

## **Beyond the ice: Differences in biopsychosocial risk factors and neuropsychological profiles among individuals with histories of alcohol or methamphetamine-polysubstance use.**

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**Introduction and Aims:** There is limited appreciation of the pre-existing and co-occurring risk factors for cognitive impairment in individuals with Methamphetamine-polysubstance use who present to clinical services. In contrast, the evidence for these risk factors in alcohol use is well-established. This study compared clinical and cognitive profiles between methamphetamine-polysubstance users reporting cognitive impairment and an alcohol-using group.

**Design and Methods:** A retrospective file audit was conducted of individuals presenting to a specialist addiction neuropsychology service and reporting either heavy methamphetamine use for more than a year as part of a polysubstance use history, or having only used alcohol. Demographic, medical, psychiatric, and substance use histories, and neuropsychological assessment findings were extracted for between group comparisons.

**Results:** Cognitive functioning was reduced for both substance-using cohorts relative to population norms. Compared to the methamphetamine-polysubstance group, the alcohol group had significantly lower overall IQ, semantic verbal fluency, and psychomotor tracking speed. The methamphetamine-polysubstance group were significantly younger, had higher rates of offending, younger substance use onset, and more overdoses relative to the alcohol group. No significant differences in co-occurring neurodevelopmental, psychiatric or acquired brain injury diagnoses were observed while high rates of co-occurring psychiatric concerns were common.

**Discussions and Conclusions:** Although cognitive functioning was reduced across both cohorts, the alcohol group had a more global, distributed profile of cognitive impairments relative to methamphetamine-polysubstance users. Individuals in the Methamphetamine-polysubstance group presented with a higher risk of overall harm from substance use at a significantly younger age, which is a unique concern.

**Implications for Practice or Policy:** These findings highlight the importance of evaluating the wide variety of risk factors and clinical variables relevant to experiences of cognitive functioning in Methamphetamine-polysubstance users in order to address potential areas of unmet need with targeted treatment and intervention.

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