

With THC levels close to 100%, today's cannabis products like oil and waxes for vaping are making some teenagers highly dependent and dangerously ill

BY CHRISTINA CARON NEW YORK TIMES

Elysse was 14 when she first started vaping cannabis. It did not smell, which made it easy to hide from her parents. And it was convenient; just press a button and inhale. After the second or third try, she was hooked.

"It was insane. Insane euphoria," said Elysse, now 18, whose last name is being withheld to protect her privacy. "Everything was moving slowly. I got super hungry. Everything was hilarious."

But the euphoria eventually morphed into something more disturbing. Sometimes the marijuana would make Elysse feel more anxious or sad. Another time, she passed out in the shower, only to wake up a half-hour later.

This was not your average weed. The oil and waxes she bought from dealers were typically about 90% THC, the psychoactive component in marijuana.

But because these products were derived from cannabis, and nearly everyone she knew was using them, she assumed they were relatively safe. She began vaping multiple times per day. Her parents did not find out until about one year later, in 2019.

"We got her in a program to help her with it. We tried tough love. We tried everything, to be honest with you," Elysse's father said of her addiction.

Starting in 2020, she began having mysterious bouts of illness during which she would throw up over and over again. At first, she and her parents – and even her doctors – were baffled.

It was not until 2021, after a half-dozen trips to the emergency room for stomach illness, including some hospital stays, that a gastroenterologist diagnosed her with cannabinoid hyperemesis syndrome, a condition that causes recurrent vomiting in heavy marijuana users.

Although recreational cannabis is illegal in the United States for those younger than 21, it has become more accessible as many states have legalized it. But experts say today's high-THC cannabis products – vastly different from the joints smoked decades ago – are poisoning some heavy users, including teenagers.

Marijuana is not as dangerous as a drug like fentanyl, but it can have potentially harmful effects – especially for young people, whose brains are still developing.

In addition to uncontrollable vomiting and addiction, adolescents who frequently use high doses of cannabis may experience psychosis that could lead to a lifelong psychiatric disorder, an increased likelihood of developing depression and suicidal ideation, changes in brain anatomy and connectivity and poor memory.

Despite these dangers, the potency of the products on the market is largely unregulated.

'I felt so trapped'

In 1995, the average concentration of THC in cannabis samples seized by the Drug Enforcement Administration was about 4%.

By 2017, it was 17%. And now cannabis manufacturers are extracting THC to make oils, edibles, wax, sugar-size crystals, and glasslike products called shatter that advertise high THC levels – in some cases exceeding 95%.

Meanwhile, the average level of CBD – the nonintoxicating compound from the cannabis plant tied to relief from seizures, pain, anxiety and inflammation – has been on the decline in cannabis plants. Studies suggest that lower levels of CBD can make cannabis more addictive.

THC concentrates "are as close to the cannabis plant as strawberries are to Frosted Strawberry Pop-Tarts," Beatriz Carlini, a research scientist at the University of Washington's Addictions, Drug and Alcohol Institute, wrote in a report on the health risks of highly concentrated cannabis.

Although cannabis is legal for recreational use in 19 states and Washington, D.C., and for medical use in 37 states and D.C., only Vermont and Connecticut have imposed caps on THC concentration. Both ban concentrates above 60%, with the exception of pre-filled cartridges, and do not permit cannabis plant material to exceed 30% THC. But there is little evidence to suggest these specific levels are somehow safer.

National surveys suggest that marijuana use among eighth-, 10th and 12th-graders decreased in 2021, a change partly attributed to the pandemic. However, over the two-year interval from 2017-19, the number of kids who reported vaping marijuana over the past 30 days rose among all grades, nearly tripling among high school seniors. In 2020, 35% of seniors and as many as 44% of college students reported using marijuana in the past year.

Elysse got sober before entering college but soon found that seemingly everyone on her dorm floor habitually used weed.

"Not only carts," she said, referring to the cannabis cartridges used in vape pens, "but bong, pipes, bowls – absolutely everything." Each morning, she found students washing their bong in the communal bathroom at 8 a.m. to prepare for their "morning smoke."

After a few weeks, she began vaping concentrated THC again, she said, and also started having dark thoughts, occasionally sitting alone in her room and sobbing for hours.

"I felt so trapped," said Elysse, who has now been clean for more than two months. "This is not fun in any way anymore."

Teens particularly affected

Michael McDonell, an addiction treatment expert at the Washington State University college of medicine, said that more research is needed to better understand how much more prevalent psychosis and cannabinoid hyperemesis syndrome have become among teenagers and others using high-potency products.

Even so, he added, "we definitely know that there's a dose-dependent relationship between THC and psychosis."

One rigorous study found that the risk of having a psychotic disorder was five times higher among daily high-potency cannabis users in Europe and Brazil than those who had never used it.

Another study, published in 2021 in JAMA Psychiatry, reported that, in 1995, 2% of schizophrenia diagnoses in Denmark were associated with marijuana use, but by 2010, that figure had risen to 6% to 8%,

which researchers associated with increases in the use and potency of cannabis.

Cannabinoid hyperemesis syndrome, which can often be alleviated by hot baths and showers, is also linked to prolonged, high-dose cannabis use. As with psychosis, it is unclear why some people develop it and others do not.