Summary of Marijuana Use in Montana

Background

What is Marijuana?

Marijuana, also called cannabis, refers to all parts of or products from the plant *Cannabis sativa* containing tetrahydrocannabinol (THC).[1] While the cannabis plant contains over 100 chemical compounds, THC is the main psychoactive ingredient that produces the high that users experience.[2] Marijuana can be ingested via smoking, vaping, and eating or drinking products infused with marijuana. Each method of ingestion produces different effects in terms of length and potency of the high within the user. Other factors that impact the drug's effects include the THC content of the product, the individual's frequency of marijuana use, the use of other substances concurrently with marijuana, and the susceptibility of the user based on genetic factors.[3]

Marijuana is the most used federally illegal drug in the United States, with an estimated 18% of the population (49.6 million people) having used marijuana at least once in 2020. Over the past two decades, marijuana use has steadily increased among adults but remained relatively stable among adolescents.[4]

Marijuana is currently classified by the US Drug Enforcement Administration (DEA) as a Schedule I substance, meaning that the drug has no accepted medical use and a high potential for abuse.[5] Despite this classification by the DEA, the medical use of marijuana is legal with a doctor's recommendation in 37 states as of 2022. In addition to medical use, 21 states, including Montana, have legalized adult-use marijuana.[6]

Purpose

This report describes what is known about marijuana use in Montana, given the available data. Recent policy changes in the legalization of adult-use marijuana have brought more interest in the effects of marijuana on the health of Montanans. Identifying data limitations and gaps relevant to marijuana surveillance will guide future public health initiatives.

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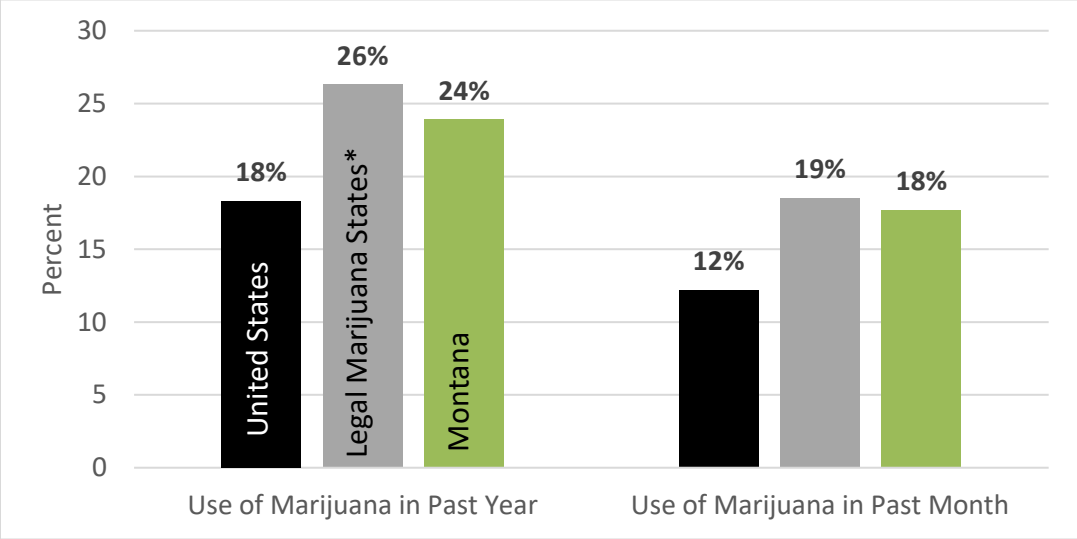
Marijuana Use in Montana

Prevalence

In 2019-2020, 24% of Montanans aged 18 years and older reported using marijuana in the past year and 18% used marijuana in the past month, compared to the United States prevalence of 18% and 12%, respectively (Figure 1).[7] Across the country, marijuana use was significantly higher in states that had legalized adult-use marijuana as opposed to states where all marijuana use was illegal or only medical marijuana was available.[8] In contrast to this trend, marijuana use among Montanans in 2019-2020 was more comparable to states with legal adult-use marijuana as opposed to the United States' average, despite the fact that adult-use marijuana did not become available for sale in Montana until 2022 (Figure 1). States that have legalized adult-use marijuana saw increases in use after legalization, especially among young adults, so it is expected that marijuana use may increase in Montana.[9]

Figure 1. Self-Reported Marijuana Use Among Adults Aged 18+, **United States**, States with Legal Adult-Use Marijuana*, and **Montana**, 2019-2020



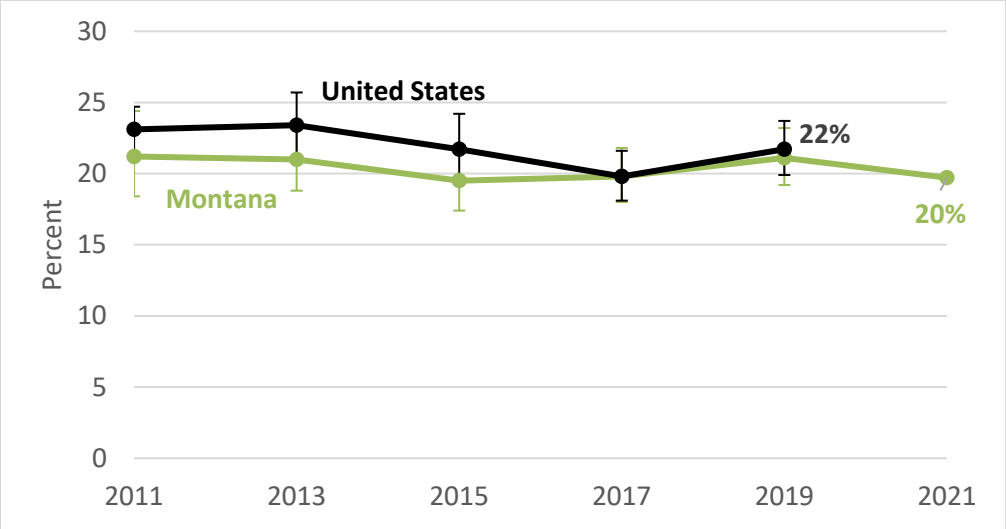
National Survey on Drug Use and Health, 2019-2020

*Legal adult-use marijuana states are states where marijuana could be purchased for non-medical purposes in 2019: Alaska, California, Colorado, Maine, Massachusetts, Michigan, Nevada, Oregon, Vermont, Washington, and Washington DC.

Youth Use

In 2021, 37% of Montana high school students reported ever using marijuana (data not shown) and 20% reported currently using marijuana (Figure 2). Marijuana use among Montana high school students has remained relatively stable across the past ten years and is comparable to national trends.[10]

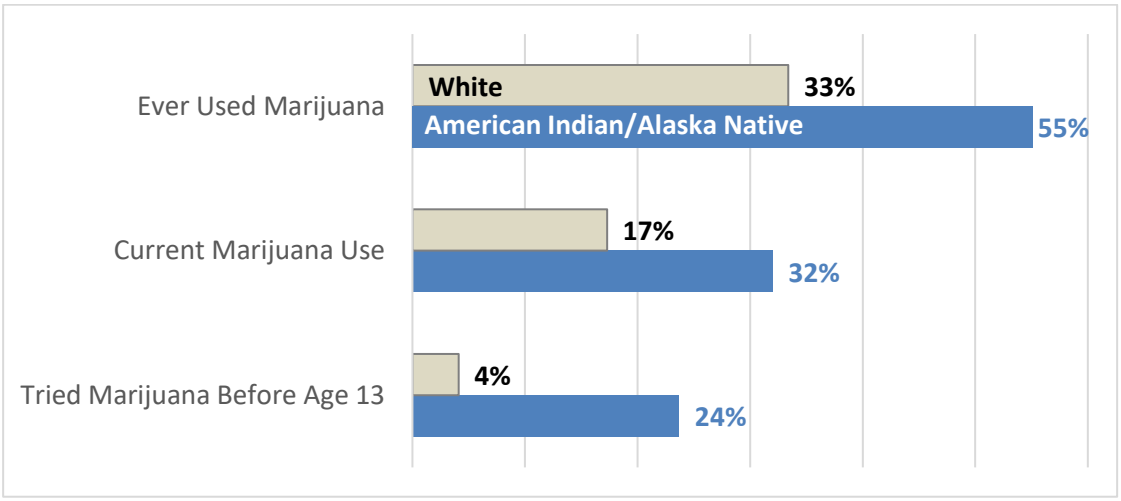
Figure 2. Current Use* of Marijuana among High School Students, **Montana** and the **United States**, 2009-2021*



Youth Risk Behavior Surveillance Survey, 2011-2019
*Current use is defined as any use in the past 30 days
Note: 2021 National YRBSS data not available at time of writing this report

A significantly greater proportion of American Indian/Alaska Native (AI/AN) students in Montana reported current and lifetime use of marijuana, compared to White students (Figure 3). A greater percent of AI/AN youth that live on or near a reservation report using marijuana in the last month compared to youth not living near a reservation (33% vs. 25.9%, respectively). [11]

Figure 3. Percentage of High School Students Who Use Marijuana, by Race, Montana, 2021



Youth Risk Behavior Survey, 2021

Perception of marijuana use can have a large influence on youth. In 2019-2020, less than 20% of Montana youth aged 12-17 years perceived great risk from smoking marijuana once a month.[4] In 2020, 21% of Montana youth (8th, 10th, and 12th graders) reported an intention to use marijuana as adults.[12]

Youth marijuana use is also heavily influenced by perceived parental acceptance or disapproval. Students who reported that their parents feel it would be "very wrong" to use marijuana reported 19% lifetime use and 7% use in the past 30 days (Table 1). In contrast, students who reported that their parents feel it would be "a little bit wrong" to use marijuana reported 69% lifetime use and 40% use in the past 30 days (Table 1). It is therefore encouraging that in 2020, 86% of Montana high school students reported that their parents feel it would be wrong or very wrong for them to use marijuana.[12]

Table 1. Parental Attitudes and Marijuana Use Among Montana High School Students, 2020

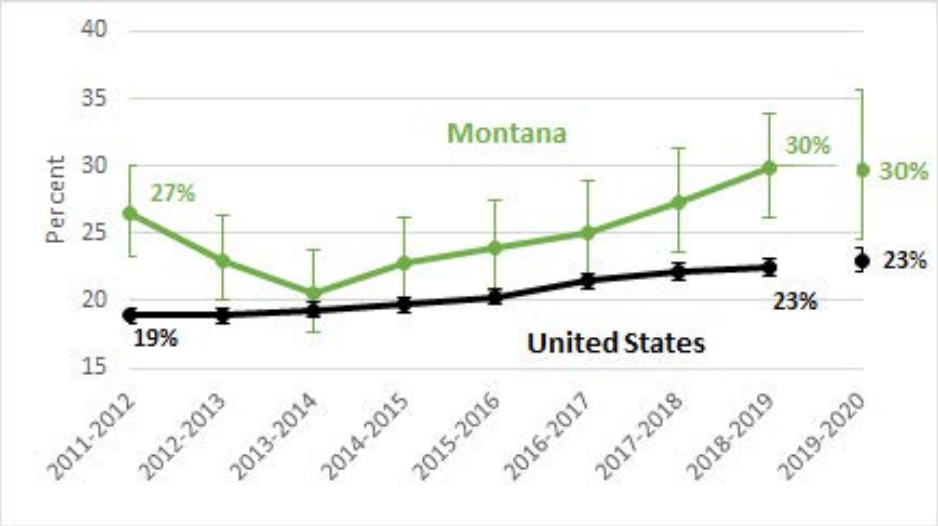
	How wrong do your parents feel it would be for you to smoke marijuana?			
	Very wrong	**Wrong**	**A little bit wrong**	**Not wrong at all**
Lifetime marijuana use among students	19%	51%	69%	78%
30 day marijuana use among students	7%	23%	40%	60%

Prevention Needs Assessment, 2020

Young Adults

Across the country, marijuana use was highest among young adults aged 18 to 25 years, even though adult-use marijuana can only be legally sold to those 21 years and older.[7] Past month marijuana use has increased in both Montana and the US since 2014, with marijuana use consistently higher among young adults in Montana compared to the US (Figure 4).

Figure 4. Self-Reported Marijuana Use in the Past Month among Young Adults Aged 18-25 years, **Montana** and **United States**, 2011-2020



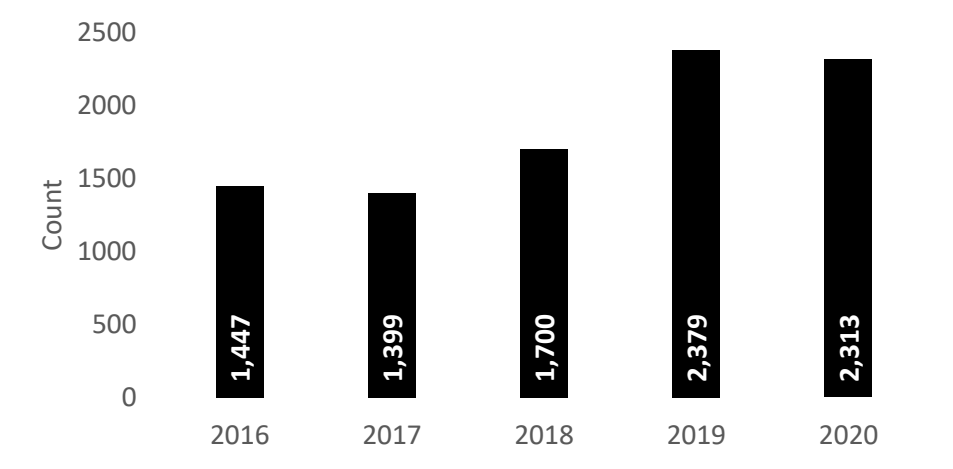
National Survey on Drug Use and Health, 2011-2020
*Due to changes in methodology, data from 2019-2020 on cannot be directly compared to data from previous years.

According to the 2021 National College Health Assessment, nearly half of all college students in Montana reported ever using marijuana. Even though many students have tried marijuana, most are not frequent users. Over 43% of college marijuana users had not used marijuana at all in the past 3 months and 14% used marijuana on a daily or almost daily basis. Those who do use marijuana more frequently are at a higher risk of developing a marijuana use disorder. Among students who had used marijuana within the past 3 months, 17% reported a strong desire or urge to use marijuana daily or almost daily.[13]

Hospitalizations and Emergency Department Visits

In 2020, there were 2,313 emergency department visits related to cannabis use or exposure, which represented a 60% increase from 2016 (Figure 5). Over $45 million were spent on inpatient and emergency department visits related to cannabis exposure, which was more than a 30% increase from 2016.[14]

Figure 5. Emergency Department Visits Associated with Cannabis Use or Exposure, Montana, 2016-2020



Montana Hospital Discharge Data, 2016-2020

Food infused with marijuana pose a risk of unintentional poisoning for children who may mistake them for common candies, especially when the child is very young and the THC content is high. Accidental ingestion among children may require medical care. During 2020 and 2021, there were 163 cannabis poisoning cases seen in Montana emergency departments; 36 (22%) of these were among children aged 10 years and younger.[14] It is expected that unintentional child exposure to marijuana will increase in the years to come. Colorado emergency department visits related to child marijuana exposure nearly doubled in the years following adult-use legalization.[15]

Mortality

There is limited evidence for marijuana intoxication directly leading to mortality. Many of the symptoms of acute marijuana intoxication can be effectively managed with supportive care, occasionally requiring the use of medication such as benzodiazepines. Though rare, there have been cases where patients suffering from tachycardia and neuroexcitation following marijuana exposure required intubation, and at least one report of a patient death.[16]

Other Impacts of Marijuana Use in Montana

Driving Under the Influence

Driving under the influence of marijuana is unsafe and puts both the driver and others on the road in danger. Using marijuana negatively impacts a driver's coordination, judgment, and reaction time. Using alcohol or other substances along with marijuana impairs drivers to an even greater extent and further increases the risk of dangerous driving behaviors.[17] While the public is largely aware of the perils of drunk driving, there is less of a stigma surrounding driving after marijuana use. While only 22% of Montana college students reported driving after consuming alcohol, 41% percent of Montana college students reported driving within six hours of using marijuana in the last month.[13]

It is difficult to measure the impact of marijuana on motor vehicle crashes. In Montana, a driver is considered to be driving under the influence of marijuana if they have a THC blood concentration of 5ng/ml or more, but THC can be detected in the blood for days or even weeks after use, long after the effects of THC subside.[18,19] Additionally, the police will typically not test for marijuana or other drugs if the driver has a blood alcohol level high enough for a DUI charge.

Looking to similar states that legalized adult-use marijuana may give insights into what to expect in Montana. Colorado saw a 138% increase in traffic deaths where drivers tested positive for THC after legalization of adult-use marijuana, and a 29% increase in total traffic deaths from 2013-2020.[21]

Marijuana-Related Arrests

Following the legalization of adult-use marijuana in Montana, marijuana-related arrests were drastically reduced within the state; between 2017 and 2021 there was an 84% reduction in marijuana-related felony arrests (Table 2).[21]

Table 2. Marijuana-Related Arrests and Seizures, Montana 2017-2021

Year	Marijuana Related Felony Arrests	Bulk Marijuana Seized (Pounds)	Marijuana Plants Seized	Marijuana Edibles Seized (Drug Units)
2017	117	4,901	149	2,223
2018	74	1,158	244	290
2019	49	636	268	2,099
2020	66	1,167	14	53,931*
2021	19	282	73	704

Rocky Mountain High Intensity Drug Trafficking Area, 2017-2021

*This abnormally high number of units was the result of an intercepted drug trafficking operation

Note: These data are not inclusive of all arrests and seizures made in Montana; only RMHIDTA-funded operations are represented in Table 2. RMHIDTA data covers the entire state of Montana and is representative of the trends seen by other law enforcement organizations.

Treatment

Frequent use of marijuana puts users at risk of developing a marijuana use disorder. Common symptoms of marijuana use disorder include trying, but failing, to quit using marijuana or giving up important activities with friends and family in favor of using marijuana. Using marijuana during adolescence and using marijuana frequently increase the risk of developing a marijuana use disorder.[22]

Currently there are no approved medications available to treat marijuana use disorder. In addition to being the most used federally illegal drug by the general population, marijuana is also the most common "other drug" used by those seeking treatment for stimulant or opioid dependence.[23] In Montana, marijuana was the primary substance used by only 4% of those receiving treatment for substance use disorders, however an additional 41% of those in treatment reported marijuana as their secondary or tertiary substance.[24] Marijuana may be used to self-medicate other underlying conditions such as depression or anxiety. Studies show that effectively addressing these underlying conditions with standard treatments such as medications or behavioral therapies may help reduce marijuana use. Current medications used for the treatment of marijuana use disorder focus on reducing the negative consequences of withdrawal, such as sleeping aids and anti-anxiety medications.[25]

Behavioral support, such as therapy and motivational incentives, has been shown to help alleviate some of the symptoms of marijuana use disorder.[24] Cognitive behavioral therapy (CBT) teaches individuals to identify and correct problematic behaviors to enhance self-control, which is also useful in addressing any underlying mental health issues. Contingency management (CM) provides patients with tangible, positive rewards for a target behavior such as a negative drug urine screen. Motivational enhancement therapy (MET) seeks to strengthen the motivation to change behaviors and address any ambivalence about reducing or quitting substance use.[23, 24] CBT, CM, and MET are all used in other substance use treatment programs on either an individual or group basis.

Areas of Research and Populations of Interest

Effects of Marijuana

Research into the benefits of marijuana is still in its early stages due to marijuana's status as a federally illegal substance. Initial findings show evidence that medications containing chemicals found in marijuana, called cannabinoids, may be helpful in treating some forms of epilepsy, nausea and vomiting associated with cancer chemotherapy, and loss of appetite and weight loss associated with HIV/AIDS. There is also evidence supporting cannabinoids for the treatment of chronic pain and multiple sclerosis symptoms.[2,26]

Along with potential benefits, marijuana use also has negative consequences for health. Marijuana directly impacts brain function, specifically altering parts of the brain responsible for memory, learning, attention, decision-making, coordination, emotions, and reaction time.[27] Due to these neurological effects, public health professionals recommend that adolescents avoid using marijuana as their brain is still developing.

The American Academy of Pediatrics recommends against using marijuana during pregnancy or breastfeeding.[28] Early research indicates that marijuana use during pregnancy may lead to negative outcomes in newborns, such as lower birth weight and abnormal neurological development.[29]

Conclusions

Summary of Data Findings

Even prior to the legalization of adult-use marijuana, Montana had high prevalence of marijuana use compared to the United States. Montana has also seen increased usage among adults, especially young adults, though high school student use has remained steady. While legalization will decrease the number of marijuana-related arrests, potential concerns for an increase in statewide marijuana use include greater rates of emergency department visits and DUI incidents.

Data Gaps

The major limitation of the data sources used for this report is the lag time in reporting. The data from these sources is typically measured from surveys, hospital discharge data, law enforcement data, etc. that require extensive time for data collection, analysis, and reporting. Another limitation of the data sources used in this report is that certain populations are inherently left out of the data collection. The data from the YRBS excludes youth who are chronically truant and those who have dropped out of school; thus, excluding youth who are particularly vulnerable to substance use and related harms.[29] Homeschooled and private schooled students may also be left out of data collection for the YRBS. A related limitation of the NSDUH data is that it also does not include some marginalized populations, such as persons who are homeless and those who are incarcerated or institutionalized.

Though adult-use marijuana is now legal in Montana, it remains federally illegal and still has stigma associated with use. It is difficult to get accurate prevalence data through surveys as respondents may not want to report stigmatized behaviors. To address the changing legal, normative, and social marijuana context, longitudinal data that looks at knowledge, perceptions, and usage patterns pre- and post- medical and adult-use marijuana legalization is needed. Unfortunately, this type of data is limited, and/or collection of data occurred post-legalization.

The effects of marijuana vary by ingestion methods and the THC content. Now that marijuana sales are regulated in the state, it will be possible to track what types and strength of marijuana products are most sold across the state. Future data collection efforts surrounding prevalence of use could address measurement issues related to the quantity and frequency of marijuana use, potency of the product, and typical route of administration. Data collection on the use of marijuana as a substitution for other substances with potential for abuse, such as opioids and alcohol, should also be collected.

Next Steps

Public education campaigns, especially youth and pregnant mothers, about the potential harms of marijuana use is critical for our public health mission. Focusing on audiences with higher risk of using marijuana through media campaigns to help them make better informed decisions. To maximize the impact on public health and address usage rates DPHHS is prioritizing marijuana prevention campaigns for youth and other high-risk populations. Adapting safer use practices, such as keeping edible products in a secure location where they cannot be accessed by children and refraining from driving while under the influence of marijuana, will help prevent unintended consequences and allow Montanans to continue to use marijuana responsibly.

The Montana Department of Public Health and Human Services has received funding from SAMHSA through the Partnership for Success (PFS) grant and the Substance Abuse Prevention and Treatment Block Grant (SABG). The PFS grant focuses on preventing substance misuse in youth, strengthening prevention capacity at the state, tribal, and county level, and strengthening a comprehensive prevention approach through evidence-based policies. The SABG focuses on preventing the onset and reducing the progression of substance misuse.

With these combined grants, the Behavioral Health and Disabilities Division (BHDD) of DPHHS has outlined steps to empower Montanans to make healthy decisions. The social media campaigns Let's Face It and ParentingMontana.org provide parents and guardians with tools to address underage substance use and increase communication between adolescents and their guardians. BHDD also continues to support existing prevention education such as the PAX Good Behavior Game and Communities That Care; these evidence-based interventions are proven to have significant effects on youth health and behavior problems, lower criminal justice system involvement, and reduce health care costs. Youth that engage in these programs are less likely to engage in crime or risky behaviors such as binge drinking and are more likely to graduate high school and attend college.[30]

At the policy level, DPHHS is working to identify local policies that could be beneficial for communities looking to reduce marijuana retailer density and locations around schools as well as smokefree housing policies.

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