

Patterns of polysubstance use during stimulant consumption sessions and self-reported non-fatal overdose events among people who regularly use ecstasy and other illicit stimulants in Australia

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Introduction: Polysubstance use can increase the risk of toxicity, overdose, and other harms through unpredictable drug interactions and compounding physiological effects. Australian overdose reports indicate that about two-thirds of unintentional drug-induced deaths involve multiple substances, highlighting the importance of understanding real-world patterns to inform harm reduction and public health responses.

Method: Data were drawn from the Australian Ecstasy and Related Drugs Reporting System (EDRS; 2023-2025), an annual cross-sectional survey of people who regularly use ecstasy and other illicit stimulants. Participants self-reported which substances they used on the last occasion of stimulant use and during recent (past 12 months) non-fatal overdose events. Analyses examined broad drug class profiles and specific combinations to identify potentially higher-risk combinations obscured by broader drug class-based reporting.

Results: In 2025, among participants who responded (n=687), 86% reported use of two or more drugs during their last stimulant use session (excluding tobacco and e-cigarettes). Alcohol was the most commonly reported co-used substance (68%), followed by ecstasy/MDMA (52%), cannabis (37%), and cocaine (35%). When grouped into broader drug classes, the most common patterns involved depressants and stimulants (34%), followed by cannabis, depressants, and stimulants (17%), and stimulants alone (14%). Several potentially higher-risk substance combinations were reported during stimulant sessions and non-fatal overdose events, including concurrent use of GHB and ≥ 5 standard drinks of alcohol.

Discussions and Conclusions: Findings suggest polysubstance use was common in this sample and frequently involved potentially higher-risk substance combinations. However, findings should be interpreted in the context of self-reported substance use and the unregulated nature of illicit drug markets, where reported substances may not necessarily reflect the chemical compounds consumed.

Implications on communities, practice, policy: Greater understanding of the specific combinations commonly used during stimulant sessions and non-fatal overdose events may help target harm reduction messaging and inform clinical and public health responses.

Disclosure of Interest Statement:

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