Stimulant use and stimulant use disorders in Australia: findings from the National Survey of Mental Health and Wellbeing

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Editorial p 565
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Abstract

Objectives: To describe the prevalence of lifetime and 12-month stimulant use disorders in the Australian population, and to compare the prevalence estimates from a population survey with prevalence estimates derived using indirect methods.

Design and setting: Data were drawn from the 2007 National Survey of Mental Health and Wellbeing, which sampled 8841 residents of private dwellings in Australia in 2007. Interviews were conducted by lay interviewers using the Composite International Diagnostic Interview.

Main outcome measures: Lifetime and 12-month rates of stimulant use and stimulant use disorders (abuse, dependence) diagnosed according to the *Diagnostic and statistical manual of mental disorders*, 4th edition.

Results: Lifetime prevalence of stimulant use disorders was 3.3%, and 12-month prevalence was 0.6%, equating to more than 97 000 Australians. Nearly half of those who had used stimulants on more than five occasions met criteria for a lifetime disorder. More than 8% of men aged 16–29 years met criteria for a lifetime stimulant use disorder. Prevalence estimates were consistent with recent estimates using indirect methods.

Conclusions: Stimulant use disorders affect a significant number of Australians, and are most common in the age groups at greatest risk for development of psychosis.

Stimulant use in Australia has increased over the past two decades.[1,2] Regular stimulant use may be associated with serious morbidity.[3] A balanced policy and service response requires reliable data about stimulant use disorders in the general population.

Estimating rates of stimulant use

Population surveys are the most frequent method for estimating rates of illicit drug use. In Australia, the 2007 National Drug Strategy Household Drug Survey (NDSHDS) sampled people aged 14 years and over every 3 years from 1993 to 2007.[4] Over this period, methamphetamine was the most commonly used stimulant, with prevalence of lifetime use averaging 7.4% (from 5.4% in 1993 to 9.1% in 2004). The 2007 NDSHDS reported a significant decline in lifetime amphetamine use (down to 6.3%) and a steady increase in the lifetime use of ecstasy (3.1% in 1993 up to 8.9% in 2007) and cocaine (2.5% in 1993 up to 5.9% in 2007). Rates of recent (12-month) use were about a third of lifetime rates and followed a similar trend over time. Prevalence of recent methamphetamine use was 2.3% in 2007 (down from 3.7% in 1998). Recent ecstasy and cocaine use increased steadily to 2007 (ecstasy 3.5%, cocaine 1.6%).

Differences in methodology make direct comparison difficult, but rates of stimulant use in Australia appear consistent with or slightly higher than those reported in population surveys in the United States,[5,6] Canada,[7] the United Kingdom[8] and New Zealand.[9]

Rates of stimulant use disorder

In Australia, the prevalence of stimulant use disorders has been estimated by indirect methods. McKetin and colleagues[10] used multipliers from regular amphetamine users in Sydney and benchmark data for substance treatment, admissions and arrests in 2002–2003.

Both survey and indirect methods have limitations in estimating the prevalence of stimulant use disorders. Population surveys may underestimate prevalence as they sample conventional households, underrepresent "hotspots" and high-risk subgroups, and may be sensitive to stigma.[10] Indirect methods use samples of identified substance users such as treatment populations. They may overrepresent more disadvantaged users and underrepresent employed users who are not in contact with treatment services. Rates of help-seeking may differ by age, sex or cultural background.[10] Therefore, it is useful to compare prevalence estimates using both direct and indirect methods.

Harm associated with stimulant use does not affect all users. It is associated with higher frequency of use, higher potency forms and riskier routes of administration such as intravenous injection.[1] Stimulant users who have features of a stimulant use disorder (abuse or dependence) are at highest risk. Therefore, "we need to know the size of the population of dependent methamphetamine users in order to understand their impact on public health and order, and to estimate the services that are needed to reduce this impact".[10]

Compared with estimates of stimulant use in the general population, less is known about rates of stimulant use disorder. In the early 1980s, the US Epidemiological Catchment Area Study reported lifetime prevalence of dependence on or abuse of amphetamines (1.7%) and cocaine (0.2%).[11] However, no recent population surveys have reported prevalence of stimulant dependence using standardised diagnostic criteria. In the UK, the National Health Service National Substance Use Survey[8] reported rates of "stimulant dependence", but this is based on a single positive answer to a screening questionnaire. Teesson and colleagues[12] compared data from the US National Comorbidity Survey (1990–1996) and the Australian National Survey of Mental Health and Wellbeing (NSMHW) of 1997 and found 12-month prevalence of stimulant use disorders of 0.2% in the US and 0.5% in Australia. However, to allow comparison of the two surveys, these figures excluded cocaine.

The 1990–1996 US National Comorbidity Survey[13] and its 2001–2003 replication[14] report only cocaine and prescription stimulants. The International Consortium on Psychiatric Epidemiology[15] reported lifetime use of cocaine and stimulants, but not rates

1 Lifetime use of individual stimulant drugs, per 100 population — National Survey of Mental Health and Wellbeing 2007

Stimulant	At any time (95% CI)	More than 5 times (95% CI)
Amphetamine/speed	9.3 (8.6–10.0)	5.4 (4.7–6.1)
Methamphetamine/base/ice	3.0 (2.6–3.4)	1.9 (1.6–2.3)
Ecstasy	7.9 (7.1–8.7)	4.5 (3.9–5.2)
Cocaine	5.2 (4.5–5.9)	2.8 (2.2–3.4)
Any	12.2 (11.5–12.9)	7.2 (6.5–8.0)

of abuse or dependence. The World Health Organization World Mental Health Survey Initiative studies[15-19] reported use of alcohol or any illicit drug but did not describe specific drug classes or diagnoses of abuse or dependence. The New Zealand Mental Health Survey[20] and national household surveys of drug use[9] did not report stimulant use disorders.

National Survey of Mental Health and Wellbeing

The 2007 NSMHW collected information on substance use and substance use disorders.[21] It provides the only population data on stimulant (amphetamine, ecstasy and cocaine) use disorders in Australia diagnosed according to standardised diagnostic criteria.

Our study examines the prevalence of lifetime and 12-month stimulant use and disorders (including amphetamine-type stimulants, ecstasy and cocaine) in the Australian population in 2007, based on NSMHW data. It also compares estimates from a population survey with previous estimates derived using indirect methods.

Methods

The 2007 NSMHW was a nationally representative household survey conducted in 2007 by the Australian Bureau of Statistics (ABS).[21] Slade and colleagues[22] provide a detailed description of its methodology. The population scope was usual residents of private dwellings in Australia, aged 16 to 85 years. A stratified, multistage probability sample of dwellings (excluding very remote areas) was selected by the ABS. Interviewers used household composition questions to identify eligible adults in each household. One person in each household was randomly selected to be interviewed. Younger (16–24 years) and older (65–85 years) people were oversampled. In total, 8841 respondents from 14 805 eligible households completed the interview (a response rate of 60%). Interviews were conducted in English by trained interviewers, and took an average of 90 minutes to complete.

Stimulant use variables

The NSMHW asked about stimulant use in five categories: (i) amphetamine/speed, (ii) methamphetamine/base/ice, (iii) ecstasy, (iv) cocaine, and (v) any stimulant. Lifetime stimulant use was assessed by asking whether respondents had used any of these drugs (i) at any time, and (ii) more than five times in their lifetime. Respondents who reported lifetime stimulant use on more than five occasions were asked whether they had used any stimulant in the past 12 months.

Diagnostic variables

The NSMHW used a modified Composite International Diagnostic Interview.[23] This provides lifetime and 12-month diagnoses of stimulant abuse and stimulant dependence. The NSMHW reported ICD-10 (International Classification of Disease, 10th revision)[24] and DSM-IV (*Diagnostic and statistical manual of mental disorders*, 4th edition)[25] diagnoses. For consistency with recent studies of the prevalence of cannabis and other substances, DSM-IV criteria and hierarchy rules were used in this study.

Data analysis

Data from the 2007 NSMHW Basic Confidentialised Unit Record File (CURF)[26] were analysed using PASW Statistics, version 18 (SPSS Inc, Chicago, Ill, USA), and Stata, version 11 (StataCorp, College Station, Tex, USA). Data were weighted using the factors within the CURF, which adjust for the differential probability of survey selection and for the age and sex distribution of the Australian population.[22] Standard errors and 95% confidence intervals (CIs) were calculated using jackknife repeated replication to take account of the complex survey design.

Prevalence was calculated for the whole NSMHW age range (16–85 years). For comparison with indirect estimates,[10] prevalence was also calculated for persons aged 16–49 years only. Following ABS conventions, estimates with a relative standard error of between 25% and 50% were considered possibly unreliable. Estimates with a relative standard error greater than 50% were suppressed.

Results

Prevalence

The prevalence of lifetime stimulant use was 12.2% (7.2% on more than five occasions). Amphetamine/speed was the most commonly used stimulant (9.3% any use; 5.4% more than five occasions), followed by ecstasy (7.9%; 4.5%), cocaine (5.2%; 2.8%), and methamphetamine/base/ice (3.0%; 1.9%) (Box 1). Overall 12-month use of any stimulant was 3.9%.

Lifetime and 12-month prevalence of DSM-IV stimulant use disorders are shown in Box 2. Lifetime prevalence of stimulant use disorders was 3.3%, with abuse (1.9%) more common than dependence (1.4%). The 12-month prevalence of stimulant use disorders was 0.61% (abuse, 0.35%; dependence, 0.26%), equating to more than 97 000 Australians.

For people aged 16–49 years, 12-month stimulant use disorder rates were higher (any disorder, 0.97%; abuse, 0.55%; dependence, 0.43%).

Of the 7.2% of people who had used stimulants on more than five occasions, nearly half (46%, or 3.3% of the population) met criteria for a lifetime stimulant use disorder.

Prevalence of stimulant use disorders by age group and sex are shown in Box 3. Stimulant use disorders were more common in men (lifetime, 4.6%; 12-month, 0.9%) than women (lifetime, 2.1%; 12-month, 0.3%). Stimulant use disorders declined with age, with the highest rate in people aged 16–29 years (lifetime, 7.0%; 12-month, 1.6%). The highest prevalence rates were among men aged 16–29 years (lifetime, 8.4%; 12-month, 2%). Estimates were unreliable for some groups with lower rates.

Discussion

This study provides the only current estimate of the prevalence of diagnosed stimulant use disorders in a large population sample.

Our findings are consistent with indirect estimates. McKetin and colleagues[10] used 2002–2003 data to estimate 12-month prevalence of dependant amphetamine use among 15–49-year-olds as between 0.6% and 1.1%. For people aged 16–49 years, we found a 12-month prevalence of 0.97% (95% CI, 0.66%–1.29%). A population survey may be expected to produce a lower prevalence estimate than indirect methods based on drug-using populations.

Stimulant use is more common in younger adults and men.[4,6,7,27] We found a similar pattern for stimulant use disorders; more than 8% of men aged 16–29 years met criteria for a lifetime stimulant use disorder. Younger men are the group most vulnerable to the development of psychosis. This finding is of concern given that stimulants may interact with other risk factors in the development of psychosis.

Population-based studies are likely to underestimate prevalence of the use of illicit drugs, for reasons discussed above. The NSMHW was designed primarily for the study of high prevalence mental health and substance use conditions. Disorders of relatively low prevalence such as stimulant use disorders are at the lower limits of resolution of the NSMHW, especially when considering 12-month prevalence rates. This means that there are higher levels of uncertainty in the estimates of prevalence, particularly when examining subgroups by age or sex. The response rate for the 2007 survey was lower than that for the 1997 survey, and this may have introduced a selection or sampling bias that may account for some differences from other surveys.

More than 12% of Australians over 16 have used illicit stimulants. Of those using stimulants on more than five occasions, nearly half met criteria for a lifetime substance use disorder. Although 12-month prevalence of stimulant use disorders was less than 1%, this represents nearly 100 000 Australians. Men aged 18–29 years had the highest prevalence rates, with 8.4% having a lifetime stimulant use disorder and 2.0% having a 12-month disorder. It follows that stimulant use disorders are most common in people in the age groups most vulnerable to the development of psychosis.

2 Lifetime and 12-month prevalence of stimulant use and stimulant use disorder,* per 100 population — National Survey of Mental Health and Wellbeing 2007

		12-month	
Stimulant use/disorder	Lifetime (95% CI)	Aged 19–85 years (95% CI)	Aged 16-49 years (95% CI)
Abuse	1.93 (1.57–2.29)	0.35 (0.21–0.49)	0.55 (0.32–0.78)
Dependence	1.41 (0.92–1.91)	0.26 (0.12–0.41)	0.43 (0.19–0.66)†
Any stimulant use disorder	3.34 (2.76–3.93)	0.61 (0.41–0.81)	0.97 (0.66–1.29)
Stimulant use without disorder	3.90 (3.36–4.45)	3.30 (2.70 - 3.90)	–

* *Diagnostic and statistical manual of mental disorders*, 4th ed.[25] † Relative standard error of estimate between 25% and 50%: estimate may be unreliable. ◆

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3 Lifetime and 12-month prevalence of stimulant use disorder,* per 100 population, by sex and age group — National Survey of Mental Health and Wellbeing 2007

	Women (95% CI)	Men (95% CI)	All (95% CI)
Lifetime			
16–29 years	5.5 (3.7–7.3)	8.4 (4.7–12.1)	7.0 (4.9–9.2)
30–39 years	2.7 (1.3–4.0)†	7.2 (4.9–9.6)	4.9 (3.5–6.3)
⩾40 years	0.5 (0.2–0.7)†	2.1 (1.3–2.8)	1.3 (0.8–1.7)
All ages	2.1 (1.6–2.6)	4.6 (3.6–5.7)	3.3 (2.8–3.9)
12-month			
16–29 years	1.1 (0.3–1.9)†	2.0 (1.0–3.0)	1.6 (1.0–2.2)
30–39 years	s	1.1 (0.1–2.1)†	0.7 (0.1–1.2)†
⩾40 years	s	s	s
All ages	0.3 (0.1–0.5)	0.9 (0.6–1.3)	0.6 (0.4–0.8)

* *Diagnostic and statistical manual of mental disorders,* 4th ed.[25] † Relative standard error of estimate (RSE) between 25% and 50%: estimate may be unreliable. s = Estimate suppressed as RSE > 50%. ◆

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