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Younger age of first cannabis use or prescription drug misuse is associated with faster development of substance use disorders

NIH analysis measures the prevalence of nine substance use disorders after first substance use or misuse in young people

A new study shows that in the time after first trying cannabis or first misusing prescription drugs, the percentages of young people who develop the corresponding substance use disorder are higher among adolescents (ages 12-17) than young adults (ages 18-25). In addition, 30% of young adults develop a heroin use disorder and 25% develop a methamphetamine use disorder a year after first using heroin or methamphetamine. These findings, published in *JAMA Pediatrics*, emphasize the vulnerability of young people to developing substance use disorders.

The study was led by researchers at the National Institute on Drug Abuse (NIDA), part of the National Institutes of Health.

“We know that young people are more vulnerable to developing substance use disorders, but knowledge is limited on how the prevalence of specific substance use disorders varies by time since first substance use or misuse among adolescents and young adults in the United States,” said Dr. Nora Volkow, M.D., NIDA Director and a lead author of the analysis. “Though not everyone who uses a drug will develop addiction, adolescents may develop addiction to substances faster than young adults. This study provides further evidence that delaying substance exposure until the brain is more fully developed may lower risk for developing a substance use disorder.”

To conduct this study, NIDA researchers analyzed data from the nationally representative 2015 to 2018 [National Surveys on Drug Use and Health](#) conducted by the Substance Abuse and Mental Health Services Administration.

The researchers examined the proportion, or prevalence, of adolescents (ages 12-17) and young adults (ages 18-25) who had a substance use disorder in the past year (i.e., past-year substance use disorder) at various intervals since the first time they used or misused one of nine different drugs: tobacco, alcohol, cannabis, cocaine, methamphetamine, heroin, and prescription drugs (opioids, stimulants, and tranquilizers used non-medically). The researchers evaluated past-year substance use disorders at four timepoints since first drug use: fewer than or equal to 12 months, more than 12 through 24 months, more than 24 through 36 months, and more than 36 months.

The researchers found that the prevalence of past-year cannabis use disorder was higher for adolescents than young adults at all examined time frames since first use of the drug. For example, within 12 months since first cannabis use, 10.7% of adolescents had cannabis use disorder versus 6.4% of young adults.

Similarly, for the non-medical use of prescription drugs (opioids, stimulants, and tranquilizers), the researchers found a greater prevalence of past-year substance use disorders among adolescents than young adults at all examined time frames since first use. For example, within 12 months since first misuse of prescription drugs:

- 11.2% of adolescents had prescription opioid use disorder versus 6.9% of young adults.
- 13.9% of adolescents had prescription stimulant use disorder versus 3.9% of young adults.
- 11.2% of adolescents had prescription tranquilizer use disorder versus 4.7% of young adults.

For alcohol and tobacco, adolescents and young adults had similar prevalence of past-year substance use disorders within 12 months of initiation, but that prevalence was higher for young adults in the subsequent time periods examined.

Estimates of cocaine, methamphetamine, and heroin use among adolescents were too small to report. However, approximately one-third of young adults developed a heroin use disorder (30.9%) and one-quarter of young adults developed a methamphetamine use disorder (24.8%) within one year after trying that drug for the first time.

The data excluded individuals who were incarcerated and individuals experiencing homelessness who are not living in shelters, possibly underestimating the prevalence of substance use disorders across the findings, authors noted.

“Research has shown that brain development continues into a person’s 20s, and that age of drug initiation is a very important risk factor for developing addiction,” said Emily B. Einstein, Ph.D., chief of NIDA’s Science Policy Branch and a co-author of the study. “This underscores the importance of drug use prevention and screening for substance use or misuse among adolescents and young adults. Offering timely treatment and support to young people who need it must be a public health priority.”

Reference: ND Volkow, *et al.* [Prevalence of Substance Use Disorders by Time Since First Substance Use Among Young People in the US](#). *JAMA Pediatrics DOI: 10.1001/jamapediatrics.2020.6981* (2021).

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About the National Institute on Drug Abuse (NIDA): NIDA is a component of the National Institutes of Health, U.S. Department of Health and Human Services. NIDA supports most of the world’s research on the health aspects of drug use and addiction. The Institute carries out a large variety of programs to inform policy, improve practice, and advance addiction science. For more information about NIDA and its programs, visit www.drugabuse.gov.

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