An age–period–cohort–interaction analysis of methamphetamine-related deaths in Australia, 2001-2020

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Introduction: The number of methamphetamine related deaths in Australia quadrupled in the last 20 years, primarily from drug toxicity and suicide among individuals in their 30s and 40s. Previous analysis of Australian methamphetamine-related deaths covered limited timeframes and cause categories, and there has been no exploration into the effects of changing cohorts on methamphetamine mortality. This paper provides comprehensive insights across 20 years into the evolving cohort trends in methamphetamine-related deaths.

Method: An age–period–cohort–interaction (APC-I) analysis of Australian methamphetamine-related deaths (2001-2020) by cause extracted from the National Coronial Information System, a database of deaths reported to the coroner in Australia and New Zealand.

Results: Between 2001 and 2020, methamphetamine-related deaths were classified as unintentional drug toxicity (52.3%), intentional self-harm including poisoning (24.9%), unintentional injury (15.8%) and natural causes (9.2%). APC-I analyses reveal that unintentional injuries peak between ages 19-30, unintentional drug toxicity and intentional self-harm between 23-46, and natural causes between 39-50. Period effects are broadly consistent across all causes of death, with a gradual increase from 2001 to 2011, followed by a sharper increase to 2016, at which time they stabilise. Cohort effects reveal that individuals born between 1962 and 1982 (mainly Generation X) faced a higher-than-average mortality risk across all four causes, with risk decreasing in later generations.

Discussions: Despite different age profiles across the various causes of death, cohort effects suggest a single generation (Generation X) is predominantly experiencing the increase in methamphetamine-related mortality observed in Australia.

Implications for Practice and Policy: As Generation X ages, the risk of methamphetamine-related natural deaths, especially from cardiovascular disease, is likely to increase, underlining the importance of early screening for people who use methamphetamine. Understanding cohort effects is crucial for developing targeted and effective harm reduction, prevention, and treatment programs.

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