

Reducing the Risk and Prevalence of Cannabis Use Disorder in LGBTQ+ High Schoolers

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Abstract: Over the past few decades, the nature of cannabis in American society has changed dramatically. Cannabis is steadily increasing in potency and making a mainstream entrance into our society as it is gradually decriminalized and legalized around the country. With these changes comes a need to investigate the effects of the increasing reach of cannabis on adolescents. Particularly, high schoolers are at an age when they are slowly gaining autonomy and seeking to make adult decisions. Specifically, LGBTQ+ youth face injustice and inequity when it comes to housing, schooling, parenting, and medical care; all these factors combine into increased risk for cannabis use disorder (CUD) in LGBTQ+ youth. This paper will outline the ideal combination of protective factors and reduction of risk factors created through individual-, school-, and policy-level interventions that would hopefully reduce the risk and prevalence of CUD in LGBTQ+ high schoolers.

Content warning: This paper discusses substance abuse, mental health, and discrimination. Readers are advised to take these into account before proceeding.

Introduction

In 2021, we find ourselves at a turning point for cannabis legalization, prevalence, and normalization in American society. With decriminalization and legalization bills being debated and passed in state governments around the United States, cannabis is making a mainstream entrance into our society. Along with attitudes about cannabis, cannabis itself is changing. Over the past couple of decades, cannabis has decreased in price and increased in accessibility and potency from around 9% to 30% THC in the past 3 decades (Amiet et al., 2020). With the rapidly changing nature and presence of cannabis in modern society comes a need to assess how these changes impact and influence adolescents.

Adolescence is a time-period marked by experimentation, a fight for autonomy, and the pursuit of peer acceptance and the formation of a group identity (Medoff, Substance Abuse). Additionally, the adolescent brain undergoes neurobiological changes that contribute to emotional and behavioral changes; the prefrontal cortex, which is responsible for cognitive control and impulse inhibition, experiences a decline in serotonin and glucose metabolism. The amygdala, which is responsible for emotional processing and motivation, grows during puberty, particularly in males. These changing brain regions are also regions associated with addiction. (Medoff, Substance Abuse)

Ultimately, a novel substance introduced into an adolescent's brain chemistry has the potential to take advantage of their developing, manipulable brain. Trying a substance for the first time is daring and exhilarating, and this novelty stimulates the release of dopamine (Medoff, Substance Abuse). A literature review found stronger acute and chronic effects of regular heavy cannabis use during adolescence rather than heavy use during adulthood, suggesting the adolescent brain is particularly sensitive to cannabis. Specifically, the development of the endocannabinoid system may be disrupted, and synaptic pruning and white matter development may both be impacted, which may cascade into other negative cognitive and developmental effects (Lubman et al., 2015).

All these factors together create an ideal breeding ground for a substance use disorder in adolescents. Cannabis use disorder (CUD) is a diagnosis given to people with problematic cannabis consumption habits, defined as the inability to stop using cannabis despite its negative impacts on their health or social life. A 2020 research study analyzing data from the National Survey of Drug Use and Health from the Substance Abuse and Mental Health Services Administration found that adolescents aged 12-17 who began to use cannabis within the last 12 months were significantly more likely to develop a cannabis use disorder than young adults aged 18-25 who similarly began to use cannabis within the last 12 months (Volkow et al., 2021). This finding signals a faster transition to a substance use disorder in adolescence than in young adulthood and emphasizes the dire need for an early intervention.

Generally, the literature agrees that experiencing cannabis for the first time at a younger age is correlated with a higher risk of developing a CUD. CUD is consistently more prevalent in people who had an earlier first-time experience using cannabis; additionally in the cited study, at each 12-month period since first-time cannabis use, adolescents had significantly higher rates of

CUD than their young adult counterparts (Han et al., 2018). When CUD takes a step further and becomes a multifaceted substance abuse disorder, called polysubstance use disorder in the DSM-IV but dropped in the DSM-V in favor of diagnosing multiple individual substance use disorders, youth are put at risk for other health concerns. Youth with polysubstance use report worse physical and mental health, often engage in other risk behaviors, perform worse in school and have lower high school graduation rates, and are more likely to increase than decrease the number of substances used over time (Zuckermann et al., 2020). These findings further emphasize the urgent need to prevent adolescents from trying cannabis at an early age.

LGBTQ+ youth are often subject to identity-based harassment and discrimination and thus face additional risks for developing CUD. LGBTQ+ youth are more likely to experience bullying, harassment, feelings of alienation, and assault (Prevost, 2021), and adolescents who have been physically or sexually assaulted are more likely to develop a substance use disorder (Human Rights Campaign Foundation). Data from the Youth Risk Behavior Surveillance Survey in 2017 found that LGB high school students used substances at significantly higher rates than their heterosexual counterparts (Kann et al., 2018).

Transgender youth in particular face additional inequities and unique outcomes when it comes to the harms associated with cannabis use disorder and substance abuse in general. This population is often overlooked in terms of interventions and prevention. Moreover, transgender youth often face additional discrimination in healthcare and bullying at school, putting them at greater risk for poor social and health outcomes. An analysis of data from a gender clinic in Los Angeles found that 51% of clients reported lifetime suicidal ideation, and 30% reported at least one lifetime suicide attempt (Connolly et al., 2016). A 2019 study found that people with a substance use disorder have a risk of dying by suicide seven times greater than people without substance use disorders (The Trevor Project, 2020). While this statistic was determined for the general population, it can be safely assumed that transgender youth, who face higher rates of suicide attempts and death by suicide compared to their cisgender counterparts, would have compound risk associated with experiencing cannabis use disorder. This demographic should be properly screened and monitored for any comorbid increase in mood disorder symptoms, which would further increase their risk for a suicide attempt (Medoff, Self-Harm).

Furthermore, it is unjust to discuss LGBTQ+ youth without underlining prevalence of homelessness in the population. Somewhere from 20 to 40% of unhoused youth identify as LGBTQ+ (Homelessness Policy Research Institute, 2019), and 2% identify as transgender (Los Angeles Homeless Services Authority, 2020), meaning that LGBTQ+ youth are disproportionately represented in the total unhoused youth population. Combining this with the racial demographics of unhoused youth, we find that systemic racism also causes LGBTQ+ people of color to be disproportionately affected by homelessness. Compounding with the health disparities associated with identifying as LGBTQ+, being unhoused puts LGBTQ+ youth at risk for negative health outcomes on a completely different scale, also opening them up to secondary health effects because of potential cannabis or other substance abuse. LGBTQ+ youth experiencing homelessness are more likely to use drugs and be HIV positive in comparison to

the overall United States homeless youth population (Homelessness Policy Research Institute, 2019).

Additionally, the Covid-19 pandemic and social distancing guidelines may exacerbate solitude and other social risk factors for LGBTQ+ adolescents, increasing the likelihood of partaking in riskier cannabis use habits. A Canadian study administered an online survey to adolescents in 2020 and found that the frequency of cannabis use increased in adolescents from the 3 weeks before and after social distancing practices were put into effect (Dumas et al., 2020). Covid-19 and the subsequent stay-at-home orders put many into isolation, disrupting usual routines and limiting access to entertainment, resources, and socialization. For adolescents who use cannabis, they may be used to smoking in a social group setting, which would no longer be permitted under the stay-at-home order, pushing them to smoke alone.

Moreover, smoking alone puts adolescents at new risk. Solitary cannabis use in adolescence is associated with more frequent cannabis use and more CUD symptoms with a weak association with continued CUD symptoms in young adulthood (Creswell et al., 2015). Many of these social users may have turned to solitary cannabis use during the pandemic as a source of entertainment and as a mechanism to cope with this newfound solitude, potentially pushing them towards developing a CUD.

Solitary cannabis users have been found to open up to their parents about their personal problems less than social-only cannabis users (Ellickson et al., 2006), which may compound with the secrecy of not being open with one's sexuality, creating a wide rift in knowledge and emotional connection between parents and their LGBTQ+ children. A longitudinal study following eighth grade solitary substance users found that these users had lower academic achievement and less understanding of the consequences of substance use, and this translated into poorer self-rated health and greater substance use problems by age 23 (Ellickson et al., 2006).

Overall, the amalgamation of risk factors, health disparities, effects of systemic racism, and rapidly changing nature of cannabis in society has led to a disproportionate risk for LGBTQ+ youth to develop a CUD. With this in mind, we must call for a sweeping series of changes in policy, individual treatment, and societal attitudes to protect LGBTQ+ youth, particularly transgender youth and LGBTQ+ youth of color, from falling victim to CUD at the fault of our society.

This paper will focus on highlighting potential areas for intervention in three facets of adolescent cannabis use: monitoring, protective factors, and treatment. Substance abuse does not exist in a vacuum and should not be considered in isolation given the complex social and environmental risk factors that could make substance use a symptom of a greater issue rather than the predominant health issue itself. As a result, this paper will also consider some of the differential risk factors based on social determinants of health and highlight areas of health inequity in this issue.

Individual-Level Interventions: Therapy and Medication Options

The literature on psychiatric medications to treat cannabis use disorder, particularly in adolescents, is extremely limited and with variable, sometimes even conflicting conclusions. An early literature review found that many of the typical pharmacotherapies used for other psychiatric disorders, such as “SSRI antidepressants, mixed action antidepressants, atypical antidepressants (bupropion), anxiolytics (buspirone) and norepinephrine reuptake inhibitors (atomoxetine),” provide little benefit in the treatment of CUD (Marshall et al., 2014). A 2021 systematic review and meta-analysis of pharmacotherapies in the treatment of CUD in adults found some promising preliminary results but a lack of sufficient evidence to support the use of one specific medication in treatment (Bahji et al., 2021). Researchers must continue their search for an effective pharmacotherapeutic intervention for this vulnerable population.

However, due to the high association between CUD and Major Depressive Disorder and Generalized Anxiety Disorder, at least in adults, medication used to treat the comorbid mood disorder may be effective in reducing cannabis use in adults with CUD and a comorbid MDD or GAD diagnosis (Onaemo, Fawehinmi & D’Arcy, 2021). These already tentative results cannot be extrapolated to adolescents without further investigation. This same study in adults found that experiencing depressive symptoms significantly preceded increased cannabis consumption in the following month; however, the reverse pathway (i.e. increased cannabis consumption preceding greater depressive symptoms in the following month) was not significant, suggesting that treatment of an underlying mood disorder may alleviate heavy cannabis use (Onaemo, Fawehinmi & D’Arcy, 2021).

Additionally, empirical evidence supporting therapy options for adolescents with CUD is similarly limited. As of 2020, there were only two randomized control trials to test the efficacy of different therapy options – cognitive behavioral therapy (CBT), motivational enhancement therapy (MET), and multidimensional family therapy (MDFT) – in treating adolescents with CUD. Despite the shallow literature pool, both studies found that adolescents with CUD who underwent CBT, MET, and MDFT treatment, or a combination thereof, experienced significant decreases in cannabis use, with some even no longer meeting the criteria for CUD.

However, both trials also resulted in high relapse rates at over 50% of participants experiencing at least one relapse episode after their course of treatment (Aguinaldo et al., 2019). The high rates of cannabis use reduction in response to these therapies combined with high relapse rates demonstrate a need to actively participate in therapy to reap its benefits. Additionally, adolescents who no longer meet the criteria for CUD are not considered “cured”; rather, they are always at risk of relapsing and returning to cannabis abuse. Consequently, adolescents with CUD, who are at continued increased risk of CUD and other substance abuse through young adulthood, should continue to be monitored even after receiving effective therapy treatment.

Especially when discussing treatment options for LGBTQ+ youth, there are important limitations that may affect a LGBTQ+ youth’s access to certain treatments. This population is one marked by high rates of family rejection and experiencing homelessness, which would render MDFT inaccessible. Housed LGBTQ+ youth may still face rejection of their gender or

sexual identity from their family, who may refuse to participate in MDFT. Despite the existence of free, low-cost, and/or online therapy options, unhoused LGBTQ+ youth may not be able to access therapy altogether due to financial, transportation, or technological limitations. Unhoused LGBTQ+ adolescents face the most risk, but also have some of the least access to treatment. For them, early prevention and education may be the deciding factor in development and advancement of a cannabis use disorder, creating a dire need for increased access to affordable therapy for LGBTQ+ youth.

Financial and situational feasibility must be considered for this population with greatly varying socioeconomic status. A randomized control trial found that MDFT was associated with higher costs and larger effects in treating adolescent CUD – demonstrating a potential gradient in access to and benefits reaped from treatment based on one’s financial, housing, and family situations. This trial, when including costs for delinquency associated with adolescent CUD, found that MDFT was ultimately the most cost-effective treatment (Goorden et al., 2016).

Family-level Interventions: Acceptance, Knowledge and Skills, and Parenting Styles

Family support is a strong protective factor against a number of undesirable outcomes in adolescent development, including the development of a substance abuse disorder (Medoff, Substance Abuse). Adolescence is generally marked by a strong emotional need for acceptance from others, and this is especially true for acceptance from one’s family. Family acceptance is particularly important for LGBTQ+ teens, whose identity may come under significant scrutiny from their parents to the point of full rejection and being kicked out of their family’s home. The San Francisco State University’s Family Acceptance Project found that a LGBTQ+ youth’s risk of substance abuse decreases as their family’s acceptance of their LGBTQ+ identity increases (Human Rights Campaign Foundation).

Furthermore, LGBTQ+ youth are more likely to experience stress in their relationship with their family as a result of their sexuality, either due to hiding their sexuality from their parents or some kind of negative parental response. Only 49 percent of LGBTQ+ youth in the Human Rights Campaign Foundation Youth Survey reported having an adult in their family they could go to for help, compared to 79 percent for non-LGBTQ+ youth (Human Rights Campaign Foundation).

Additionally, parenting styles strongly influence outcomes in adolescents. A study analyzing data from the Transition to Adulthood survey, a longitudinal study with a focus on low-income families, found that adolescents who reported more acceptance and less psychological control from their parents were less likely to abuse substances and reported general positive well-being during the transition to young adulthood. Conversely, regardless of parental acceptance, higher levels of reported psychological control predicted subsequent substance use in the transition to adulthood (Lee, Beckert & Marsee, 2018).

Families and parents should also consider their own substance use and abuse history when considering their child’s risk for developing CUD, particularly as cannabis is increasingly legalized and prevalent in the United States. Family history of substance use and abuse is a risk

factor for developing a substance abuse disorder (Medoff, Substance Abuse). Specifically, parental CUD is associated with adolescent cannabis use and low positive parenting, a known risk factor for adolescent cannabis use; parental cannabis use without CUD does not confer the same association (Hill et al., 2018). Parents with CUD may be inhibited from providing the positive parenting that is necessary for healthy adolescent development.

School-Level Interventions: GSAs, Anti-Bullying Policies, and Administrative Support

School culture and experiences at school have the potential to augment risk factors to the already at-risk LGBTQ+ youth population or provide protective factors to deter substance abuse and potential development of a CUD. Gender- and sexuality-based bullying has been found to exacerbate cannabis use in LGBTQ+ adolescents (Coulter et al., 2018). Also, LGBTQ+ youth may underreport bullying for several reasons, including fear of disclosing their sexual or gender minority status to school administration. If LGBTQ+ youth experience identity-based harassment at school, the effectiveness of other interventions will be curtailed, demonstrating a dire need for anti-bullying protections specifically for LGBTQ+ youth at a school- and even state-level.

GSA clubs – Gay-Straight Alliances, or as named at some schools, Gender and Sexuality Awareness club – play a key role in shaping the culture of a school and attitudes towards LGBTQ+ students on top of providing potentially the only safe space for LGBTQ+ students at school. One prospective analysis found that fewer homophobic bullying events took place in the year following the formation of a GSA. This protective effect persists – the researchers noted a decrease in homophobic bullying from one year to the next after the formation of a GSA (Ioverno et al., 2016). Interestingly, this study found that this drop in homophobic bullying was independent of participation or lack thereof in GSA activities, suggesting that GSAs generally aim to shape the culture of schools into a safe climate for all LGBTQ+ students, not only active members of the GSA. Ultimately, this suggests that the presence of a GSA at a school is enough to be a protective factor against homophobic bullying and thus a protective factor against development of CUD (Ioverno et al., 2016). For LGBTQ+ youth, the mere presence of a GSA at a school signals acceptance and support from the school administration.

From an administrative level, a harm-reduction approach may curtail substance use in adolescents. Often, schools implement zero-tolerance policies, serving severe and potentially disruptive predetermined punishments in response to drug use, including suspension or expulsion from school. However, these zero-tolerance policies are often biased against LGBTQ+ youth and obstruct their recovery rather than deter drug use (Himmelstein & Bruckner, 2011). On top of this, adolescents with a higher frequency of cannabis use and earlier onset of cannabis use suffer from lower rates of high school graduation (Castellanos-Ryan et al., 2016). Enacting punishment on LGBTQ+ adolescents with CUD, who already face lower school performance and graduation rates, may only exacerbate these issues, disrupting their school achievement, sense of accomplishment, and potentially upsetting their parents and straining family relationships even further.

One example of an effective harm-reduction approach in a school setting is providing a punishment-free, motivational check-in for adolescent cannabis users as described in Walker et al. (2016). The researchers in this study created the Teen Marijuana Checkup, a school-based voluntary intervention offering the opportunity for adolescents unwilling to go to treatment to ask questions and express concerns about their cannabis use. This form of MET could be implemented in schools to provide an effective intervention for heavy cannabis users or adolescents with CUD who may be hesitant or unable to receive treatment.

General anti-substance use education and policies in place at a school may also indirectly aid LGBTQ+ youth. Ongoing education beginning before adolescence is an important tool in preventing adolescent substance abuse. Schools can practice refusal skills using role-play to protect the adolescents from succumbing to peer pressure (Medoff, Substance Abuse). The Popularity Socialization Hypothesis posits that popular adolescents play a significant role in modelling risk behaviors to less popular adolescents (Dumas, Ellis & Litt, 2020). Given that peer substance use is a risk factor for adolescent substance use (Medoff, Substance Abuse), preventing any student from initiating substance use may have cascading protective effects on LGBTQ+ youth.

Community/Cultural-Level Interventions: City, State, and Medical Policies and Resources

Bringing in the federal government, the Substance Abuse and Mental Health Services Administration (SAMHSA) has a 24/7, free, confidential hotline that can connect youth to services. On a state policy level, SAMHSA has block grants which provide funding for substance abuse and mental health services to states that apply for a grant. States could advocate for receiving a block grant to fund LGBTQ-specific substance abuse treatment (Substance Abuse and Mental Health Services Administration).

LGBTQ+ youth have the additional stress of being their own advocates in their healthcare. If LGBTQ+ adolescents are not out to their parents or feel uncomfortable disclosing their sexuality to their healthcare providers, it may be difficult for them to share details about their sexual identity and experiences. This limited communication can lead to inadequate education, screening, and interventions, and thus, poorer healthcare outcomes (Hafeez et al., 2017). Additionally, even if this information is disclosed, healthcare providers may not be adequately trained on the specific needs of the LGBTQ+ community (Hafeez et al., 2017).

Social media platforms play a huge role in shaping adolescents' perception of the world and the content that they consume. California has a series of restrictions in place to minimize the marketing of cannabis to people under 21. However, adolescents may still be exposed to cannabis media and marketing through social media. A cross-sectional online survey of high-school aged adolescents found that exposure to cannabis via social media was significantly associated with past-year cannabis use, and this association was increased with each additional platform that exposed adolescents to cannabis (Whitehill et al., 2020).

Potential Outcomes and Limitations

LGBTQ+ experiences are incredibly unique – the LGBTQ+ community is not a monolith, as it comprises of people of all races, genders, socioeconomic statuses, housing statuses, family structures, etc. For the most privileged, non-minority, housed with a supportive family, high socioeconomic status LGBTQ+ youth, they may benefit greatly from the combination of these protective factors and treatment options. Conversely, a poor, person of color, high-school dropout, unhoused youth estranged from their family is incredibly at-risk, with so many possible combinations of factors in between. Still, though, risk factors alone do not determine whether cannabis use will evolve into full-blown CUD.

There also exists a lack of literature that relates queerness, adolescence, and cannabis use specifically. Many studies have confounding factors that rendered significant results insignificant when included in the statistical analysis. For example, adolescents commonly do not singly use cannabis; rather, they often experiment with alcohol and nicotine as well. The effects of repeated use of cannabis can be unclear since many cannabis users also drink alcohol, which has its own set of cognitive detriments. This is particularly true for LGBTQ+ teens, who face a number of unique stressors and risk factors.

Furthermore, CUD in LGBTQ+ high schoolers is a rapidly changing issue due to the evolving nature of cannabis culture, and even cannabis itself, in society. As a result, research and treatment courses must play a game of catch-up with the increasing reach of more potent forms of cannabis. However, cannabis research is blunted and restricted by the United States Drug Enforcement Agency, which has limited researchers for decades to only using cannabis grown at the University of Mississippi under their contract with the National Institute on Drug Abuse (Wadman, 2021). This cannabis is typically low quality, sitting at just 6-8% THC, nowhere near representative of the 30% THC cannabis that an 18-year-old with a medical cannabis card can legally purchase and consume on any given day. As a result, much of the published literature does not reflect the current substance climate of our contemporary society.

In Closing

In conclusion, the United States has much work to do in order to protect our LGBTQ+ youth from the growing reach of cannabis. A conglomerate of individual, familial, societal, political, and academic interventions is necessary to create the ideal environment for LGBTQ+ youth to avoid falling into the cannabis use to CUD to polysubstance abuse pipeline and the secondary health issues and social detriments associated with it. Research on the longitudinal effects of cannabis use and a potential psychopharmaceutical intervention must continue, and the medical community should understand the specific needs of the LGBTQ+ community and prepare itself for an increase in cannabinoid-induced conditions. As always, special attention should be paid to LGBTQ+ and trans youth of color, who face compounding minority stress. However, as attitudes towards the LGBTQ+ community change, policies and medical research advance, and LGBTQ-specific resources are developed, there is hope on the horizon for this vulnerable, glorious population.

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