

## Addressing the Epidemic That Will Outlast COVID-19: Exploring Solutions to Adolescent Substance Use After the COVID-19 Pandemic

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### Abstract

For decades, many adolescents have struggled with substance use, as well as the vast physical and development consequences that accompany it. While the prevalence of most substances, such as cigarettes and alcohol, have fallen dramatically over time, others, in particular e-cigarettes and marijuana, threaten to be dangerously popular for years to come. However, since the start of the COVID-19 pandemic, new trends in adolescent substance use have emerged, producing challenges to which policymakers must adapt. Hopefully, these severe circumstances trigger urgency, and with that, investment in modern solutions such as marketing restrictions on digital media and telemedicine-based treatment for substance use disorders.

Keywords: substance use, adolescents, COVID-19, telemedicine

## Addressing the Epidemic That Will Outlast COVID-19

In 2019, prior to the outbreak of COVID-19, US adolescents used most substances at historically-low, yet still worrisome, rates – e.g., among high schoolers, the 30-day prevalence of alcohol, cigarettes, and marijuana were 18%, 4%, and 16%, respectively.<sup>1</sup> Meanwhile, use of electronic cigarettes (also known as e-cigarettes, or vapes) had skyrocketed to 23%, nearly twice the rate from two years prior, largely due to their low perceived risk among youth – only 18% saw regular use as harmful, compared to 41%, 76%, and 30% for alcohol, cigarettes, and marijuana, respectively.<sup>1</sup> Considering the potentially devastating short- and long-term effects of these substances on adolescents’ physical, mental, and social well-being, such high use rates were quite alarming.

For instance, from excessive use, one might experience alcohol poisoning<sup>2</sup> or chronic attention and mood disorders caused by the nicotine in electronic or traditional combustible cigarettes.<sup>3</sup> Also, youth who use marijuana are more likely to experiment with other more harmful drugs, such as cocaine or heroin, known as the “gateway effect.”<sup>4</sup> In addition, young substance users often associate with high-risk social circles and take more risks,<sup>5</sup> potentially leading to dangerous sexual behavior<sup>6</sup> or legal issues.<sup>2</sup> Perhaps most importantly, the introduction of substances in adolescence vastly increases the likelihood that an individual becomes unable to control their use despite the harm it causes them, called a substance use disorder (SUD) – e.g., individuals who drink by age fourteen develop alcohol abuse or dependence over seven times more frequently than those who do not.<sup>2</sup> These and other consequences may impede personal and social development, making adolescent substance users particularly vulnerable to incarceration, poverty, unemployment, and homelessness.<sup>7</sup>

Over the years, the US government has regularly passed legislation to address this public health epidemic. In the 1980s, a rise in the federal drinking age, combined with public-funded anti-alcohol advertisements, helped spur a 20% reduction in adolescent alcohol consumption.<sup>1</sup> Following the 2009 Tobacco Control Act, the Food and Drug Administration (FDA) imposed a higher tobacco tax and began to require graphic health warnings on cigarette packaging,<sup>8</sup> contributing to a near 25% fall in youth cigarette use over the past two decades.<sup>1</sup>

More recently, in response to the recent hike in adolescent e-cigarette use, the FDA increased the legal age required to purchase e-cigarettes to twenty-one, banned the sale of e-cigarettes with flavors marketed at youth, and started an e-cigarette prevention ad campaign called “The Real Cost.” (“FDA’s Youth Tobacco Prevention Plan,” 2020). Although past state-level restrictions have shown early success,<sup>9</sup> some experts are pessimistic that these regulations will lead to increased consumption of combustible cigarettes and counterfeit e-cigarettes, both of which contain higher quantities of unsafe chemicals than FDA-approved e-cigarettes.<sup>10</sup> Only time will tell the true outcomes, both intended and unforeseen, of these

policies. The same can be said about recent campaigns to legalize marijuana – by the end of 2021, 36 states allow the medical use of cannabis and 18 permit recreational use.<sup>11</sup> However, research has shown these legalizations to be associated with significant reductions in the perceived health risk of marijuana use among youth,<sup>12</sup> suggesting they may cause adolescent marijuana use to increase in areas where availability broadens.<sup>13, 14</sup>

Unfortunately, the COVID-19 pandemic is an additional and immense challenge for policymakers to consider. Due to school and business lockdowns, cancellations of developmental milestones and social events, and increased familial anxiety, adolescents have experienced more stress, boredom, and social isolation during the pandemic, all risk factors for substance use.<sup>15</sup> Also, for youth with SUDs, it became more challenging to access social support since in-person contacts were so limited,<sup>16</sup> damaging an essential piece of the recovery process.

At the same time, the perceived availability of alcohol, marijuana, and vaping devices among adolescents dropped to historic lows over the past two years due to business shutdowns and social gathering restrictions – e.g., 62% of 12<sup>th</sup> graders in the Summer of 2020 reported that alcohol was easily accessible, down from 86% pre-pandemic.<sup>17</sup> Similarly, youth experienced increased parental supervision during the pandemic,<sup>18</sup> likely deterring substance use. Moreover, adolescents, although less worried than adults about the health risks of COVID-19 and more likely to take health risks for social benefit,<sup>19</sup> had less opportunity to use substances in social settings.

In the end, the percentage of youth who used alcohol, marijuana, and e-cigarettes in 2021 fell significantly from the prior year – among 12<sup>th</sup> graders, by 9%, 5%, and 8%, respectively.<sup>20</sup> However, data from earlier in the pandemic, before drops in alcohol and marijuana use rates were observed,<sup>17, 19</sup> showed that youth who experienced heightened depression, extreme stress about COVID-19, or loss of family income were significantly more likely to use substances than those who did not.<sup>18</sup> Also, by mid-to-late 2020, the frequency of alcohol and marijuana use had increased significantly among adolescents, by an average of 5.2 and 8.0 days per month, respectively.<sup>19</sup> Although research is still in the early stages, it seems possible that, especially earlier in the pandemic, youth with access to substances, often through their parents,<sup>21</sup> increased their usage largely due to their heightened psychological distress. Nevertheless, particularly as the pandemic endured, most youth had limited opportunities to acquire or use substances, causing substantial drops in overall usage.

Looking to the future, US drug policy makers cannot respond to these recent positive trends with complacency. Instead, they must acknowledge the reality that, as the social and economic restrictions of the pandemic inevitably end, and the perceived inaccessibility of drugs subsequently declines, a surge in adolescent drug use is very possible. Unfortunately,

the mental health crisis facing youth, and the substance use it causes, could very well persist even as the pandemic subsides.<sup>22</sup> Youth, in a critical period of psychological and social development, are particularly susceptible to chronic mental health issues due to trauma such as the COVID-19 pandemic.<sup>23</sup> Additionally, adolescents have fewer coping resources than ever before due to shrinking social networks and deaths of loved ones.<sup>24</sup> Not to mention, studies on past disasters, such as Hurricane Katrina, show that negative trends in substance use continue even as behavioral and emotional problems subside.<sup>25</sup>

All this considered, policymakers must invest in more drastic measures to prevent adolescent substance use and treat youth and young adults with existing SUDs. If neglected, this generation could face long-term challenges greater than those observed in American society today, such as reduced quality of life<sup>26</sup> and stagnating life expectancy.<sup>27</sup> In addition, the exorbitant economic cost of drug use – recently estimated at \$400 billion annually, due to factors such as lost productivity, absenteeism, and healthcare expenses – would inevitably increase.<sup>28</sup>

Various strategies exist to curb adolescent drug use, but increased regulations on drug and alcohol marketing in digital media may be the most effective. Exposure to substance-use related media and advertising is associated with increased positive attitudes towards, and use of, addictive substances, particularly among youth.<sup>29, 30, 31</sup> Today, as youth spend increasing time online<sup>30</sup> and model much of their behavior on social media content,<sup>32</sup> their risk of exposure is at an all-time high. However, current US regulations are largely ineffective at reducing adolescents' interaction with drug and alcohol advertisements online. For instance, most US alcohol companies follow a voluntary, self-regulated marketing code backed by the Federal Trade Commission, which states that 71.6% of an advertisement's audience must be over 21 years old<sup>33</sup>; still, on the Internet and social media, youth are frequently exposed to alcohol ads.<sup>34</sup>

Various statistical models and studies on bans in other countries show that more strictly enforced and comprehensive regulations on the digital marketing of alcohol, as well as marijuana and e-cigarettes, would be highly effective at increasing perceived risk and reducing use.<sup>34, 35, 36</sup> Such regulation could potentially target the time, place, or content of advertising. Also, restrictions on marijuana marketing may be more plausible before ads for legal products become more widespread. Perhaps most importantly, this strategy seems politically feasible considering the past success of similar legislation and the recent drop in investment and involvement in once-popular school- and community-based drug prevention programs.<sup>37</sup>

In addition, further investment in treatment options for youth with SUDs is necessary. Today, due to factors such as social stigma,<sup>16</sup> insufficient resources, and a lack of access to treatment, only 8% of twelve- to seventeen-year-olds with SUDs receive specialized care.<sup>15</sup> To address these issues, policymakers should support providers in the shift to

telemedicine, a form of care in which patients and providers use various technologies to communicate virtually, often as a complement to traditional in-person visits. It can help address numerous barriers to care often faced by low-income or stigmatized patients, such as a lack of transportation, a lack of local providers, or a lack of anonymity.<sup>38</sup>

Pre-pandemic, SUD care providers used telemedicine in fewer than 1% of total visits,<sup>39</sup> while over one-third reported high interest in some form of telemedicine but did not use it.<sup>40</sup> By late 2020, use of telemedicine had skyrocketed – 41% of visits utilized telemedicine<sup>39</sup> – as providers were forced to alter practices to reduce COVID-19 transmission. Even with limited experience, many were able to sustain high patient loads<sup>41</sup> and reduce wait times.<sup>42</sup> Undoubtedly, with future investment and regulation, telemedicine has great potential to help reduce the current gap in adolescent SUD coverage. Various avenues are possible, such as mobile apps, videoconference- or telephone-based support, recovery support group chats,<sup>40</sup> or community telemedicine kiosks.<sup>42</sup>

Ideally, policymakers and care providers use a combination of these and other intervention styles to curtail the immediate and pervasive problem of adolescent substance use. After all, anxiety and depression from the pandemic, combined with the effects of marijuana legalizations, ever-encroaching digital media, and the expanding e-cigarette market, makes today's youth exceptionally vulnerable to substance use, and the vast consequences that accompany it. Even as society reverts to some semblance of normalcy following the COVID-19 pandemic, policymakers must recognize the urgency of this moment and invest in strategies to protect the new generation before it is too late.

## References

- <sup>1</sup> Johnston, L. D., et al. (2020). Monitoring the Future national survey results on drug use 1975-2019: Overview, key findings on adolescent drug use. *Ann Arbor: Institute for Social Research, U of Mich.*
- <sup>2</sup> Winters et al. (2014). Current advances in the treatment of adolescent drug use. *Ado Health, Med & Therapeutics*, 2014(5), 199-210.
- <sup>3</sup> McCarthy, M. (2016). E-cigarettes are major threat to young people's health, says US surgeon general. *BMJ: British Med J*, 355.
- <sup>4</sup> Van Gundy, K., Rebellon, C. J. (2010). A life-course perspective on the "Gateway Hypothesis" *J Health & Social Behavior*, 51(3), 244-259.
- <sup>5</sup> Baskin-Sommers, A., Sommers, I. (2006). The co-occurrence of substance use and high-risk behaviors. *J Ado Health*, 38(5), 609-611.
- <sup>6</sup> Zebrak, K. A., Green, K. M. (2017). The role of young adult social bonds, substance problems, and sexual risk in pathways between adolescent substance use and midlife risky sexual behavior among urban African Americans. *Psych of Addictive Behaviors*, 31(7), 828-838.
- <sup>7</sup> Chang, J., et al. (2020). COVID-19 – Enacting a 'new normal' for people who use drugs. *Int J Drug Pol*, 83, 102832.
- <sup>8</sup> Andrews, J. C., Choiniere, C. J., Portnoy, D. B. (2015). Opportunities for Consumer Research from the Food and Drug Administration's Center for Tobacco Products. *J Pub Pol & Marketing*, 34(1), 119–130.
- <sup>9</sup> Abouk, R., Adams, S. (2017). Bans on electronic cigarette sales to minors and smoking among high school students. *J Health Econ*, 54, 17-24. \
- <sup>10</sup> McKenna, S. A. (2021). Banning flavored e-cigarettes could have unintended public health consequences. *R Street Institute*.
- <sup>11</sup> *State medical marijuana laws*. (2021, August 23). National Conference of State Legislatures. <https://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx>
- <sup>12</sup> Wen, H., et al. (2018). The effect of medical marijuana laws on marijuana-related attitude and perception among US adolescents and young adults. *Prevention Science*, 20(2), 215-223.
- <sup>13</sup> Paschall, M. J., et al. (2021). Recreational marijuana legalization and use among California adolescents: Findings from a statewide survey. *J Studies on Alc & Drugs*, 82(1), 103-111.
- <sup>14</sup> Yu, B., et al. (2020). Marijuana legalization and historical trends in marijuana use among US residents aged 12-25: Results from the 1979–2016 national survey on drug use and health. *BMC Pub Health*, 20(1).
- <sup>15</sup> Sarvey, D., & Welsh, J. W. (2021). Adolescent substance use: Challenges and opportunities related to COVID-19. *J Sub Abuse Treatment*, 122, 108212.
- <sup>16</sup> Volkow, N. D. (2020). Collision of the covid-19 and addiction epidemics. *Annals of Internal Med*, 173(1), 61-62.

- <sup>17</sup> Miech, R., et al. (2021). Adolescent drug use before and during U.S. national COVID-19 social distancing policies. *Drug & Alc Dependence*, 226, 1-7.
- <sup>18</sup> Pelham, W. E., et al. (2021). Early adolescent substance use before and during the COVID-19 pandemic: A longitudinal survey in the ABCD study cohort, *J Ado Health*, 69(3), 390-397.
- <sup>19</sup> Dumas, T. M., et al. (2020). What does adolescent substance use look like during the covid-19 pandemic? Examining changes in frequency, social contexts, and pandemic-related predictors. *J Ado Health*, 67(3), 354-361.
- <sup>20</sup> *Percentage of adolescents*, (2021). National Institutes of Health. <https://www.nih.gov/news-events/news-releases/percentage-adolescents-reporting-drug-use-decreased-significantly-2021-covid-19-pandemic-endured>
- <sup>21</sup> Enos, G. (2021). Pandemic did not lead to decrease in alcohol and marijuana use by youth. *Alc & Drug Abuse Weekly*, 33(28), 1-8.
- <sup>22</sup> *Protecting youth mental health*. (2021, December 7). The U.S. Surgeon General's Advisory. <https://www.hhs.gov/sites/default/files/surgeon-general-youth-mental-health-advisory.pdf>
- <sup>23</sup> Miranda, D. M. d., et al. (2020). How is COVID-19 pandemic impacting mental health of children and adolescents? *Int J Disaster Risk Red*, 51, 101845.
- <sup>24</sup> Jemberie, W. B., et al. (2020). Substance use disorders and COVID-19: multi-faceted problems which require multi-pronged solutions. *Frontiers in Psychiatry*, 11(714).
- <sup>25</sup> Ingoglia, C. (2021). COVID-19 and youth substance use: We need more than good intentions. *J Behav Health Serv Res*, 48, 1-3.
- <sup>26</sup> *Economic cost of substance abuse disorder in the United States, 2019*. (2020). Recovery Centers of America. <https://recoverycentersofamerica.com/resource/economic-cost-of-substance-abuse-disorder-in-united-states-2019/>
- <sup>27</sup> Imtiaz, S., et al. (2018). Substance use and population life expectancy in the USA: Interactions with health inequalities and implications for policy. *Drug & Alc Rev*, 37(1), 263-267.
- <sup>28</sup> Goplerud, E., et al. (2017). A substance use cost calculator for US employers with an emphasis on prescription pain medication misuse. *J Occup & Enviro Med*, 59(11), 1063-1071.
- <sup>29</sup> D'Amico, E. J., et al. (2018). Planting the seed for marijuana use: Changes in exposure to medical marijuana advertising and subsequent adolescent marijuana use, cognitions, and consequences over seven years. *Drug & Alc Dependence*, 188, 385-391.
- <sup>30</sup> Davis, J. P., et al. (2019). Long-term associations between substance use-related media exposure, descriptive norms, and alcohol use from adolescence to youth adulthood. *J Youth Ado*, 48, 1311-1326.

- <sup>31</sup> Giovenco, D. P., et al. (2016). Association between electronic cigarette marketing near schools and e-cigarette use among youth. *J Ado Health*, 59(6), 627-634.
- <sup>32</sup> Jackson, K. M., et al. (2018). Media/Marketing influences on adolescent and young adult substance abuse. *Current Addiction Reports*, 5(2), 146-157.
- <sup>33</sup> *Self-regulation*, (2014). Federal Trade Commission. <https://www.ftc.gov/system/files/documents/reports/self-regulation-alcohol-industry-report-federal-trade-commission/140320alcoholreport.pdf>
- <sup>34</sup> Esser, M. B., Jernigan, D. H. (2018). Policy approaches for regulating alcohol marketing in a global context: A public health perspective. *An Rev Pub Health*, 39, 385-401.
- <sup>35</sup> Hammond, D., et al. (2020). E-cigarette marketing regulations and youth vaping: Cross-sectional surveys, 2017-2019. *Pediatrics*, 146(1), e20194020.
- <sup>36</sup> Pacula, P. L., et al. (2014). Developing Public health regulations for marijuana: Lessons from alcohol and tobacco. *Am J Pub Health*, 104, 1021-1028.
- <sup>37</sup> Salas-Wright, C. P., et al. (2019). Trends in substance use prevention program participation among adolescents in the U.S. *J Ado Health*, 65(3), 426-429.
- <sup>38</sup> Lopez, C., et al. (2020). Meeting kids where they are at – A substance use and sexual risk prevention program via telemedicine for African American girls: Usability and acceptability study. *J Med Internet Research*, 22(8), e16725.
- <sup>39</sup> Busch, A. B., et al. (2021). Telemedicine for treating mental health and substance use disorders: Reflections since the pandemic. *Neuropsychopharmacol.* 46, 1068-1070.
- <sup>40</sup> Molfenter, T., et al. (2018). Use of telemedicine in addiction treatment: Current practices and organizational implementation characteristics. *Int J Telemedicine & Applications*.
- <sup>41</sup> Barney A., et al. (2020). The COVID-19 pandemic and rapid implementation of adolescent and young adult telemedicine: Challenges and opportunities for innovation. *J Ado Health*, 67(2), 164-171.
- <sup>42</sup> Evans, Y. N., et al. (2020). Using telemedicine to reach adolescents during the COVID-19 pandemic. *J Ado Health*, 67(4), 469-471.