

# Inhalant use linked to head injuries, traumatic experiences and mental illness

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Incarcerated youth who have suffered head injuries, traumatic experiences and mental illness diagnoses are more likely to abuse multiple inhalants, according to researchers at Georgia State University and the University of North Carolina at Chapel Hill.

The findings published in the journal *PLOS One* in Sept. report that severe polyinhalant users had more than double the rate of [head injuries](#), the highest rates of [traumatic experiences](#) and the highest rates of mental illness diagnoses among study participants. Delinquent behavior was also higher in severe polyinhalant users and began younger than in other inhalant users.

Polyinhalant use refers to using an assortment of inhalants over a period of time, either simultaneously or successively.

"Our goal is to understand the simultaneous use of specific inhalants, which could lead to prevention and intervention strategies," said Susan M. Snyder, assistant professor in the School of Social Work in the Andrew Young School of Policy Studies at Georgia State. "This study demonstrates the need to address the high rate of head injuries and mental health diagnoses that contribute to polyinhalant use. Based on our findings, we believe that policymakers and clinicians should target antisocial youth for prevention and treatment."

Inhalants are volatile substances that produce chemical vapors that can be inhaled to induce a psychoactive or mind-altering effect, according to

the National Institute on Drug Abuse. Inhalant users "sniff," "huff" or "snort" fumes from containers, paper or plastic bags, soaked rags or directly from aerosol cans.

Inhaling these substances can have dangerous health consequences, including brain damage, heart irregularities, optic nerve damage, hearing loss, liver damage, muscle atrophy and death.

Inhalant use in adolescents disproportionately affects antisocial youth who regularly exhibit behaviors such as aggression, hostility, defiance and destructiveness. Forty percent of antisocial youth have used inhalants compared to about 9 percent of youth in the general population.

This study is the first effort to explore patterns of polyinhalant use among incarcerated youth. Until now, it has been unclear which individual characteristics—such as demographics, personality traits, health conditions, mental health conditions or substance use behavior—are associated with the most severe polyinhalant use.

The study involved 723 incarcerated [youth](#) that lived in 27 different Missouri Division of Youth Services facilities. Interviewers assessed their demographic factors, medical history, psychiatric symptoms, antisocial traits, delinquency, trauma, suicidal thoughts and substance use behaviors. Participants were given a 45-minute screening inventory that asked questions about their lifetime and annual use of 65 inhalants, including whether they had ever huffed inhalant through their nose or mouth in an effort to get high. The researchers completed analysis for 14 [inhalants](#), including model glue, nail polish remover, permanent markers and common substances.

Matthew O. Howard, Frank A. Daniels Professor for Human Services Policy Information at the University of North Carolina at Chapel Hill, also collaborated on this project.

**More information:** Snyder SM, Howard MO (2015) Patterns of Inhalant Use among Incarcerated Youth. *PLoS ONE* 10(9): e0135303. [DOI: 10.1371/journal.pone.0135303](https://doi.org/10.1371/journal.pone.0135303)

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