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Regulating Addictive Substances: It's Time to Protect Our Teens

Editor's note: The following op-ed was written by Sharon Levy, MD, MPH, Director of the [Adolescent Substance Use and Addiction Program](#) at Boston Children's Hospital and Associate Professor of Pediatrics at Harvard Medical School. This op-ed is part of our [Special Series on Pathways to Addiction](#)



Winston Churchill once said, “I could not live without champagne. In victory I deserve it. In defeat, I need it.” His observations reflect our cultural attitudes towards alcohol use: no matter what your emotional state, drinking alcohol will enhance it. We hold similar attitudes towards cannabis use, which we treat as the cure for hundreds of conditions, from glaucoma to insomnia and anxiety. While we recognize that cigarettes are unhealthy, we treat vaping as the “free lunch” of nicotine use, and the behavior that will rescue public health from the tobacco industry. These messages have been widely accepted and disseminated within popular culture; many of us don’t notice when we tacitly agree with them by laughing at a meme on social media or a joke on late night television. If we stop to think about for a moment, it doesn’t make sense that alcohol will improve, repair, or enhance any emotional state, that cannabis will treat every condition on a long and disparate list of physical and emotional problems, or that nicotine addiction is not really a problem as long as you can get your nicotine without smoking. Yet, these messages surround our children who absorb them as they are growing up, with very little to counterbalance them. By adolescence, many teens do exactly what we have been telling them to do: drink alcohol, use cannabis and vape nicotine.

Teenagers have a natural, developmental preference for highly stimulating and neurologically rewarding experiences – a tendency casually confirmed by noting the composition of audiences at horror movies, people waiting on lines for rollercoasters and athletes who participate in extreme sports. During adolescence, the concentration of dopamine receptors that signal pleasure in the brain peaks. Psychoactive substances like alcohol, nicotine and cannabis are pleasurable because they efficiently trigger dopamine firing – they are a neurological jackpot as far as brain reward is concerned. While unnatural, substance use effectively satisfies the developmental drive of adolescence for brain reward.

It stands to reason that adolescents and young adults will be curious about substance use, and in fact, national surveys have found that the majority of people who use alcohol and the vast majority of people who use drugs start between the ages of 14 and 20, with only a tiny minority of people initiating any new substance use after their 25th birthday. That means that people who have not used a drug by their early 20’s are very unlikely ever to do so. For those who do initiate, however, the most typical trajectory from adolescence through young adulthood is increasing quantity, frequency, and variety of substances. During the teen years when the prefrontal cortex is maturing, the brain is also vulnerable to developing the neurological changes associated with addiction. For all intents and purposes, addiction is a pediatric onset neurological disorder.

Developmental biology suggests that we should keep teenagers from using drugs and our laws back that up. Cultural messages are challenging to shift, but over time we have made progress in certain areas. Teen alcohol use has declined substantially over the past 2 decades. The regulation on tobacco products established by the Master Settlement Agreement with the tobacco industry, and further restrictions enacted after the 2008 passage of the Tobacco Control Act have had an enormous impact: teen smoking began plummeting in the 2000’s.

While we have had pockets of success, new products, particularly those introduced without sufficient regulation to distance them from our children, are causing new problems. Indeed, cannabis infused lollipops and candy flavored vaping liquids advertise that these products are child friendly. A 6-year loophole that allowed vaping devices to be marketed before the Food and Drug Administration deemed them within their jurisdiction brought youth nicotine use roaring back as an epidemic in the mid-2010’s. The surge has started to level off, but the vaping genie is out of the bottle: many more teens vape nicotine than smoke cigarettes and cannabis vaping is growing while other forms of teen cannabis use have remained stable or declined.

It is time to ensure that we enact sensible regulation on *all* addictive products to curtail youth use. The history of cigarettes has shown us how to do this effectively. If we follow the tobacco blueprint for cannabis and vaping devices, we may be able to thwart the next fad before it hits the marketplace and reduce the number of adolescents who grow up with addiction.

-- Sharon Levy, MD, MPH, *Director, Adolescent Substance Use and Addiction Program, Boston Children's Hospital; Associate Professor of Pediatrics, Harvard Medical School*

Conflict of Interest Statement

Dr. Levy serves as an expert consultant on the litigation against JUUL and the cannabis industry.

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