



12

PRACTICAL THEORIST

Cannabis

The Current State of Affairs

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Cannabis, commonly called *marijuana*, is the most popular illicit drug worldwide: an estimated 3.8% of the global population aged 15-64 consumed cannabis in 2017 (United Nations Office on Drugs and Crime, 2019). In the United States, the percentage of people aged 12 or older who have used cannabis in the past year has steadily increased from 11% in 2002 to 15.9% in 2018 (Substance Abuse and Mental Health Services Administration [SAMHSA], 2019). According to SAMHSA, the numbers for past year cannabis use have gone down among youth ages 12-17, but nearly doubled among adults 26 or older from 7% reporting use to 13.3% (2019). The National Institute on Drug Abuse (NIDA) found that marijuana use in grades 8, 10, and 12 combined have gone up 2% in the last three years (Johnston, et. al., 2019). Concurrently, public opinion has shifted in the past two decades; the proportion of adults in the U.S. who support marijuana legalization has increased from 31% in 2000 to 67% in 2019 (Pew Research Center Fact Tank, 2019). The number of states that have some form of legalized cannabis use has also increased during the same period. Substance use and misuse prevention community coalitions need to work in the context of this new environment. How can coalitions prevent cannabis use in today's landscape?

What is Cannabis?

Botanical Overview

The cannabis plant originated in central Asia but has since spread to other tropical and temperate regions. The plant grows to a height of three to six feet and male and female flowers are found on separate plants. Many experts think there are two main subspecies: indica and sativa, but many hybrid strains are grown with varying amounts of different cannabinoids. Others believe the different amounts of cannabinoids are simply many kinds of sativa. Most cannabinoids are produced by female flowers before fertilization (Klumpers & Thacker, 2019). The most well-known cannabinoids are delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD), but cannabis contains over 500 compounds, including cannabinoids, terpenoids, flavonoids, and others (Gonçalves et al., 2019).

THC is responsible for most of the plant's psychotropic effects (Klumpers & Thacker, 2019). Usually, but not always, plants that produce a high amount of THC cannot also produce a high amount of CBD (Murray, Quigley, Quattrone, Englund, & Di Forti, 2016). The potency of cannabis products seized by the U.S. Drug Enforcement Administration increased from an average concentration of 4% THC in 1995 to 12% THC in 2014 (ElSohly et al., 2016), and from 8.9% in 2008 to 17.1% in 2017 (Chandra et al.,

2019). Cannabis plants containing low levels of THC, called hemp. The Hemp Farming Act of 2018 removes hemp from the Controlled Substances Act and allows farmers to grow hemp commercially under state or federal license.

Forms of Cannabis Consumption

Smoking the cannabis flower via joint, pipe, blunt or spliff is the most common mode of consumption. *Joints* are cannabis rolled in a light paper, *blunts* are little cigars or cigarillos hallowed out and filled with cannabis (therefore providing doses of cannabis combined with some leftover tobacco) and *spliffs* are joints filled with both tobacco and cannabis.

An edible cannabis product market has emerged in some states. Retailers are taking advantage of changes in laws and are now selling brownies, cookies, gummy candies and other products infused with cannabis. Some consumers prefer edibles to avoid the lung-damaging properties associated with smoked cannabis or to experience a longer high (Giombi, Kosa, Rains, & Cates, 2018). The proliferation of edible cannabis products has led to accidental ingestion by children. The slow onset of drug effect when cannabis is ingested and inconsistent dosing among servings of a product or among different products pose the risk that consumers may take larger doses than intended.

This Practical Theorist is part of a series of publications designed to summarize field research on key drug use issues and to present it in a concise, practical format, with strategies for using the data to mobilize communities and support your coalition's mission.

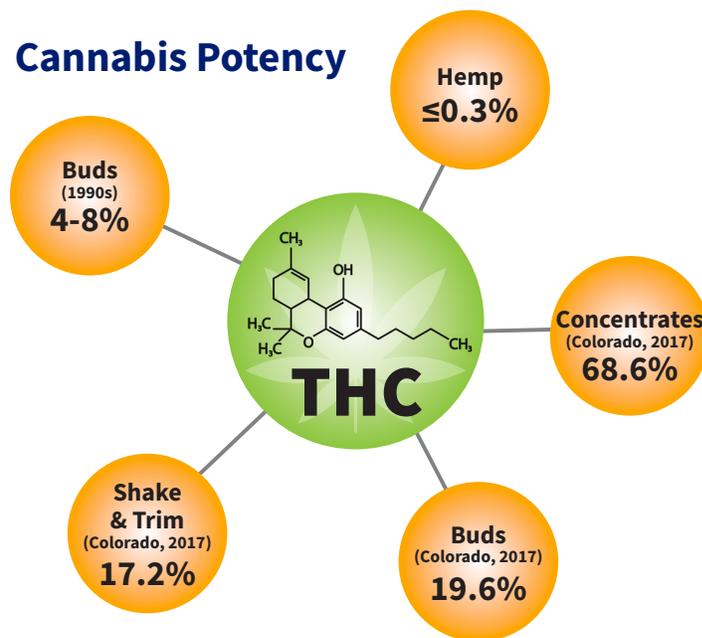
Cannabis Anatomy



Liquid or wax formulations with high concentrations of THC, called *concentrates*, are becoming increasingly popular. In Colorado, the market share of concentrates has doubled between 2014 and 2017 at the expense of flower sales (Marijuana Policy Group LLC [MPG] & University of Colorado Boulder [CU Boulder], 2018). Tested concentrate samples in Colorado in 2017 contained on average 68.6% THC, with some samples containing over 90% THC. Tested flower samples in Colorado contained 19.6% THC on average. (MPG & CU Boulder, 2018). Commercially extracted concentrates are sold in dispensaries, but some users prefer to develop their own product, often using butane as a solvent. The process for developing butane hash oil outside of commercial settings can be hazardous: there may be butane in the final product, which users then inhale along with the vaporized THC, and excess butane may pool and cause an explosion if ignited (Al-Zouabi et al., 2018).

Concentrates including butane hash oil can be *dabbed* or vaporized in various electronic nicotine delivery systems (ENDS). Some companies now sell cartridges containing THC in the e-liquid that can be used with ENDS devices. Notably, the CDC has determined that most of the patients diagnosed with e-cigarette or vaping product use associated lung injury (EVALI) in the United States reported a history of using vaping products containing THC. Vitamin E acetate, one additive in many THC pods, has

Cannabis Potency



Sources: Al-Zouabi et al., 2018; MPG & CU Boulder, 2018; National Conference of State Legislatures, 2019b.

been strongly linked to EVALI (Centers for Disease Control and Prevention [CDC], 2019). Dabbing is another way to consume concentrates: users heat a titanium nail and once it has cooled slightly, place the “dab” of concentrate on the nail. The concentrates evaporate and the vapor is inhaled through a water pipe in a single puff (Hadener, Vieten, Weinemann, & Mahler, 2019).

Modes of Cannabis Use



INGESTION



Candy



Cookies



Beer



Coffee



INHALATION



Dab



Blunts



Joints



THC Vaping Cartridge



Hookah



Hand Pipe



Bong/Water Pipe



TOPICAL



Creams and oils



There is a great amount left to learn about cannabis and a standard serving has not been determined. We still don't know how factors such as potency of the product, mode of consumption, experience level of user for inhaled cannabis and lack of information among consumers about the products they are using might affect user experience (Singh, Saluja, Kumar, & Agrawal, 2018).

CBD

Use of cannabidiol (CBD), a compound found in cannabis, has recently become more popular due to its perceived therapeutic properties and lack of intoxicating or addictive effects. Although CBD is being touted as a treatment for a wide variety of conditions, there is not sufficient research to confirm its efficacy in treating most of these conditions (VanDolah, Bauer, & Mauck, 2019). Oversight of the recent proliferation of CBD products is lacking. Of 86 CBD products tested in one study, 26% contained less CBD than stated on the label and 21% contained THC, a compound not mentioned on the label (Bonn-Miller et al., 2017).

Synthetic Cannabis

Over 165 synthetic cannabinoid products have been identified. They go by many names, including *Spice* and *K2*, and are typically manufactured as powders that

are dissolved and added to plant matter to be smoked (EMCDDA, 2017). Although users of both cannabis and synthetic cannabinoids report that synthetic cannabis produces more negative effects while high and more harmful lung effects, users report smoking synthetic cannabis because it is not detectable in drug tests (Winstock & Barrett, 2013).

The Science: What We Know and What We Don't Know

The Endocannabinoid System: How Cannabis Acts in the Body

Cannabis acts on the body's endocannabinoid system through its active ingredient, THC. Two cannabinoid receptors have been identified: CB₁, which are found mainly in the brain, and CB₂, which are found mainly

How the Human Body Processes Cannabis

CONSUMPTION—INHALATION

Cannabis is smoked via joint.
[3-10 minutes absorption]



ABSORPTION—INHALATION

THC is absorbed into the bloodstream in the lungs.



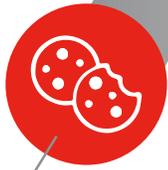
ABSORPTION—INGESTION

THC is absorbed into the intestines and metabolized in the liver before passing into the bloodstream.



CONSUMPTION—INGESTION

Cannabis-infused edible is eaten.
[3-8 hours absorption]



DISTRIBUTION

THC is distributed to cannabinoid receptors in the brain and nervous system throughout the body.



METABOLISM

THC and metabolite 11-hydroxy-THC are further metabolized in the intestines.



ELIMINATION

THC is eliminated from the body in urine and metabolites are eliminated in feces.



THC is fat soluble. It can stay in the fatty tissue for long periods of time. It is not water soluble like alcohol.

Sources: Klumpers & Thacker, 2019; Lucas et al., 2018.



on immune cells – although both receptors can be found throughout the body. The body produces two endocannabinoids, anandamide (AEA) and 2-arachidonoylglycerol (2-AG), that act at these receptors. The system helps regulate sleep, appetite, pain, memory and coordination (Klumpers & Thacker, 2019). The endocannabinoid system also regulates brain development in the fetal stage and adolescence. During fetal development, “it plays a major role in the formation of brain circuits including those important for decision making, mood and responding to stress” (Adams & Volkow, 2019). The endocannabinoid system is also involved in regulating changes in brain architecture during adolescence (Volkow et al., 2016). THC is a partial agonist at CB₁ and CB₂ receptors (Lucas, Galettis, & Schneider, 2018). The effects of other compounds in cannabis, such as terpenoids, flavonoids and other cannabinoids, have not been frequently studied and as such are not yet fully understood (Klumpers & Thacker, 2019; Bruni et al., 2018).

How cannabis is absorbed and metabolized depends on its mode of use. Blood plasma concentrations of THC reach their peak within three to 10 minutes after inhalation and effects last two to three hours, whereas concentrations reach their peak one to two hours after ingestion and effects can last up to eight hours (Murray et al., 2016). Because THC is fat soluble and not water soluble, THC can be stored in fat cells in the body and later released during exercise or weight loss (Lucas et al., 2018). Cannabinoids must be metabolized in the liver and intestines to more water-soluble compounds in order to be eliminated from the body. THC’s metabolites have a half-life of several days, meaning that the drug can remain in the bloodstream for weeks after use for a regular user (Klumpers & Thacker, 2019).

Acute Effects

While euphoria is the most well-known effect of taking cannabis, there are many cognitive, physical and other acute effects. Cognitive effects include impairment of verbal learning and memory, attention, inhibition and decision making (Broyd, van Hell, Beale, Yucel, & Solowij, 2016). Cannabis with a higher ratio of THC to CBD causes greater impairment of cognitive function (Colizzi & Bhattacharyya, 2017; Lucas et al., 2018). It is also associated with more severe levels of addiction compared to cannabis with low amounts of THC. Other effects include physical inertia, incoordination and poor psychomotor performance and time distortion.

Tolerance can blunt the level of impairment for some but not all cognitive functions; in particular, attention and psychomotor performance remain affected among regular users (Broyd et al., 2016).

Cannabis use also causes an increase in blood pressure, postural hypotension, elevated heart rate and the potential for adverse cardiovascular effects (Lucas et al., 2018; Singh et al., 2018). Overdose resulting from cannabis use is unlikely, since cannabis, unlike opioids and alcohol, does not affect the part of the brain that controls respiration (Klumpers & Thacker, 2019). A psychotic reaction or panic attack may occur and could be considered an overdose. There are several cases of those who’ve had to visit an emergency room due to high THC ingestion resulting in an overdose.

Chronic Effects

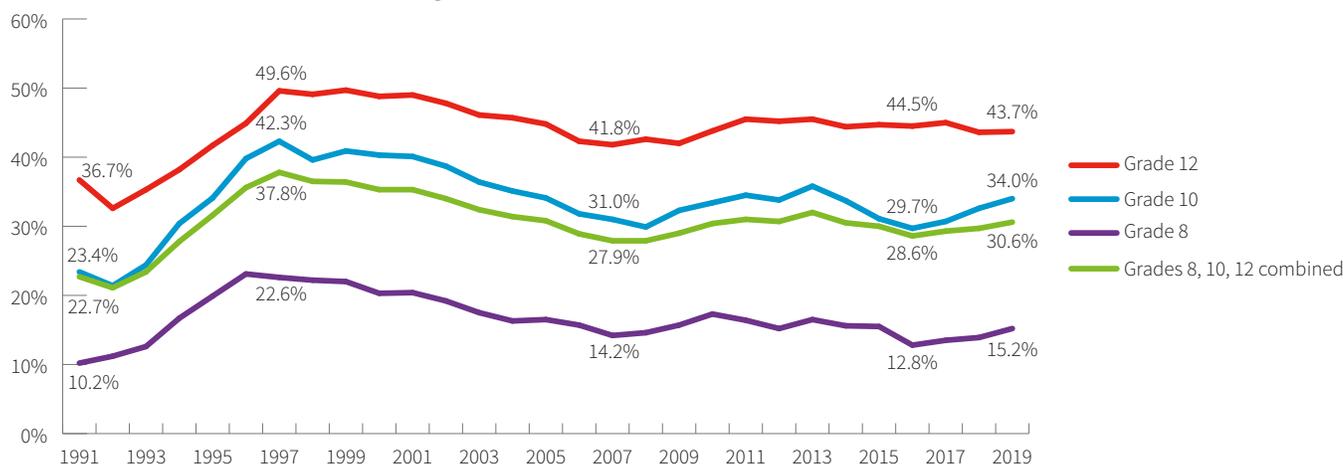
There are many chronic effects of long-term cannabis use. Cannabis use is associated with increased risk of schizophrenia or psychosis in those with a genetic predisposition or pre-existing psychotic disorders (Klumpers & Thacker, 2019). It is also associated with increased risk of psychosis in individuals with regular heavy use in adolescence, early age of first use or use of high-potency cannabis (Volkow et al., 2016). Long-term use is associated with persistent decreased cognitive function, but short-term abstinence can allow some cognitive functions to increase to initial levels (Klumpers & Thacker, 2019). Cognitive function deficits remain following a period of abstinence in individuals who initiated use in adolescence (Volkow et al., 2016; Sachs, McGlade, & Yurgelun-Todd, 2015). Since the endocannabinoid system is involved in regulating some neurodevelopmental processes, cannabis use during adolescence may disrupt brain development during that period (Volkow et al., 2016).

Regular cannabis smokers may be at higher risk for bronchitis or poor lung function than non-smokers and effects on the lungs are amplified by concurrent tobacco use (Martinasek, McGrogan, & Maysonet, 2016). Users, particularly those who suffer from cardiovascular issues, are also at greater risk for stroke or other complications (Singh et al., 2018).

Medicinal Uses

Researchers have identified the following list of medical conditions for study to determine if cannabis is a viable treatment: nausea and vomiting associated with chemotherapy, some types of chronic pain, insomnia,

Lifetime Cannabis Use by Grade



Source: Johnston et al., 2019

anxiety, spasticity associated with multiple sclerosis, loss of appetite in HIV/AIDS patients, Tourette’s syndrome, PTSD, epilepsy, Parkinson’s disease, dementia, glaucoma, inflammatory bowel diseases and various dermatological conditions (Gonçalves et al., 2019; Bruni et al., 2018). There is insufficient evidence regarding cannabis as an effective treatment for most of the conditions listed. Few studies have been conducted and many of them are not randomized, controlled trials in humans with a sufficient number of patients. There is also inconsistency regarding use of standardized preparations of cannabis both across and within some studies, and other studies do not mention what dosage or method of consumption subjects used (Bruni et al., 2018).

Cannabis Use and Pregnancy

According to the U.S. Surgeon General’s Advisory on Marijuana Use and the Developing Brain, cannabis is the most commonly used illicit drug among pregnant women (HHS, 2019). Cannabis use during pregnancy may interfere with fetal brain development through the endocannabinoid system and is associated with low birth rate after controlling for age, race, ethnicity and tobacco use (Adams & Volkow, 2019; HHS, 2019). The American College of Obstetricians and Gynecologists recommends that pregnant women avoid cannabis consumption (Volkow, Han, Compton, & McCance-Katz, 2019).

Cannabis Use Disorder and Treatment

Cannabis is addictive. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, defines cannabis

use disorder as “cannabis use meeting at least two to three of 11 criteria including but not limited to withdrawal symptoms, tolerance, cravings, relationship problems and difficulty fulfilling work and personal responsibilities” (American Psychiatric Association, 2013). “Abrupt cessation of prolonged and heavy cannabis use is associated with a variety of withdrawal symptoms, including (but not limited to) headaches, sleep disturbances, irritability and anxiety” (Perron, Holt, Yeagley, & Ilgen, 2019). Individuals who initiate cannabis use in adolescence are more likely to develop a cannabis use disorder within two years of first use than those who initiate as adults (Volkow, Baler, Compton, & Weiss, 2014). SAMHSA (2019) reported in its 2018 National Survey on Drug Use and Health that 4.4 million people aged 12 or older met diagnostic criteria for a past year cannabis use disorder. However, access to treatment for cannabis use disorder is very low, at only half the rate of treatment for drug use disorders in general (Kerridge et al., 2017). Certain groups, including women, Asian-Americans, college-educated adults and married adults, are less likely to obtain treatment (Wu, Zhu, Mannelli, & Swartz, 2017).

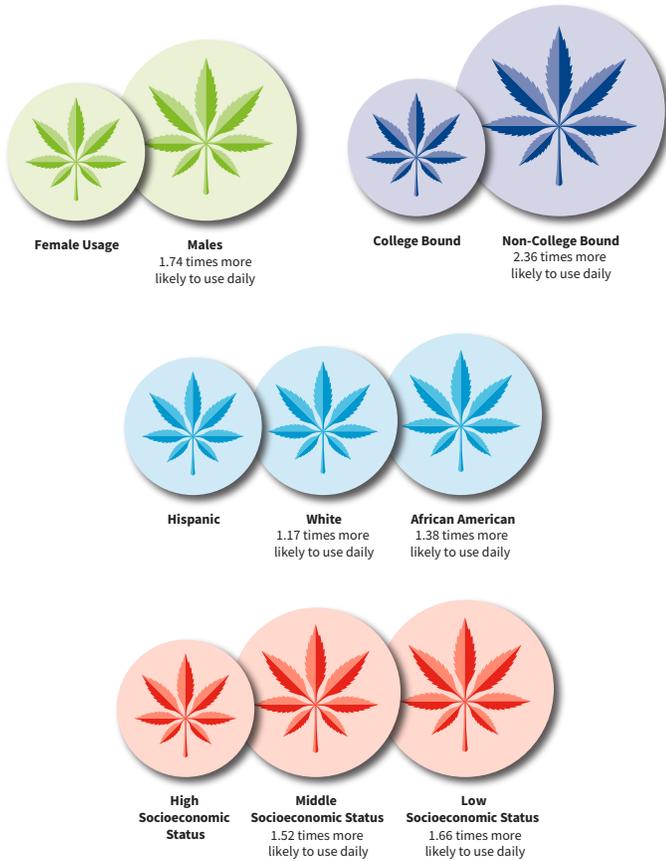
Cannabis Use in Society

Youth Use of Cannabis

Cannabis is the most widely used illicit substance among youth, following alcohol (SAMHSA, 2019). 44% of twelfth graders reported lifetime cannabis use, 22% reported use



Youth Daily Cannabis Use Among 12th Grade Students by the Numbers



Source: Johnston et al., 2019

in the past 30 days, and 6.4% reported daily use in the past month (Johnston et al., 2020). In 2018, 2.1% of youth aged 12-17 have been diagnosed with cannabis use disorder in the past year. 25.2% of youth aged 12-17 who had a major depressive episode used cannabis in the past year, whereas only 10.5% of youth aged 12-17 who did not have a major depressive episode used cannabis in the past year (SAMHSA, 2019). Adolescents whose parents have used cannabis within the past year are at greater risk of using cannabis themselves than adolescents whose parents have never used cannabis, demonstrating the powerful influence parents have on their children’s substance use decision making (Madras et al., 2019).

Almost all youth who have used cannabis have smoked it (Knapp et al., 2019), indicating that “adolescents may not be connecting the perceived harms of smoking tobacco

to smoking [cannabis]” (Schneider, Tormohlen, Brooks-Russell, Johnson, & Thrul, 2019). One study found that blunt use, which is strongly associated with cigarette and other tobacco product use, was higher among black and Hispanic youth than white youth (Eggers et al., 2017). Vaping cannabis is becoming popular among high school-aged youth. In 2019, 20.8% of twelfth grade students reported vaping cannabis in the past year, which was a large increase from the previous year despite little change in overall annual cannabis use (Johnston et al., 2020). Adolescents in Colorado and Arizona have reported dabbing or concentrate use. 72% of adolescent lifetime cannabis users in Arizona reported that they had used concentrates (Meier, Docherty, Leischow, Grimm, & Pardini, 2019), and 7.4% of Colorado students with past 30-day use reported dabbing (Schneider et al., 2019). Youth also report edible use. Participants in a focus group in California noted that edible use is easier to conceal in school or elsewhere (Friese, Slater, Annechino, & Battle, 2016).

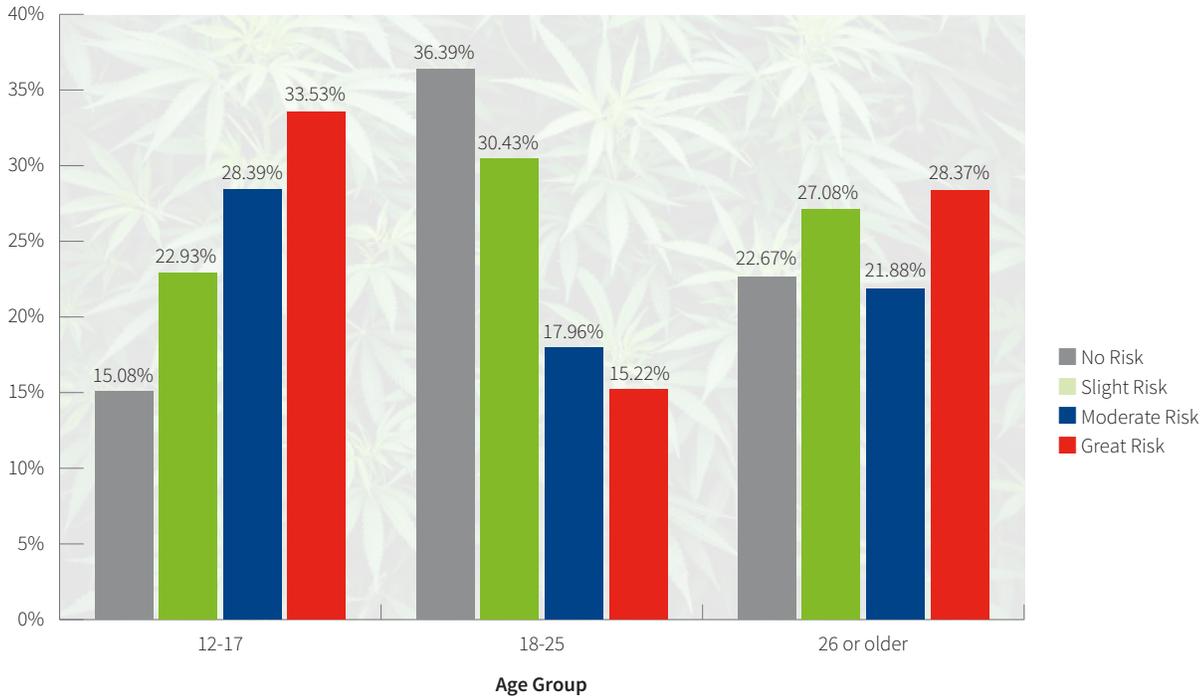
Perception of Risk Among Youth

Perception of risk of cannabis use is declining. 34.9% of youth aged 12-17 perceived smoking cannabis once or twice a week as a great risk, which is substantially lower than the percentage of youth who perceived great risk from regular use of other substances (SAMHSA, 2019). Based on data from an online survey targeted at youth with lifetime cannabis use, 94% of youth responded “no” when asked if they thought [cannabis] is addictive (Knapp et al., 2019). One study based on *Monitoring the Future* data found that the proportion of twelfth grade students in the early 90s who regularly used cannabis was very similar to the proportion of students who believed regular cannabis use posed little health risk. However, starting in 2006, these trends began to diverge and by 2015, the proportion of students who believed regular cannabis use posed little health risk increased to over 20% (Sarvet et al., 2018).

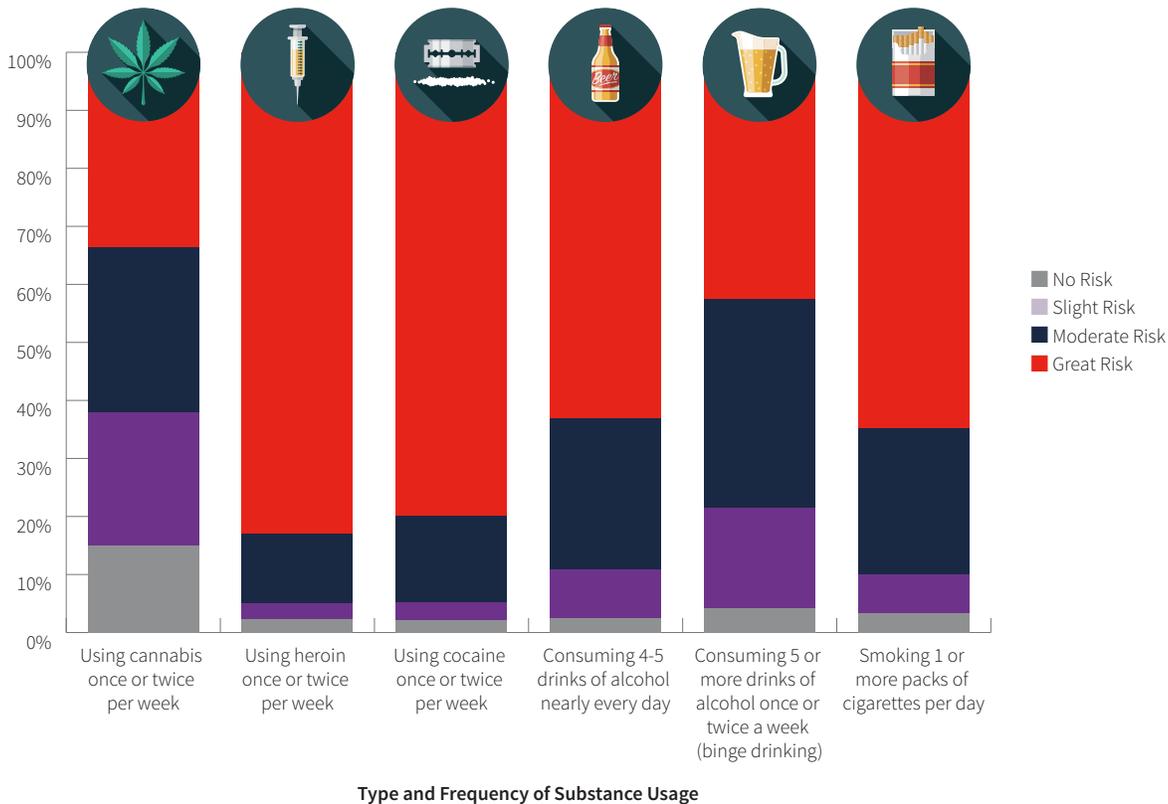
Cannabis and Youth Poly-Substance Use

Youth often use other substances along with cannabis. One study analyzing NSDUH data found that youth who used one substance in the past month are much more likely to have also used other substances. For example, the study’s findings show that youth who used cannabis in the past month were 8.9 times more likely to have also used cigarettes, 5.6 times more likely to have also used alcohol, 7.9 times more likely to have also reported binge alcohol use and 9.9 times more likely to have also used other illicit drugs (DuPont, Han, Shea, & Madras, 2018). In 2014,

Perceived risk of using cannabis once or twice per week by age



Perceived risk of regular use of illicit substances by youth ages 12-17



Source: SAMHSA's National Survey on Drug Use and Health, 2018.



more youth reported co-use of cannabis and tobacco than reported cannabis use only or tobacco use only and co-use of cannabis and tobacco is associated with a greater likelihood of engaging in risky drinking than cannabis use only or tobacco use only (Schauer & Peters, 2018).

In addition, more than 20% of students aged 19 or 20 surveyed for a longitudinal follow-up of *Monitoring the Future* reported simultaneous alcohol and cannabis use within the past year (Patrick, Terry-McElrath, Lee, & Schulenberg, 2019). The prevalence of alcohol use among this age group has decreased over the previous 10 years, indicating that the proportion of alcohol users in this age group who also use cannabis is increasing (Patrick et al., 2019). This increase in poly-substance use is an important threat to coalitions across the country.

Youth Cannabis Use and Schooling

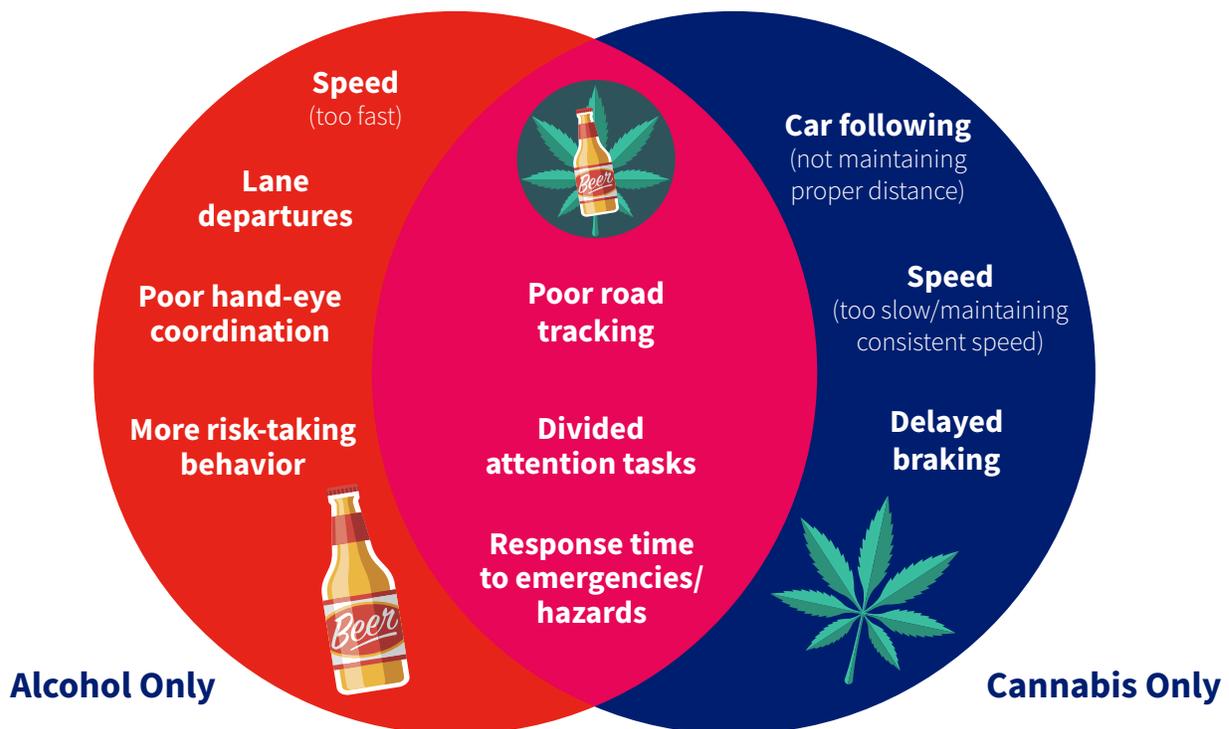
According to the U.S. Surgeon General’s Advisory on Marijuana Use and the Developing Brain, youth use of cannabis is particularly detrimental to brain development and can influence academic outcomes (HHS, 2019). Lifetime abstinence from use of alcohol and other drugs among youth was associated with “a decreased

likelihood of skipping school during the past four weeks and an increased likelihood of having average grades of B- or higher,” as well as greater academic engagement compared with past-year substance users (Bugbee et al., 2019). More specifically, cannabis use during the first year of college was associated with an increased likelihood of skipping classes and declines in GPA (Arria, Caldeira, Bugbee, Vincent, & O’Grady, 2015). Chronic cannabis use during adolescence can have a lasting impact on brain development during this crucial period and can be associated with adverse neurological effects and negative academic outcomes (MacDonald & Pappas, 2016).

Impaired Driving

Drug-impaired driving is a growing problem not limited to states that have legalized adult cannabis use. Cannabis is the most common illicit drug detected among drivers (Sevigny, 2018). National Highway Traffic Safety Administration’s (NHTSA) National Roadside Survey found that the percentage of weekend nighttime drivers that tested positive for cannabis rose from 8.6% in 2007 to 12.6% in 2014, a 48% increase. In addition, poly-use of cannabis with other substances, particularly alcohol,

Negative Effects of Alcohol and Cannabis on Brain Functions and Driving Skills



Sources: Bondallaz et al., 2016; Sewell, Polling, & Sofuoglu, 2009.



contributes to increased levels of impaired driving. Several studies have found that the effects of cannabis and alcohol on driving ability are additive, and for drivers involved in both fatal and non-fatal crashes, the combination of cannabis and alcohol is the most commonly detected multiple substance pairing (Hartman et al., 2015; Li, Chihuri, & Brady, 2017).

The National Academies of Sciences, Engineering and Medicine found substantial evidence of an increased risk of motor vehicle crashes associated with cannabis use (NASEM, 2017). Cannabis has a negative effect on several cognitive functions that directly impact driving ability: reaction time measurement, divided attention tasks, critical tracking tasks and response to an urgent task (Bondallaz et al., 2016). When alcohol and cannabis are consumed concurrently, even in lower doses than would impair a driver if consumed alone, driving skills deteriorate more rapidly, with reaction time and staying in one's lane being most affected (Bondallaz et al., 2016; Hartman et al., 2015).

The Testing Quandary

Addressing impaired driving through the legal system has proven difficult. While some states have taken a “zero tolerance” approach for all illicit drugs, other states have set per se limits for cannabis (Wong, Brady & Li, 2014; Patton et al., 2018). However, a standard legal limit has not yet been set across the U.S. The persistence of THC metabolites in blood and urine presents a problem for

impaired driving legislation and enforcement (Wong et al., 2014). For example, chronic cannabis users can test positive for THC and one of its metabolites for up to 30 days following last use (Bergamaschi et al., 2013).

Blood tests are the most effective, but they are also the most invasive type of test and cannot be easily done on the roadside. Likewise, urine collection would be challenging to implement roadside. Oral fluid is the least invasive and easiest to collect of the bodily fluids mentioned, and thus this approach is popular in the U.S. and Australia. However, sample sizes are generally smaller than for other fluids, increasing the risk of not being able to test the sample, and some studies have shown that the presence of THC in oral fluids does not accurately indicate the concentration of THC in the bloodstream (Wong et al., 2014; Bondallaz et al., 2016; Hartman et al., 2015). The one leg stand test is the only standard field sobriety test that was found to be valid for testing for cannabis impairment, but it doesn't establish evidence to meet the requirements of per se laws (Bondallaz et al., 2016).

Perception of Risk of Driving Under the Influence of Cannabis

Some users think that driving under the influence of cannabis is without risk. This is not true. Many users perceive the risks and subsequently overcompensate when driving while high (Bondallaz et al., 2016). Less than half of youth reported that “driving a car within two hours of using cannabis increases the risk of an accident by ‘a lot,’” a finding that did not vary by legal status of cannabis in their state (Wadsworth & Hammond, 2018). Although users may not believe their driving is impaired, there is ample evidence that cannabis use affects cognitive functions related to driving.

The Landscape of Legalization and Community Prevention

Prevention Works

Substance use and misuse prevention community coalitions aiming to create population-level change should implement a comprehensive and complementary set of strategies. CADCA's Seven Strategies for Community Change are a set of seven categories of individual and environmental strategies used together to achieve population-level change. Individual strategies focus on improving the knowledge and skills of community



CADCA’s Seven Strategies for Community Change

Source: NCI, 2018.

STRATEGY	EXAMPLE
Provide Information	<ul style="list-style-type: none"> • Social media messaging • Student leaders raising awareness
Build Skills	<ul style="list-style-type: none"> • Provide students training on how to use peer refusal skills • Provide teachers training on recognizing signs of cannabis use
Provide Support	<ul style="list-style-type: none"> • Collaborate with schools, parents and youth on student-led initiatives
Change Access and Barriers	<ul style="list-style-type: none"> • Collaborate with schools to have school resource officers monitor common access areas such as halls, bathrooms, and parking lots
Change Consequences/Incentives	<ul style="list-style-type: none"> • Highlight students who choose not to use cannabis
Physical Design	<ul style="list-style-type: none"> • Restrict sale and display of cannabis paraphernalia (e.g., rolling papers, pipes)
Modify/Change Policies	<ul style="list-style-type: none"> • Support local ordinance to restrict hours or days of sale • Update clean air laws to include cannabis

Please see *Practical Theorist 10* and *Practical Theorist 11* for more ideas on how coalitions can prevention substance use and misuse.

members in order to reduce substance misuse, whereas environmental strategies focus on changing community structures, policies and institutions that affect substance use behavior (National Coalition Institute [NCI], 2018). The three categories of individual strategies are: provide information, build skills and provide support. The four categories of environmental strategies are: change access or barriers, change consequences or incentives, change the physical design of the environment and change policies, rules, practices and procedures.

Strategies that have been proven effective in reducing youth use of other substances are a good place to start. The initial legalization of cannabis offers an opportunity for communities to implement the types of policies to supervise cannabis sales that have been successful in reducing youth use of alcohol and tobacco, such as regulating outlet density and marketing (Dilley, Hitchcock, McGroder, Greto, & Richardson, 2017). For example, the Rocky Mountain HIDTA (2018) found that “65% of local jurisdictions in Colorado have banned medical and recreational [cannabis] businesses.” In Washington State, by June 30, 2016, 125 of 142 cities and 30 of 39 counties passed some kind of cannabis ordinance, including 54 cities and six counties that permanently banned retail sales in their jurisdictions (Dilley et al., 2017).

Although 55.7% of voters in Washington State endorsed the ballot initiative for adult use of cannabis, a majority of voters in 19 counties opposed this ballot initiative and

policymakers in those areas often enacted policies to restrict cannabis sales and use in their jurisdictions (Dilley et al., 2017). Other types of ordinances enacted by local entities identified in the Washington State study include temporary bans on retail sales, zoning restrictions on retail sales, caps on number of licensed retailers, cannabis-specific or general business license requirements, additional buffers required from youth-related or non-youth related sites, restrictions on hours of operation, bans on home delivery and restrictions on cannabis advertising (Dilley et al., 2017). Coalitions can advocate for these policies in their communities, depending on what their state’s legal system and cannabis laws allow.

What Coalitions Can Do

- **Educate community members about the long-term effects of cannabis use.** Misinformation about the effectiveness of cannabis in treating various medical conditions and harms resulting from regular or occasional use is rampant. Coalitions can present the research cited in this publication or presented on the NIDA website to their communities to increase understanding of cannabis use and its effects.
- **Conduct an environmental scan in your community.** Conducting an environmental scan is a great way to gather more information about cannabis use in your community and develop an action plan to prevent youth cannabis use. The data collected during your environmental scan may indicate that new policies are needed in your town or county such as

zoning restrictions on dispensaries or updated clean air laws including cannabis.

● **Educate policy makers about science-based information on cannabis.** Bringing some of the information from this Practical Theorist can serve as a resource to inform policy makers of the research on cannabis like:

- The stronger potency of today’s marijuana- it is not the marijuana from the 1970’s or 1980’s. It is much stronger with substantially higher THC dosages.
- Cannabis use poses great risks to pregnant mothers and youth.



Different Types of Legalization

TYPE OF LEGALIZATION	NUMBER OF STATES (as of Oct. 2019)	DESCRIPTION
Hemp Only	47	<ul style="list-style-type: none"> • THC concentration $\leq 0.3\%$ • Growers required to have licenses or use hemp for research only • According to the FDA, hemp seed and hemp seed oil (which contain neither THC nor CBD) can be sold as food products
CBD or Low-THC Only	All States	<ul style="list-style-type: none"> • Legal use of CBD for medicinal purposes as the FDA-approved product Epidiolex • FDA has not approved the use of CBD in medical products, dietary supplements, or food products • Epidiolex is the only FDA-approved drug with CBD as the active ingredient
Medical Use Only	33 (plus DC)	<ul style="list-style-type: none"> • Legal use of cannabis for medicinal purposes • Most states specify a list of qualifying conditions, create a patient registry, and regulate products sold in dispensaries • Doctors cannot prescribe cannabis but offer formal recommendations to patients
Decriminalization	25 (plus DC)	<ul style="list-style-type: none"> • Possession of cannabis is a civil infraction or misdemeanor • Reduced mandatory minimums and reduced penalties for first offenses or minors • Some states have expunged cannabis related convictions
Adult Use	11 (plus DC)	<ul style="list-style-type: none"> • Legal adult (21 years-of-age and older) use • Policies include enacting “sin” taxes, restricting advertising aimed at minors, limiting dispensary licensing, prohibiting use in public places, and requiring warning labels on products

Sources: National Conference of State Legislatures, 2019; U.S. Food and Drug Administration, 2020.



References

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