projectextramile
PREVENTING ALCOHOL-RELATED HARM

RESEARCH SUMMARY
Date Compiled: September 2026

Key takeaways from included research:

- A study determined that nearly half (43.8%) of pedestrian fatalities in New York State from 2018–2020 involved alcohol, drugs, or both. The findings suggest that impaired walking is an important, but often overlooked, traffic safety issue, highlighting the need for prevention efforts that encourage safe travel options for people who are impaired, not just drivers.
- A mouse study found that repeated alcohol intoxication or stress during adolescence led to lasting changes in decision-making, making the animals less likely to carefully assess risk before entering potentially dangerous situations. These findings suggest that adolescent alcohol exposure may have long-term effects on brain processes involved in risk assessment and increase a tendency toward risk-taking in adulthood.
- A national study following nearly 12,000 U.S. youth found that substance use increased steadily during adolescence, with 38% reporting lifetime use by age 16; alcohol, cannabis, and nicotine were the most commonly used substances. Boys were more likely to report substance use before age 12, while girls reported higher rates from age 13. This highlights important age and sex differences in substance and polysubstance use.
- A new study found that increased binge drinking among youth ages 16-19 was linked to greater sensitivity to uncertain threats over a six-month period. Youth who increased their binge drinking showed heightened startle responses to uncertain threats, while those whose drinking decreased or stayed the same did not. These findings suggest that heightened threat reactivity may be an early warning sign of increasing binge drinking and could help identify youth who may benefit from early intervention.

SUBSTANCE USE AMONG FATALLY-INJURED PEDESTRIANS IN NEW YORK STATE, USA: A RETROSPECTIVE ANALYSIS

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Background: Pedestrian fatalities remain a public health burden. Risky behaviours by pedestrians such as alcohol or drug use are understudied. This study aims to quantify the prevalence and characteristics of substance use among pedestrian fatalities in New York State, USA.

Methods: The Fatality Analysis Reporting System was used to capture New York State pedestrian deaths from 2018 to 2020. Substance use was defined as the presence of alcohol, drugs, or both. Pedestrian death rates were calculated by age and sex. Statistical analyses used $\chi 2$, Fisher's exact test or t-test with significance defined as $p<0.05$.

Results: Of 771 pedestrian deaths, 43.8% involved substance use. Drug-only involvement accounted for 18.3% of all deaths, which was slightly higher than alcohol-only involvement (13.7%) and alcohol and drug co-use (11.8%). Substance-involved deaths were more common among males than females and varied by circumstances such as time of day and pedestrian location.

Conclusions: Nearly half of pedestrian deaths in New York State involved substance use by the pedestrian. Public safety campaigns that traditionally emphasise drinking and driving should also address the dangers of walking while impaired. Interventions should encourage planning for safe travel and target high-risk groups.

Source: Guzman J, Garnett MF, Pawlowski E, et al. (2026). Substance use among fatally-injured pedestrians in New York State, USA: a retrospective analysis. *Injury Prevention*. https://doi.org/10.1136/ip-2025-045980

ALCOHOL OR STRESS EXPOSURE DURING LATE ADOLESCENCE IMPAIRS RISK ASSESSMENT LATER IN LIFE, DISRUPTING THE ETHOLOGICAL STRUCTURE OF BEHAVIOR IN MICE

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Background: Decision-making relies on risk assessment as a critical process that enables organisms to evaluate threats before exploring potentially dangerous areas. While adolescence is a period of heightened vulnerability to external factors such as substance use and stress, it remains unclear how these factors disrupt risk assessment, particularly at the level of behavior structure: sequential actions, organization and transition probabilities between defensive and exploratory behaviors. We investigated whether repeated ethanol intoxication or pharmacological stress during late adolescence alters behavioral structure in early adulthood.

Methods: Male and female C57BL/6 mice received four intermittent injections of saline, ethanol (4.0 g/kg), or the α2-adrenergic antagonist yohimbine (2.0 mg/kg) during late adolescence (7–8th weeks). In early adulthood (9th week), animals were tested in the Light–Dark Box and Elevated Plus Maze. In addition to measuring classical anxiety-like and exploratory behavior, we focused on risk assessment behaviors (stretches/head-outs) categorized as NoGo (evaluation without entering the aversive area) or Go (evaluation followed by entry). We used 1st order transition probability Markov chain analyses to map the transitions between these states, defining the behavioral structure.

Results: Both ethanol and yohimbine produced persistent reductions in NoGo risk assessment behaviors in adulthood, in both sexes, with minimal effects on classical anxiety-like and exploratory measures. Transition probability and correlation analyses revealed a reorganization of behavioral structure, characterized by reduced transitions toward risk assessment events and a bias toward risk-taking actions.

Conclusions: These findings indicate that repeated late adolescent alcohol intoxication or stress exposure induces long-lasting alterations in risk assessment and decision-making strategies.

Source: Sorigotto, B. D., de Quadros, I. M. H., & Abrahao, K. P. (2026). Alcohol or stress exposure during late adolescence impairs risk assessment later in life, disrupting the ethological structure of behavior in mice. *Alcohol: Clinical and Experimental Research*, *50*(7), e70328. https://doi.org/10.1111/acer.70328

SUBSTANCE USE PATTERNS FROM LATE CHILDHOOD TO MID-ADOLESCENCE: UPDATES ON THE ADOLESCENT BRAIN COGNITIVE DEVELOPMENT STUDY

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Background: Adolescent substance use is a continued public health concern. The objective of this manuscript is to detail the prevalence of substance use, polysubstance use, and investigate sex differences in the Adolescent Brain Cognitive Development (ABCD) Study from ages 9–17.

Methods: 11,880 youth across the U.S., recruited at ages 9–10, completed annual study visits from September 2016 to January 2024. The ABCD 6.0 data release comprises baseline to year-6 data. Lifetime and annual substance use prevalence rates, sex differences, and polysubstance use are described and analyzed.

Results: Past-year substance use prevalence increased with age; 38% report lifetime use by age 16. Alcohol, cannabis, and nicotine were the most reported substances. There were non-significant differences observed between unweighted trends and census-weighted trends. More boys reported substance use prior to age 12, then from age 13 onward, more girls reported use. Polysubstance use analyses detail the occurrence of the most shared substance use patterns and divergent reports across the sexes.

Conclusions: Descriptively, these prevalence rates mirror other national surveys showing increases in reported use across early adolescence, with alcohol, cannabis, and nicotine being the most used substances. Unique sex differences and polysubstance use prevalence rates are contextualized alongside prior national reports of these behaviors in the U.S. Understanding the latest prevalences, specifically in a well-phenotyped cohort, helps to guide knowledge for continued analysis of antecedents and sequelae of substance use on health.

Source: Sullivan, R. M., Wallace, A. L., Shankula, C. A., Celhay, O., Ziemer, L. R., Smith, C. J., ... & Wade, N. E. (2026). Substance Use Patterns from Late Childhood to Mid-Adolescence: Updates on the Adolescent Brain Cognitive Development Study. *Drug and Alcohol Dependence Reports*, 100463. https://doi.org/10.1016/j.dadr.2026.100463

LONGITUDINAL ASSOCIATIONS BETWEEN BINGE DRINKING AND CHANGES IN BEHAVIORAL AND NEURAL THREAT REACTIVITY IN YOUTH

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Abstract

Problematic alcohol use frequently emerges during adolescence and young adulthood, yet few objective markers reliably capture risk or track early changes in drinking behavior. Reactivity to uncertain threat (U-threat) has been identified as a potential neurobiological risk factor for alcohol misuse; however, no study has examined within-subjects changes in reactivity to U-threat as a function of drinking frequency. Thus, it remains unclear whether reactivity to U-threat reflects a stable vulnerability marker or a dynamic process that tracks within-person changes in alcohol use. To address this gap, youth ages 16–19 (N = 134) in the early stages of alcohol involvement completed startle and neuroimaging versions of the No-Predictable-Unpredictable (NPU) threat task at baseline

and 6-month follow-up. Participants were classified into three groups based on changes in binge drinking frequency (decreased, stable, increased). Repeated-measures ANOVAs examined group × time effects on startle potentiation and activation of the anterior insula (aINS) and dorsal anterior cingulate cortex (dACC) during U-threat. Results revealed a significant group × time interaction for startle: youth who increased binge drinking showed heightened startle reactivity to U-threat over time, whereas those who decreased or maintained drinking showed no change. No significant interactions emerged for aINS or dACC activation. Findings indicate that behavioral reactivity to U-threat is associated with short-term changes in binge drinking, suggesting that startle potentiation may reflect a within-person correlate of risk. These results highlight exaggerated U-threat reactivity as a promising psychophysiological target for early detection and intervention.

Source: House, A., Byrd, K.J., Kreutzer, K.A. et al. (2026). Longitudinal associations between binge drinking and changes in behavioral and neural threat reactivity in youth. *Neuropsychopharmacol*. https://doi.org/10.1038/s41386-026-02509-9