky behaviors like these can lead to the spread of sexually transmitted infections and a rise in unintended pregnancies but more importantly individuals consuming any type of drug that alters their mental perception are more likely to engage in risky sexual behavior (i.e., alcohol, heroin, crack/cocaine).

Since marijuana has been legalized in the District of Columbia, the city can expect to see an increase in use among adolescents despite the standard 21 years of age legal use. A study done through New York University Langone Medical Center found that 10% of non-marijuana using students would consider use if it were legalized. Interestingly, many of these students were considered a relatively low-risk for drug use.⁸² Limited scientific studies have major implications on adverse effects and benefits of marijuana.

Racial Discrimination in Marijuana Arrests

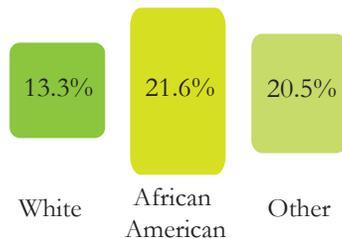
A central factor in the push to decriminalize and legalize marijuana has come from anti-discrimination advocates who point out that in practice, laws against marijuana possession lead to higher arrest and incarceration rates of African Americans, despite the fact that marijuana use is relatively similar across all racial/ethnic categories. Unfortunately, these types of arrest negatively impact the African American communities in the long-term as arrest records are more likely to affect housing options, job opportunities, and scholarships.⁸³

In fact, the American Civil Liberties Union (ACLU) report found that African Americans were 3.73 times more likely to be arrested for marijuana possession than Whites.⁸³ Also, a study in New York City found that African Americans accounted for 52% of the marijuana possession arrests, twice the African American population. Whites, who were about 35% of the population, represented only 15% of those charged.⁸⁴

The District of Columbia is not exempt from statistics like these. In 2010, 90.2% of marijuana possession arrests were among African Americans compared to all other races/ethnicities (Figure 27).⁸⁵ In 2013, marijuana use was higher among African Americans than Whites (Figure 28);¹ however, the differences were not large enough to account for the huge disparity in marijuana related arrests. In fact, a report done by the ACLU found that “the District has a higher per capita arrest rate, greater racial disparity in marijuana possession arrests, and spends more money in marijuana enforcement than almost any other state or county in the country.” In 2010, the District’s marijuana arrest rate was the highest in the country.⁸⁶

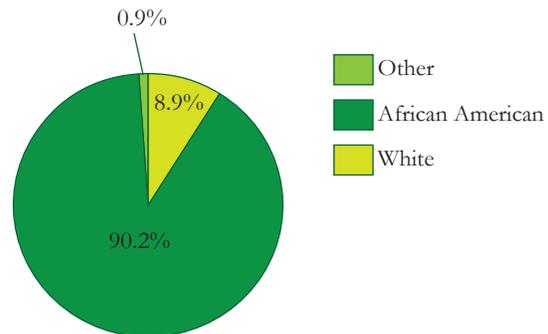
In order to solve this problem, the ACLU recommended getting rid of criminal penalties for low-level possession and use of marijuana. The District of Columbia started working towards this goal, starting with decriminalization in 2014; however, marijuana possession arrests began declining prior to 2014 and before any major policy change. In 2012, MPD reported 3,085 possession arrests compared 2,557 in 2013 and is still declining (Figure 29). Although there has been a decline overall, African Americans still account for the highest percentages of arrest for marijuana compared to all other racial/ethnic groups (Figure 30).⁸⁷

Figure 27. District Adults Current Marijuana Users by Race/Ethnicity, 2011-2013 Summed



Source: DC BRFSS survey (Summed 2011-2013)

Figure 28. Marijuana Possession Arrest by Race in the District (2010)



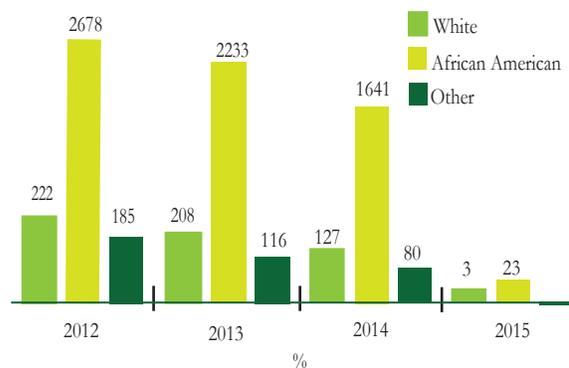
Source: District of Columbia Metropolitan Police Department (MPD)

Figure 29. Number of Marijuana Possession Arrests in the District (2012-2015)



Source: District of Columbia Metropolitan Police Department (MPD) analyzed by the District of Columbia Department of Health, Center for Policy, Planning and Evaluation Behavioral Risk Factor Surveillance System (BRFSS)

Figure 30. Marijuana Possession Arrest by Race/Ethnicity, DC MPD Data, 2012 through July 26, 2015



Source: District of Columbia Metropolitan Police Department (MPD) analyzed by the District of Columbia Department of Health, Center for Policy, Planning and Evaluation Behavioral Risk Factor Surveillance System (BRFSS)

Recommendations

Overall, marijuana use continues to be a timely and contentious issue. Like any major policy change, legalization comes with pros and cons. While some of the benefits include curbing racial discrimination in drug arrests, providing easy access to those who marijuana for medical purposes, there are also several risks including abuse by adolescents and various health complications. In order to better ensure public safety, more research needs to be done regarding health effects. Additionally, health related information should be better distributed to the public, especially among expecting mothers, as many are unaware of the risks of using the substance. Currently, the District is at the forefront of cities in the nation on marijuana policy, and only time will tell if the District is on the right side of history in legalizing marijuana.

The Centers for Disease Control and Prevention has several objectives related to marijuana outlined in their Healthy People 2020 goals. Some of which include decreasing the proportion of young people who use marijuana and increasing the knowledge of health risk that may be associated with the substance among adolescents. Although the District of Columbia is unique to any other state, many lessons can be learned from how other states have chosen to regulate marijuana in conjunction with current but limited studies of the substance.⁸⁸ Based on current findings it is recommended that the District develop and implement strategies to:

1. Impose state taxes on production, distribution, and sales along with a licensed market participation, age restriction, and prohibitions on advertising and marketing to minors.
2. Use current regulatory models for tobacco and alcohol to base legislation to enact effective marijuana controls under District of Columbia laws.
3. Strengthen treatment programs and educate residents about health consequences associated with marijuana use
4. Provide individuals suffering from addiction with resources for recovery
5. Monitor cigarette and alcohol use among marijuana users and non-users
6. Provide expecting mothers with information regarding the risks of marijuana use during pregnancy and breast-feeding

*Some of the recommendations listed above may currently be in progress. However, it is important to re-emphasize effective strategies.

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