Research into Methamphetamine Use in the Australian Capital Territory

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Curtin University
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Preventing harmful drug use in Australia

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Disclaimer: Opinions expressed in this publication are those of the authors and do not necessarily represent those of ACT Health.

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List of abbreviations

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
ACT MDS AODTS	ACT Minimum Data Set for Alcohol and Other Drug Treatment Services
ADHD	Attention deficit hyperactivity disorder
AIHW	Australian Institute of Health and Welfare
AOD	Alcohol and other drugs
AODTS NMDS	Alcohol and Other Drug Treatment Services National Minimum Data Set
ANU	The Australian National University
ATODA	Alcohol Tobacco and Other Drug Association ACT
AQoL	Australian Quality of Life
BPRS	Brief Psychiatric Rating Scale
BBV	Blood-borne virus
CAHMA	Canberra Alliance for Harm Minimisation and Advocacy
GHSQ	General Help Seeking Questionnaire
GP	General practitioner
HIV	Human immunodeficiency virus
OST	Opioid substitution therapy
NDSHS	National Drug Strategy Household Survey
NSP	Needle and Syringe Program
PTSD	Post traumatic stress disorder
SD	Standard deviation
STI	Sexually transmitted infection

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Executive summary

Background

There has been a rapid increase in crystalline methamphetamine use in Australia since 2010. This has been accompanied by an increase in the level of methamphetamine dependence amongst people who use the drug, increased treatment demand, and increased harms related to the drug's use. Specifically, drug treatment episodes for methamphetamine use have more than tripled during this time (10,027 in 2009-10 to 46,415 in 2015-16), as have the number of methamphetamine-related hospital admissions (1,948 in 2009-10 to 10,413 in 2014-15) and arrests for amphetamine-type stimulants (13,982 in 2009-10 to 47,625 in 2015-16). Increases in crystalline methamphetamine use have disproportionally affected rural areas of Australia.

By 2014 it became apparent that this trend toward crystalline methamphetamine use had also emerged in the ACT. There were indications of increased crystalline methamphetamine use among people who injected drugs and an upward trend in the number of people seeking treatment for methamphetamine use: this increased from 198 to 1,392 over the 2009-10 to 2015-16 period, now representing almost one-quarter of all drug treatment episodes.

There have been concerns at a national level about the capacity to respond effectively to the increase in methamphetamine-related treatment demands and the other health needs of people dependent on this drug. Although positive treatment outcomes can be achieved for methamphetamine use, the drug has presented challenges for service providers in terms of the types of clients presenting to treatment and their specific needs, while there have been parallel concerns about access to treatment, particularly in rural and regional areas, and long-wait-times for residential services.

At the time that this research was commissioned, the only available data on the extent of methamphetamine use in the ACT was from the 2013 National Drug Strategy Household Survey (NDSHS). This showed that 2.2% of ACT residents aged 14+ years reported using methamphetamine in the past year. The recently released 2016 NDSHS suggests declining methamphetamine use at a national level, although data specific to the ACT were not available at the time of publication.

Unfortunately, the NDSHS does not capture enough people in the ACT to provide an indication of heavy or problematic methamphetamine use, meaning that it was difficult to know how many people would require treatment or other health services. There was also scant data available on the nature of crystalline methamphetamine use in the ACT, in terms of who is using the drug, patterns of use, problems associated with use, the health service needs of people using the drug, or how methamphetamine use might affect health service use. This type of information is needed to guide health responses to the emerging trend toward crystalline methamphetamine use.

It was in the context of these initial increasing trends in crystalline methamphetamine use, and the lack of data on the extent of dependent methamphetamine use and related health concerns, that the current research was commissioned by ACT Health. The project proposal was developed by ANU researchers and reviewed by the ACT Alcohol, Tobacco and Other Drug Strategy Evaluation Group. The aim of the current research was to better understand the emergence of methamphetamine use in the ACT and how this would affect health service provision. Our specific objectives were to:

A. Estimate the number of people in the ACT who were dependent on methamphetamine
B. Estimate drug treatment coverage for methamphetamine dependence in the ACT
C. Document barriers to receiving drug treatment for methamphetamine dependence in the ACT
D. Provide descriptive information on the demographics of people who use methamphetamine in the ACT, their patterns of methamphetamine and other substance use, the prevalence of key harms associated with use, and to better understand how people who use methamphetamine interact with the health and criminal justice system.

Methods

Survey

We surveyed 183 ACT residents who used methamphetamine at least monthly. Survey participants were recruited between April 2016 and January 2017 using chain-referral, subsequent to advertisements being placed in various outreach health services, public locations and online. Recruitment from drug treatment services and hospitals was deliberately avoided to ensure we did not oversample people represented in the benchmark data used in the indirect prevalence estimation exercise. Surveys were conducted face-to-face at mutually convenient public venues (e.g., cafes, fast-food outlets) and took approximately one hour. Participants were reimbursed for their participation to cover their out-of-pocket expenses. A structured interview schedule was used to assess demographics, current drug use patterns, dependence on methamphetamine, disability, mental health, contact with health services and the criminal justice system, and barriers to treatment. Specific measures within the survey included the Severity of Dependence Scale, the substance dependence section of Mini International Neuropsychiatric Interview Version 6 (MINI), the Barriers Questionnaire, the General Help Seeking Questionnaire (GHSQ), the Opiate Treatment Index subscale for HIV Risk Taking Behaviour, the Australian Quality of Life scale (AQoL), and the Brief Psychiatric Rating Scale (BPRS).

Indirect prevalence estimation methods

We estimated the number of regular and dependent methamphetamine users in the ACT by using the benchmark multiplier method. This involved deriving a multiplier from the survey data (based on the rate at which survey participants attended treatment for methamphetamine use), which we applied to matching benchmark data (i.e., methamphetamine treatment episodes) to derive an estimate of the total population size. The prevalence of regular and dependent methamphetamine use was calculated using the estimated resident population of the ACT aged 18 to 64 years at June 2016.

Benchmark data

The benchmark data was comprised of the number of drug treatment episodes in the ACT Minimum Data Set for Alcohol and Other Drug Treatment Services (ACT MDS AODTS) for the 2015-16 financial year where amphetamines were the primary drug of concern, where the client was aged 18 to 64 years of age and residing in the ACT, and where the main modality of treatment provided was counselling, residential rehabilitation, detoxification or the general category of 'other' treatment (excluding episodes that involved information and education only, support and case management only, assessment only, or pharmacotherapy). We considered two additional benchmark data sources: methamphetamine hospital admissions and methamphetamine arrests. Hospital data could not be obtained within the project timeline because ACT Health was undergoing a system-wide data review (to be completed by 31 March 2018). The methamphetamine arrest data could not be adequately matched to our multiplier, and hence was not used.

Multiplier

Two multipliers for the drug treatment benchmark data were derived from the survey: one multiplier was created for the entire sample, reflecting regular (at least monthly) use; and a second multiplier was created for the subset of the sample who were dependent on methamphetamine. Dependence was defined as having a score of four or greater on the Severity of Dependence Scale, which corresponds to a DSM-III-R diagnosis of severe methamphetamine dependence.

The multiplier was the inverse of the rate of methamphetamine treatment episodes started within the past year, as reported by survey participants aged 18-64 years. Methamphetamine treatment episodes were only included in the calculation of the multiplier if they occurred within the ACT and would have been represented in the benchmark dataset, that is, drug treatment episodes (counselling, detoxification,

rehabilitation) that were completed during the past year, where methamphetamine was the main drug for which the participants was being treated, and the treatment facility submitted data to the ACT MDS AODTS.

Results

Number of regular and dependent methamphetamine users in the ACT

We estimated that there were around 2,200 people in the ACT aged 18-64 years dependent on methamphetamine (95% CI 1,300-3,700) in 2015-16, which was a subset of a larger cohort of around 3,800 people who had used the drug at least monthly within the past year (95% CI 2,300-6,100). This represents less than 2% of the ACT population aged 18-64 years of age (1.5% for regular use and 0.9% for dependent use).

Estimated treatment coverage for methamphetamine dependence in the ACT

Based on these estimates, only 7% of people aged 18-64 years who were currently dependent on methamphetamine in the ACT in 2016 would have received specialist drug treatment (detoxification, counselling or rehabilitation) for methamphetamine use in the ACT within the past year. As indicated in the methods section earlier, this definition of treatment excluded pharmacotherapy and situations where the only service provided was assessment, or information and education, or support and case management. Survey responses indicated that participants were more likely to get professional support from outside of specialist drug treatment services. In total, 45% of participants who were currently dependent on methamphetamine had received some form of professional help for their methamphetamine use in the past year, most commonly from their GP.

Barriers to receiving treatment for methamphetamine dependence

Barriers to accessing specialist drug treatment services included a lack of awareness of services, perceived waiting times or they could not get help when they wanted it (i.e., participants reporting that "I would have to wait too long to get into treatment" and "There was no treatment available when I wanted help"), the perceived cost of treatment, a lack of knowledge about what treatment involved and whether it would be effective. There was lower awareness of specialist treatment services among participants who were not using opioids, particularly among crystalline methamphetamine smokers. Many participants reported that they liked the effects of methamphetamine and did not want to stop using methamphetamine, and this presented a major barrier to their willingness to seek treatment to reduce their drug use, even amongst participants who were dependent on methamphetamine.

Characteristics of methamphetamine use in the ACT

Characteristics of people who used methamphetamine

The sample had a low socio-economic profile, with high rates of unemployment and dependence on welfare and public housing. Forty-two per cent had children under the age of 18 years but only 15% of the sample were living with children: most were single (or separated/divorced, 78%), and living alone (42%), or with a partner (20%) or unrelated adults (22%).

Patterns of methamphetamine use

The use of methamphetamine consisted almost exclusively of the high purity crystalline form of the drug, "crystal meth" or "ice" (94%). Participants had used methamphetamine on a median of 10 days in the past month (range 0 to 28 days). Most (76%) injected methamphetamine, 20% smoked, and the remainder snorted or swallowed the drug. Fifty-one per cent of participants were currently dependent on methamphetamine.

Crystalline methamphetamine use had been taken up amongst an older long-standing cohort of opioid injectors, who both injected and smoked crystalline methamphetamine, and also among a younger cohort of people who usually smoked the drug. These groups had different demographics and other substance use, but both had similar levels of dependence on methamphetamine.

Patterns of other drug use

Polydrug use was the norm. Over half the sample were using heroin or enrolled in opioid substitution therapy (OST). The vast majority of participants smoked tobacco and cannabis daily. Rates of drinking were similar to the general population. Older participants were more likely to inject drugs, use heroin and/or be enrolled in OST. Younger crystalline methamphetamine smokers were more likely to use ecstasy.

Health and well-being of people who used methamphetamine

Participants' quality of life was well below the general population, reflecting poor mental health and poor social relationships. The majority of participants reported a history of depression and/or anxiety, and 35% had been diagnosed with PTSD. Levels of depression, anxiety, suicidality, paranoia and hallucinations were higher amongst participants who were dependent on methamphetamine.

BBV and STI risk

Although access to sterile injecting equipment was high, and needle-sharing was rare, there remained a risk of infections being transmitted via sharing other injection related equipment (28% of participants who injected shared tourniquets, swabs etc.), sexual activity (51% of the sample were sexually active) and sharing of pipes. Pipe sharing was the norm, and 28% of participants who shared pipes had burns or sores on their lips, presenting a potential avenue for blood-borne virus transmission. Participants who were injecting methamphetamine (cf. injecting opioids) had lower awareness of Needle and Syringe Programs (NSPs) than participants who injected heroin or who were enrolled in OST.

Contact with other health services

Participants were heavy consumers of various health services but most of their presentations were not for methamphetamine use per se, but for other issues. Methamphetamine-related emergency department presentations were higher for participants dependent on methamphetamine.

Most participants had contact with a GP: 44% indicated that they had told their GP that they used methamphetamine, and around half indicated that they had either already received help from their GP for their methamphetamine use, or that they would be willing to get help for their methamphetamine use from their GP. Neither detailed information on which specific GP services were utilised, nor the nature of, or satisfaction with, GP interactions, was collected in this study.

Contact with the criminal justice system

Involvement with the criminal justice system was common: around half of participants had a prison history, 28% had been arrested within the past year (usually for methamphetamine use/supply, theft/robbery, assault, damage to property or public order offences). Twenty-seven per cent had undergone roadside drug testing in the past year.

Commentary

The dominance of crystalline methamphetamine use in the ACT signals a shift from lower purity forms of methamphetamine use (e.g., power or 'speed') which have previously dominated the drug market. Similar to other parts of Australia, this trend is likely to be associated with an increase in methamphetamine-related harms and treatment demand, even if the number of people using methamphetamine remains stable.

We found evidence that methamphetamine had been taken up amongst two relatively distinct groups of people: an older long-standing cohort of opioid injectors and a younger group of more recent initiates who usually smoked the drug. These two groups require different policy responses. Evidence of a young cohort of crystalline methamphetamine smokers points to an opportunity for early intervention to prevent the development of dependence and entrenched drug use. In contrast, the use of crystalline methamphetamine use among opioid injectors is more likely to be opportunistic and reflect heavy polysubstance use in this population. This suggests a need for harm reduction strategies, and possibly additional treatment services, to address methamphetamine-related harms in this group.

Levels of regular and dependent methamphetamine use in the ACT are similar to or lower than other parts of Australia, but nonetheless represent a significant and largely hidden population, with high levels of morbidity and complex social welfare needs.

People in the ACT who used methamphetamine had very limited existing specialist AOD treatment services. They were far more likely to have received help for their methamphetamine use from generic health services (e.g., GPs, counsellors) than from specialist drug treatment services. This was underpinned by a poor knowledge of existing services, waiting times to get into treatment and a range of reasons that suggest a lack of knowledge around what treatment options were available and what they cost.

Providing information about what different treatment services are available to people who use methamphetamine will be a critical step in improving treatment coverage for this population. This will need to involve more than providing a directory of services: educating consumers about what treatment involves, the effectiveness of treatment, realistic information around costs and expectations from treatment, wait-times, and support options while wait-listed are required.

An overarching barrier to care was people's desire to keep using methamphetamine. Motivational enhancement strategies can be used to improve help seeking, but this issue flags a need to provide low threshold services and harm reduction information to people who are reluctant to seek help to reduce their substance use (see below).

There is also a need to ensure that services are suitable for people who use methamphetamine, with the capacity to deal with multiple health and social needs. Suicide prevention information is one critical need, while protocols for identifying and managing depression, paranoia and hallucinations are also warranted. A substantial proportion of participants have a history of PTSD, indicating the need for services to be "trauma-informed". Treatment services also need to be integrated with other health, social, welfare and criminal justice support services to meet the broader needs of methamphetamine-using clients.

Harm reduction and education strategies are needed to engage with the majority of individuals who are not currently seeking help from specialist AOD treatment services. These need to cover suicide prevention, information on mental health, social welfare and legal support services, and strategies to reduce the severity of methamphetamine-related paranoia, as well as information about specialist drug services available within the ACT.

Peer support outreach programs will be critical in accessing the majority of people who use methamphetamine but who are not engaged with specialist alcohol and other drug treatment services. Providing information through GPs and emergency departments are other possibilities, as consumers had high rates of contact with these services, even if most of this contact was not directly related to their methamphetamine use.

Risk reduction strategies for BBV and STI may need to be reformulated to ensure adequate coverage for non-opioid injectors and crystalline methamphetamine smokers, and to incorporate multiple potential routes of BBV and STI transmission (i.e., injecting, sexual risk behaviour and pipe smoking).

Conclusion

The ACT has a substantial and largely hidden population of people who use methamphetamine, almost all of whom use the high purity crystalline form of the drug ("crystal meth" or "ice"). This population is comprised of two demographically distinct groups: a new cohort of younger crystalline methamphetamine smokers, and an older long-standing group of people who inject drugs, many of whom also use heroin. Although these two groups had different demographic profiles, they shared high rates of dependence, poor mental health and multiple other social, legal and welfare needs. This population, particularly the crystalline methamphetamine smokers, had low levels of engagement with specialist AOD treatment services within the ACT, and were relying on generic health services (e.g., GPs) for help.

These findings suggest significant opportunity to optimise services to meet the needs of people who use methamphetamine. Providing more treatment and other targeted services is likely to be necessary to remedy this situation, although there are multiple barriers to treatment which can only be addressed through better engagement with consumers, improving their knowledge about the services available, and ensuring the suitability of existing services for people who use methamphetamine.

1 Introduction

The Australian methamphetamine situation

Australia has seen a strong increase in the use of high purity crystalline methamphetamine since 2010 and also a sharp rise in levels of problematic methamphetamine use.[1] Drug treatment episodes for methamphetamine use have more than quadrupled during this time (10,027 in 2009-10 to 46,4415 in 2015-16)[2], and there has been a similarly sharp rise in methamphetamine hospital admissions (1,948 in 2009-10 to 10,413 in 2014-15)[3] and arrests for amphetamine-type stimulants (13,982 in 2009-10 to 47,625 in 2015-16[4]).

The rapid rise in methamphetamine-related problems, including people seeking treatment for methamphetamine use, has been underpinned by an increase in smoking high purity crystalline methamphetamine, or "ice".[1,2] Smoking crystalline methamphetamine has become a popular form of drug use in recreational and social situations, but because of the high dependence liability and health risks attached to smoking ice, this trend has led to a substantially increased demand for methamphetamine treatment, particularly among younger adults.

Smoking crystalline methamphetamine has a high dependence liability due to the rapid onset of the drug's effect when smoked, and the higher bioavailability that is achieved by smoking relative to other non-injecting routes of administration.[5,6] Amongst people dependent on methamphetamine, rates of harm (e.g., paranoia, poor mental health) are similar for smokers and injectors.[7,8]

Increasing crystalline methamphetamine use has disproportionally affected rural areas of Australia. The highest rates of crystalline methamphetamine use are seen amongst young employed men in these rural areas.[9] Drug treatment infrastructure to support people dependent on methamphetamine is often limited in these areas, while other services around HIV prevention and general health care can also be under-developed, particularly as most injecting drug use in Australia has historically been concentrated in major metropolitan regions.

Although positive treatment outcomes can be achieved for methamphetamine use,[10-12] relapse rates are high[10] and reported treatment coverage is low.[13-15] Providing treatment has presented new challenges in terms of the types of clients presenting to treatment and their specific needs.[16] Service providers have expressed a lack of confidence in treating people who use the drug, with service models traditionally designed for alcohol and opioids.[16,17] Less attention has been paid to how people who use methamphetamine interact with other health services (e.g., NSPs), or whether these services are appropriate for their needs.

Methamphetamine use as an emerging issue in the ACT

Over the past five years, indicators suggest a similar upward trend in crystalline methamphetamine within the ACT. This trend first became apparent in 2013-2014, when local drug treatment statistics showed the number of treatment episodes for methamphetamine (closed treatment episodes where "amphetamines" were cited as the primary drug of concern) increased from 196 in 2010-11 to 496 in 2012-13. The increasing popularity of crystalline methamphetamine use was also detected among injecting drug users in the ACT through the Illicit Drug Reporting System in 2014.[18]

Drug treatment data that have since become available suggest that these trends have continued. The number of drug treatment episodes for amphetamines has steadily grown to 1,392 (Figure 1), representing almost one-quarter of treatment episodes in 2015-16. It is noteworthy that not all of these treatment episodes involved clients who were resident in the ACT: 31% were for clients residing in the surrounding hinterland. Additionally, most treatment episodes provided to ACT residents (62%)

involved only assessing the client, providing information and education, or case management, without any more substantive/ongoing treatment being provided.*

For treatment provided to ACT residents, 41% of episodes involved smoking methamphetamine (cf. 55% involved injecting and 4% involved other routes of administration), suggesting that smoking crystalline methamphetamine is a substantial trend within the ACT. Clients who smoked methamphetamine were significantly younger (27.8 vs. 34.1 years, $t = -11.63$, $p < .001$) and more likely to be male (71% vs. 60%, $\chi^2_{(df = 1)} = 17.3$, $p < .001$).

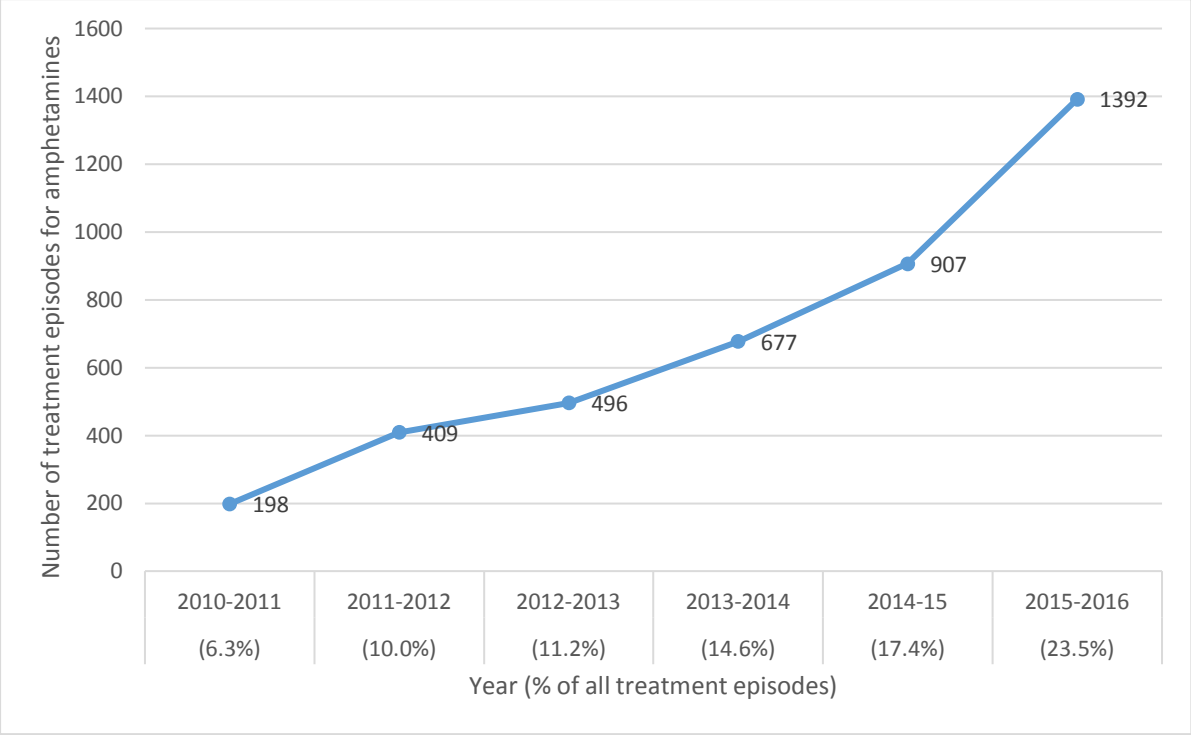

Figure 1 *Number and percentage of closed treatment episodes in the ACT where amphetamines were the principal drug of concern*

[Source: National Minimum Data Set for Alcohol and Other Drug Treatment Services]

The need for research into methamphetamine use in the ACT

It was in the context of these increasing trends that the current research was funded by ACT Health. The project proposal was develop by researchers at ANU and reviewed by the ACT Alcohol, Tobacco and Other Drug Strategy Evaluation Group. At the time there was little information on either the extent or the nature of methamphetamine use in the ACT community. In particular, there was a lack of data on the number of people dependent on methamphetamine, or experiencing harms from their use, who may need treatment or other health services.

The only indication of the extent of methamphetamine use at this time came from the 2013 National Drug Strategy Household Survey (NDSHS). This showed that 2.2% of ACT residents aged 14+ years

* Definitions of treatment modalities (e.g., case management) can be found in the AODTS NMDS data collection manual on the AIHW website: http://www.aihw.gov.au/alcohol-and-other-drugs/data-sources/aodts-submission-guidelines/2017-18/

reported using methamphetamine in the past year (approx. 6,600 people).[19] The recently released 2016 NDSHS suggests declining methamphetamine use at a national level, a trend attributable to a reduction in the use of powder methamphetamine (i.e., "speed") while the use of crystalline methamphetamine remained stable.[20] Data for methamphetamine use within the ACT were not available at the time of publication.

Because of the small number of people surveyed in the ACT through the NDSHS, it is not possible to reliably estimate how many of these people use the drug heavily, and who may need treatment or other health services.[19] Estimating the number of people using drugs at levels that are likely to lead to problems is better achieved using indirect prevalence estimation methods, as described below. With so few regular drug users captured in the NDSHS, it is also not possible to understand patterns of use (e.g., how many people use the high purity form of crystalline methamphetamine), the demographics of people who use the drug or their health needs. This is better achieved through sentinel surveys of people who use the drug regularly.

Indirect prevalence estimation methods

Indirect prevalence estimation techniques offer an alternative way of measuring the size of hidden populations, and they can be used to estimate the number of illicit drug users in a given geographic region.[21] They are preferred over population-based surveys which tend to underestimate problematic drug use, and sample too few heavy drug users to provide insight into patterns of drug use, harms related to drug use, or the health service needs of people who use drugs.

One of the more common and conceptually simple indirect prevalence estimation techniques is the benchmark-multiplier method. This method has been used in both Australia and Europe to estimate the size of opioid-using populations and populations of people who inject drugs.[22,23]

The benchmark-multiplier method involves identifying the number of people who use a drug in a routine data source (e.g., drug treatment episodes), and multiplying this benchmark data by a multiplier that reflects the proportion of drug users who are represented in that data source. The multiplier is derived from a representative sample of the drug using population; for example, by asking people who use drugs about whether they have received drug treatment (i.e., establishing what proportion would be represented in the benchmark data). For example, if there were 1,000 heroin users treated within a one year period, and surveys of heroin users show that only half of heroin users had received treatment within the past year, the total number of heroin users can be estimated by doubling that observed in treatment (i.e., 2,000). In this example, the benchmark is the number of treatment entries for heroin use recorded in treatment data during the year (i.e., 1,000), and the multiplier is the inverse of the proportion of drug users who entered treatment for heroin use within that year (i.e., 1/0.5, or 2).

This benchmark multiplier method has been previously applied to estimate the number of regular and dependent methamphetamine users in NSW and Australia.[24] A survey of community-based methamphetamine users was undertaken in Sydney in 2005, from which multipliers were derived for drug treatment data and hospital data. These multipliers have since been used to estimate trends in the number of regular and dependent methamphetamine users in Australia up until 2014.

Ideally, multipliers should be derived from the same geographic region, and for the same timeframe, for which the prevalence is being estimated. This is because the availability of treatment and access to treatment (or other health service) can vary by geographic region and change over time. For this reason, estimating the number of people dependent on methamphetamine within the ACT should use a locally-derived multiplier.

The accuracy of prevalence estimates derived using the benchmark multiplier method depends critically on the multiplier being derived from a representative community-based sample of people who use methamphetamine. It is difficult to verify the representativeness of illicit drug using samples as they represent a hidden population. Respondent-driven sampling is considered best practice but it is resource intensive and difficult to implement in illicit drug using populations for ethical reasons.[25] Aside from this method, sampling that uses peer referral from multiple initial recruitment points is generally considered best practice for maximising the representativeness of the sample.[26] It is also critical to not recruit from the services from which the benchmark data are derived (i.e., drug treatment services) because this would inflate treatment exposure and deflate the multiplier and resulting prevalence estimate. Finally, it is important to match the multiplier to the benchmark data. For example, the multiplier should be derived using only treatment episodes that would be captured in the treatment benchmark data. Any mismatch between the benchmark data and the benchmark events used in the calculation of the multiplier would result in a deflated or inflated prevalence estimate.

The current research

The aim of the current research was to better understand the emergence of methamphetamine use in the ACT and how this has affected the utilisation of health services. Our specific objectives were to:

A. Estimate the number of people in the ACT who were dependent on methamphetamine
B. Estimate drug treatment coverage for methamphetamine dependence in the ACT (i.e., the proportion of people dependent on methamphetamine who would have received treatment for their methamphetamine use in the past year)
C. Document barriers to receiving drug treatment for methamphetamine dependence in the ACT
D. Provide descriptive information on:
    a. the demographics of people who use methamphetamine in the ACT, in terms of their age, marital status, living arrangement, income and family circumstances;
    b. patterns of methamphetamine use in the ACT, including forms of methamphetamine used (crystalline vs. other methamphetamine), routes of administration, frequency of use and polydrug use;
    c. prevalence of key harms associated with methamphetamine use (including mental health, HIV risk and violence) amongst people who use the drug and their relationship with methamphetamine use patterns; and
    d. the usage of other health services and contact with the criminal justice system.

To achieve these aims we conducted a survey of people who used methamphetamine in the ACT community. From this survey we derived multipliers for use in a benchmark-multiplier prevalence estimation exercise, and subsequently estimated the number of regular and dependent methamphetamine users in the ACT. The survey was used to obtain supporting information on the characteristics of methamphetamine use in the ACT (as per aims C and D), including the demographics of people who use, patterns of methamphetamine and other drug use, the contact that this population has with various health services and barriers to care.

2 Methods

2.1 Survey component

Procedure

Participants were recruited via advertisements in free magazines, flyers in local venues, the internet (e.g., www.pillreports.net) and word-of-mouth. Recruited participants were given flyers to hand on to their peers who used methamphetamine. Inclusion criteria were being at least 18 years of age, having used methamphetamine at least six times in the past six months, understanding English and residing in the ACT. Methamphetamine included drugs sold on the street under the pseudonyms of "ice", "meth", "crystal", "base" or "speed".[24] Forensic seizure data indicate that all of these forms of the drug contain methamphetamine.[27] Participants were screened by phone for eligibility and subsequently interviewed face-to-face at a mutually convenient public location (e.g., cafes, shopping malls). Interviews took approximately one hour. Recruitment took place from June 2016 to January 2017. Participants were reimbursed up to $40 to cover out-of-pocket expenses. Verbal consent was obtained prior to completing the interview. The study was approved by The Australian National University Human Research Ethics Committee.

Of the 188 participants recruited, five were excluded from the final sample because they resided outside the ACT, resulting in a final sample of 183 participants. These participants most commonly heard about the survey by word of mouth (56%). Remaining participants learned about the survey from flyers placed in NSPs (11%) or other venues (e.g., CAHMA, shopping malls, bus interchanges; 21%), and 11% learned about the study via advertising on Facebook. Only 1% heard about the study via a drug treatment agency.

To understand the geographic spread of participant recruitment, we examined how many participants were recruited from each of the Statistical Subdivisions (SSDs) within the ACT. SSDs are a standard geographic classification system used by the Australian Bureau of Statistics. A map showing the boundary of each SSD, and the suburbs within each SSD, can be found in Appendix 1. Half of the participants resided in the North Canberra SSD, with remaining participants living in the SSDs of Belconnen (17%), South Canberra (12%), Gungahlin (8%), Tuggeranong (5%), Woden (4%), or Western Creek (2%).

Measures

A structured interview schedule assessed participant demographics, quality of life and mental health; the participant's contact with drug treatment, other health services, and the criminal justice system; and their help-seeking behaviour and barriers to seeking help. Specific measures included in the interview schedule are described below. The survey also included the Schizophrenia section of the Composite International Diagnostic Interview, which is not reported here. This data will contribute to the PhD thesis of Alexandra Voce, who provided her time in-kind to collect the survey data. The questionnaire is available from the authors on request.

Demographics

Demographic measures included age, sex, gender identity, completed years of schooling, completed tertiary education (none, trade, university), main form of accommodation in the past month (public housing; privately rented house or flat; privately owned house or flat; parent's home; boarding house, shelter dwelling or refuge; drug treatment residence; no fixed address; other), living arrangement (alone; with partner/spouse/de facto; with children [under 18 years of age]; with parent(s); with non-related adults/share house; other), main source of income (full-time employment, part-time or casual employment, disability pension, unemployment benefit, other government benefit, other income

source, no income), current marital status (single, married/de facto, separated, divorced, widowed), country of birth, and language spoken at home.

Methamphetamine and other drug use

Participants were asked their main drug of choice, whether they had ever injected a drug, and whether they had ever injected methamphetamine.

Days of use in the past month was assessed for methamphetamine and for all other major drug classes (tobacco, cannabis, alcohol, cocaine, ecstasy, hallucinogens, inhalants, heroin, other opioids, benzodiazepines, antidepressants, antipsychotics, and any other drug used in the past month). Both prescription and non-prescription use was included for other opioids, benzodiazepines, antidepressants and antipsychotics.

Methamphetamine use measures also included age at first use, duration of use (years since first use), days of use in the past month, main route of administration in the past month and which forms of methamphetamine the participant had taken in the past month (powder or "speed", "base", crystalline methamphetamine or "ice"). Participants were also asked whether they had used prescription stimulants in the past year (e.g., dexamphetamine, Ritalin®), and, if so, whether they had been prescribed these stimulants.

Dependence on methamphetamine

A DSM-IV TR diagnosis of methamphetamine dependence in the past year was made using the Mini International Neuropsychiatric Interview Version 6 (MINI).[28] Current (past month) dependence on methamphetamine was assessed using the Severity of Dependence Scale (SDS). The SDS has been validated for use in amphetamine-using populations,[29] and a score of four or greater is equivalent to a DSM-III-R diagnosis of severe methamphetamine dependence.[30]

Methamphetamine treatment

Participants were asked whether they had ever been to treatment for their methamphetamine use (detoxification, rehabilitation or counselling). If so, they were asked whether they had started treatment for their drug use at a drug treatment service in the past year and then how many times they had started treatment. Working back from the most recent treatment episode, participants were asked to name the treatment services that they had attended within the past year, and the main drug for which they had sought help for on each occasion (which we coded as methamphetamine vs. other). This information was used to calculate lifetime and past year drug treatment for methamphetamine use, and to calculate the multiplier for the indirect prevalence estimation exercise (see section 2.3).

Participants were asked whether they had received any other professional help for their methamphetamine use in the past year, and, if so, from where (options included: counsellor, psychologist, psychiatrist, GP, peer-based services, online help, other health professional).

Barriers to treatment

An adaptation of the Barriers Questionnaire was used to assess barriers to seeking help for methamphetamine use. The Barriers Questionnaire was originally developed to ask people about the reasons why they had not previously sought treatment for drinking[31] and was subsequently expanded to assess reasons for not seeking drug treatment.[32] The final instrument consisted of 50 items, each rated not important (0), somewhat important (1), important (2) and very important (3). The instrument has not been scaled and is therefore intended to be interpreted at an item level only. We retained 27 of the original 50 items (removing items that were similar in content), modified the wording of remaining items to suit the Australian context with input from the Canberra Alliance for Harm Minimisation and

Advocacy (CAHMA), and added seven items that were relevant to the ACT based on the recommendations of the project's Advisory Group. The final list of reasons included in this modified version of the Barriers Questionnaires is reported in section 3.3 (Figure 3) of the results.

Help seeking

The participant's relative likelihood of seeking help for their methamphetamine use from different sources was assessed using the General Help Seeking Questionnaire (GHSQ). The GHSQ involves asking the participant about how likely it is that they would seek help for a particular problem from a nominated list of sources. Both the problem and the sources of help can be modified if needed. In this case, participants were asked "If you were having problems from your methamphetamine use, how likely is it that you would seek help from the following people?". The sources listed in the questionnaire were:

- doctor/GP
- detox program
- drug rehabilitation service
- drug counselling service
- private psychologist or counsellor
- psychiatrist
- phone helpline (e.g., Lifeline, phone counselling)
- the internet (e.g., online counselling), and
- a peer-based service (e.g., CAHMA).

The GHSQ also includes the option "I would not seek help from anyone". Each participant rated how likely it was that they would seek help from that source on a scale of one (extremely unlikely) to seven (extremely likely). No adjectives accompanied the scores between one and seven. Participants could also rate each source as not applicable or unsure (rating of zero). Participants who rated not applicable/unsure on an item were removed from the calculation of help-seeking scores. This version of the scale yielded a Cronbach's alpha of 0.82 in this sample, indicating good internal consistency of scale items (i.e., responses of one item correlated with responses on the other items).

Awareness of ACT alcohol and other drug services

To assess participants' awareness of services in the ACT, we asked participants to list all the services that they knew of from where they could get help for their methamphetamine use. We then read aloud a list of services in the ACT (see Table 10, section 3.5) and asked participants if they recognised each of these services, and also whether they had ever attended each of them. We also asked whether they were currently enrolled in opioid substitution therapy (methadone, buprenorphine), and if so whether they got their methadone/buprenorphine from Canberra Hospital (Building 7) or from a pharmacy.

Other health service contact

Participants were asked whether they had used specific health services within the past year (general hospital, psychiatric hospital, emergency department, ambulance, and general practitioner [GP]). If they had used each of these services, they were subsequently asked how many times they had attended in the past year. For general hospital, psychiatric hospital, emergency department, and ambulance attendances, participants were asked how many of these times were because of their methamphetamine use. Participants who reported having attended an emergency department because of their methamphetamine use were asked whether they were referred to another service for their drug use. For GPs, we asked participants whether they had told their GP that they used methamphetamine, whether they had received help for methamphetamine use from their GP in the past year, and whether they would be willing to discuss methamphetamine use, or get help for their methamphetamine use, from their GP.

Arrest history

Participants were asked whether they had been arrested for any offence within the past year, and, if so, how many times they had been arrested for methamphetamine-related offences (including methamphetamine use, possession, dealing/supply). Participants were also asked whether there were any other offences that they had been arrested for within the past year, and these were coded (yes/no) under the categories: offences against the person, dangerous/negligent acts, robbery and extortion, theft and related offences, deception and related offences, property damage, public order offences, driving under the influence of alcohol, driving under the influence of drugs, other illicit drug offences, other road traffic and motor vehicle offences, offences against justice procedures, and other offences. Details of specific offences included in each of these categories can be found in Appendix 2.

Drug-driving

For participants who had driven a vehicle in the past year, we asked whether they had been tested for drink-driving and drug-driving. Participants were then asked "How likely do you think it is that you will be tested for drug driving in the next year?" with response options of "not likely", "somewhat likely" and "very likely". They were then asked "Have you decided not to drive after taking illicit or non-prescribed drugs because of roadside drug testing?", with response options of "Not applicable/wouldn't normally drive after taking drugs", "No", "Sometimes", "Yes, always".

Behavioural risk factors for BBVs and STIs

Questions on behavioural risk taking for blood-borne viruses (BBVs) and sexually transmitted infections (STIs) were based on the Opiate Treatment Index subscale for HIV Risk Taking Behaviour,[33] modified in consultation with CAHMA, and appended with questions on pipe sharing, and access to sterile needles and sexual health information, which were developed specifically for this study. Questions are described below

BBV risk was assessed by asking participants: how many times they had injected a drug in the past month (once a week or less, more than once a week [but less than once a day], once a day, 2-3 times a day, more than 3 times a day); whether they had used a needle after someone else in the past month and if so how many different people had used a needle before them in the past month (1, 2, 3-5, 6-10, >10). We also asked participants whether they had injected with a used needle in the past month because they could not get sterile injecting equipment, whether they had shared other injecting equipment in the past month, and from where they had obtained clean needles in the past month (haven't used a clean needle, NSP, vending machine, pharmacy, other).

The Opiate Treatment Index questions were adapted to ask participants whether they had shared an ice pipe in the past month, how many times they had shared a pipe in the past month (1, 2, 3-5, 6-10, >10), and how many different people had used a pipe before them in the past month (1, 2, 3-5, 6-10, >10). We also asked participants if they had lesions on their lips in the past month (blisters, sores, cracks or burns) as this would convey an elevated risk of BBV transmission.

Sexual risk behaviour was assessed by asking participants if they had sex in the past month, and, if so, how many people they had sex with (1, 2, 3-5, 6-10, >10) and how many different people did they have unprotected sex with (1, 2, 3-5, 6-10, >10). Unprotected casual sex was assessed by asking the question "How often did you use condoms when having sex with casual partners in the past month" (no casual sex partner, every time, often, sometimes, rarely, never). Casual unprotected sex was defined as having a casual sex partner and not using a condom every time when having sex with casual sex partners.

Additional questions assessed whether participants were taking pre-exposure prophylaxis for HIV (PreP) in the past month, whether they had ever been tested for blood-borne and sexually transmitted viruses (hepatitis B, C, HIV, other sexually transmitted infections), what places they had received testing from (sexual health clinic, GP/doctor, other), and from what places they had received

information on sexual health (sexual health clinic, GP/doctor, CAHMA, NSP, other drug and alcohol service, pharmacy, other).

Quality of life

Quality of life was assessed using the Australian Quality of Life scale[34] (AQoL). The AQoL is a measure of disability that estimates an average utility score for each participant. Utility scores are scaled such that a score of 1.0 is the best possible health state and 0 is the worst possible health state, equivalent to death. The AQoL also provides scores on four dimensions of functioning: independent living, relationships, senses (e.g., vision and hearing) and mental health. The AQoL correlates well with other established instruments that assess quality of life (e.g., the EQ-5D) albeit with a slightly lower mean utility score and greater sensitivity to mild impairment in function.[35] The reliability of the AQoL in this sample was acceptable (Cronbach's alpha = 0.72).

Mental health

Participants were asked whether they had ever been told by a doctor that they had any of a list of mental health conditions (schizophrenia, mania or bipolar, drug-induced psychosis, other psychosis (e.g., postpartum depression with psychosis), depression, anxiety, ADHD, post-traumatic stress disorder).

The severity of psychiatric symptoms in the past month was assessed using the Brief Psychiatric Rating Scale (BPRS).[36] The BPRS involves a semi-structured clinical interview that assesses 24 psychiatric symptoms. Each symptom is rated on a scale of 1 (nil) to 7 (extremely severe) against pre-specified anchor points. Scores of 2-3 reflect symptoms of a sub-clinical nature or which are questionable. Scores of 4 or greater reflect clinically significant symptoms, with score of 4 and 5 being considered moderate and 6 and 7 being severe (e.g., would require hospitalisation). Ratings on the BPRS were reviewed at weekly meetings between researchers (Voce and McKetin) as part of the quality assurance procedures to maintain the consistency of ratings over the course of the study.[37]

2.2 Indirect prevalence estimation methods

The number of regular and dependent methamphetamine users in the ACT was estimated by multiplying the number of benchmark events (i.e., the number of treatment episodes for methamphetamine use) for the 2015-16 financial year by the treatment multiplier for regular and dependent use respectively.

In our past application of the benchmark-multiplier method,[24,38] we have explored a number of potential benchmark data sources for estimating the number of methamphetamine users (hospital admission data, drug treatment data, arrest data, emergency data and ambulance data) and found that hospital admissions data and drug treatment data have proved to be the most feasible because they include identifiable methamphetamine-related cases, and a sufficient number of cases, to produce reliable prevalence estimates.

Hospital data could not be obtained within the timeframe required for the current research. We were advised by ACT Health that hospital data could not be obtained within the project timeline because ACT Health is undergoing a system-side data review to be completed by 31 March 2018.

Arrest data were provided by ACT Policing. However, estimates were not produced using the arrest data because it was difficult to accurately match the arrest data to the multiplier derived in our survey. Specifically, there were 105 apprehensions involving amphetamines in the ACT in 2015-16; however, only 52 of these were recorded as arrests (other events were coded as charged before court, summons, drug diversion, caution). This level of detail was not collected in the survey. For this reason, the benchmark-multiplier exercise was undertaken using only drug treatment data.

Benchmark data

The benchmark data was defined as the number of drug treatment episodes in the ACT Minimum Data Set for Alcohol and Other Drug Treatment Services (ACT MDS AODTS) for the 2015-16 financial year where amphetamines were the primary drug of concern (ABS codes 3100-3199), the client was aged 18 to 64 years of age and an ACT resident, and where the main modality of treatment provided was counselling, residential rehabilitation, detoxification or the general category 'other' treatment. Other modalities of treatment captured in the ACT MDS AODTS (information and education only, support and case management only, assessment only, pharmacotherapy) were excluded from the benchmark data. This was done because these other treatment modalities were not included in the calculation of the multiplier. Essentially, treatment was most practically measured in the survey using modalities that participants would easily recognise as treatment, and which could be readily matched to services that submitted data to the ACT MDS AODTS.

Derivation of the multipliers

Multipliers were based on data from survey participants aged 18-64 years. The multiplier was the inverse of the rate of treatment episodes for the past year where methamphetamine was the main drug for which the participant received treatment. Multipliers were derived based on the entire sample aged 18-64 years, reflecting regular (at least monthly) use, and for the subset of the sample who were dependent on methamphetamine. Dependence was defined as having a score of four or greater on the Severity of Dependence Scale, which corresponds to a DSM-III-R diagnosis of severe methamphetamine dependence.[30]

To estimate the rate of treatment episodes, each participant was asked how many times they had started drug treatment within the past year. We initially asked participants about any treatment that they had received in the past year, using the question "Have you started treatment for your drug use at a drug treatment centre in the past year (including rehab, detox or counselling for your drug use, i.e., from a specialist drug treatment service**)**?" Any treatment encounters were recorded if they involved assessment, detoxification, pharmacotherapy, counselling and rehabilitation provided as specialist drug treatment. They were not recorded if they involved other health and social services (e.g., use of Needle and Syringe Programs, accommodation services). For each episode of treatment initiated, the name of the facility was recorded, along with whether methamphetamine was the main drug for which the participant received treatment.

Only a subset of these treatment episodes were pertinent to the calculation of the treatment multiplier. Each treatment episode was reviewed and counted in the calculation of the multiplier if it was provided by a treatment service that was included in the ACT MDS AODTS and methamphetamine was the main drug for which treatment was received and the participant was aged 18 to 64 years. Treatment episodes were excluded from the calculation of the multiplier if they involved treatment options not included in the benchmark data source (e.g., pharmacotherapy, outreach, NSPs, support from mental health services).

Calculation of prevalence

The prevalence of regular and dependent methamphetamine use was calculated using the estimated resident population of the ACT aged 18 to 64 years at June 2016, which was 258,117.[39] Confidence intervals for prevalence were derived from the confidence interval around the multiplier. This was the inverse of the confidence interval around the rate of treatment episodes each year. The mean and 95% confidence interval for the rate of treatment episodes was derived from the intercept of a Poisson regression model predicting the rate of treatment episodes.

Calculation of treatment coverage

Treatment coverage for methamphetamine dependence was calculated as the proportion of participants who had initiated drug treatment within the past year, where drug treatment was defined in the same way as in the indirect prevalence estimation exercise; that is, any episode of treatment provided by a specialist drug treatment service within the ACT, involving counselling, rehabilitation or withdrawal management, where methamphetamine was the main drug for which the person received help. The calculation of the treatment coverage was based on participants who were currently dependent on methamphetamine and who were aged 18 to 64 years.

2.3 Statistical analyses

All statistical analyses were conducted in Stata SE Version 14.1. Group comparisons were made using t-tests for continuous data, a median comparison test for highly skewed continuous data, or a Chi-square test for categorical variables. Tests were two-sided and significance was set at $p < 0.05$. This p value represents the probability that a result (e.g., a difference between two groups) is due to chance (i.e., the type one error rate). The lower the p value the less likely the result is due to chance.

3 Results

3.1 Characteristics of the sample

Demographics

Participant demographics are shown in Table 1. Participants had an average age of 39 years (SD 10 years). The majority of participants were single, male, heterosexual, unemployed and residing in public housing. Most were living alone (42%), with their partner (20%) or unrelated adults (22%). Forty-two per cent had children under 18 years of age, but only 15% of the sample were currently living with children. Just over half had been to prison or juvenile detention.

Key points

Most participants were in their thirties or forties; around two-thirds were male

Many participants had low socio-economic status and lived in public housing

Almost half had children but most were not living with their children

Around half had a prison history

Table 1 Characteristics of participants in the sample

	Total sample (N = 183)
Age (mean years)	39
Gender (%)	68
Male	68
Female	32
Other	<1
Born outside of Australia (%)	9
Aboriginal or Torres Strait Islander (%)	16
Non-English speaking background (%)	1
Heterosexual (%)	92
Schooling (median years)	10
Ever been in prison or juvenile detention (%)	56
Tertiary education	
No tertiary qualifications (%)	50
Trade (%)	37
University (%)	13
Current employment status (%)	
Unemployed	67
Casual employment	13
Full-time	6
Student	4
Home duties	9

Table 1 Continued.

	Total sample (N = 183)
Main source of income (%)	
Full-time employment	6
Part-time employment	3
Disability pension	44
Unemployment benefit	33
Other benefit	10
Other or no income	4
Current marital status (%)	
Single	64
Married or de facto	22
Separated, divorced or widowed	14
Had children under 18 years of age (%)	42
Usual form of accommodation in the past month (%)	
Public housing	70
Private rented	9
Privately owned	8
Parents	2
Boarding house	3
No fixed address or other	8
Who they were living with in the past month (%)	
Alone	42
Partner	20
Children	15
Parents	11
Non-related adults	22

Patterns of methamphetamine use

Patterns of methamphetamine use in the sample are summarised in Table 2.

Methamphetamine use almost exclusively reflected the use of crystalline methamphetamine, with 94% of participants indicating that this was the main form of methamphetamine that they had used in the past month. Powder methamphetamine ("speed") was uncommon (4%).

Although only two people in the sample indicated that dexamphetamine was the main form of methamphetamine that they had used in the past month, 19% had taken prescription stimulants (dexamphetamine and/or Ritalin®) at some point in the past year. Most of this use was not prescribed (only 4% of the total sample had been prescribed stimulants).

Participants started using methamphetamine at a mean age of 19.6 years (SD 7.3) and had been using for a mean of 19.5 years (SD 9.4 years). Participants who had used methamphetamine in the past month (95%) had taken the drug on a median of 10 days (range 1-28 days) during that time.

The majority of participants nominated injection as the main way that they took methamphetamine in the past month (76%), with 20% smoking and only 5% nominating other routes of administration.

There was overlap between injecting and smoking: 34% of those who nominated injecting as their usual route of administration had also smoked the drug in the past month. Conversely, of those who usually smoked methamphetamine, 23% reported having injected a drug in the past month.

Dependence on methamphetamine

The majority of participants (85%) met the DSM-IV criteria for methamphetamine dependence in the past year according to the MINI (Table 2). Symptoms of dependence reported are shown in Table 3. Drugs used to avoid withdrawal symptoms (symptom 2 in Table 3) were cannabis (66%), heroin (41%), benzodiazepines (32%) and/or alcohol (29%), with only 6% of participants reporting methamphetamine or other stimulants use to relieve methamphetamine withdrawal symptoms.

Half of the participants met the criteria for methamphetamine dependence in the past month (51%, Table 2). This was based on an SDS score of 4 or greater, corresponding to severe methamphetamine dependence as assessed using the Composite International Diagnostic Interview.[30]

Table 2 Methamphetamine use patterns

	Total sample (N = 183)
Age of first use (mean years)	20
Duration of use (mean years)	20
Any use in the past month (%)	95
Days used in the past month the past month (median)	10
Main route of administration in the past month (%)	
Inject	76
Smoke	20
Snort	3
Swallow	2
Main form of methamphetamine used in the past month (%)	
Crystalline methamphetamine	94
Powder (speed)	4
Other	2
DSM-IV dependence past year (%)	85
Past month dependence (%)	51
Methamphetamine SDS score (median)	4

Table 3 DSM-IV symptoms of dependence reported by participants in the past year

	% reporting symptom (n = 182)
1. Have you found that you needed to use more methamphetamine to get the same effect than you did when you first started taking it?	68
2. When you reduced or stopped using methamphetamine, did you have withdrawal symptoms[a]? Or, did you use any drug(s) to keep yourself from getting sick or so that you would feel better?	73
3. Have you often found that when you used methamphetamine, you ended up taking more than you thought you would?	65
4. Have you tried to reduce or stop taking methamphetamine, but failed?	52
5. On the days that you used methamphetamine, did you spend substantial time (> 2 hours) in obtaining, using or in recovering from meth, or thinking about meth?	68
6. Did you spend less time working, enjoying hobbies, or being with family or friends because of your meth use?	51
7. Have you continued to use methamphetamine even if it caused you health or mental problems?	73

[a] i.e., aches, shaking, fever, weakness, diarrhoea, nausea, sweating, heart pounding, difficulty sleeping, or feeling agitated, anxious, irritable or depressed

Other drug use

Other drugs used by participants are shown in Table 4. A conspicuous finding was that almost half the sample used heroin, and 37% of participants were enrolled in opioid substitution therapy (OST, mostly receiving OST via pharmacies, Table 4). There were significant differences in the characteristics of participants according to their opioid use status (see *Characteristics of the sample by opioid use*).

The most common other drugs used were tobacco and cannabis (these being used daily amongst the majority of the sample who had used them in the past month), and to a lesser extent alcohol. The consumption of alcohol was not dissimilar to that seen among the same age group and demographic in the NDSHS.[20] The use of remaining drug classes was more sporadic, being used infrequently by a minority of participants.

Table 4 Other drug use reported by participants

	Total sample (N = 183)
Number of other drug classes used in the past month (median)	5
Other drugs used in the past month, % (median days if used)	
Tobacco	97 (28)
Cannabis	80 (28)
Alcohol	62 (8)
Heroin	48 (8)
Other opioids[a]	50 (28)
Benzodiazepines[a]	51 (16)
Cocaine	11 (1)
Ecstasy	11 (2)
Hallucinogens	8 (1)
Inhalants	3 (3)
Currently in opioid substitution therapy (%)	37
Canberra Hospital (Building 7)	8
Pharmacy	29

[a]Includes prescribed and non-prescribed; other opioids includes opioid substitution therapy.

Key points

Crystalline methamphetamine use was the norm

Half of participants were currently dependent on methamphetamine

Many participants were also using heroin or enrolled in OST

Most participants smoked tobacco and cannabis daily

Characteristics of the sample by opioid use

Due to the high level of opioid use in the sample, we examined demographics and drug use patterns by concurrent opioid use. We did this by comparing those participants currently enrolled in opioid substitution therapy (OST), those participants not currently enrolled in OST but who had used heroin in the past month (heroin) and the remaining participants who were not enrolled in OST and had not used heroin in the past month (no heroin/OST; Table 5).

Participants who were not using heroin, or not enrolled in OST, used methamphetamine more often (median of 14 vs. 8 days in the past month), and half were dependent, despite their being younger, having used methamphetamine for fewer years, and being less likely to inject methamphetamine (being more likely to smoke methamphetamine). These participants had lower levels of polydrug use (although they were more likely to use ecstasy than the heroin/OST groups) and were also different demographically, being less likely to have a prison history or live in public housing.

Table 5 Demographic and drug use characteristics by opioid use category

	Opioid use category		
	OST (n = 68)	Heroin (n = 37)	No heroin/OST (n = 77)
Age (median years)	39	45†	38*
Prison or juvenile detention history (%)	63	68	45**
ADHD (%)	19	8	38**
Living situation			
Private dwelling (%)	12	30*	19
Public housing (%)	87	51***	65
Temporary accommodation (%)	0	11**	3
Homeless (%)	1	8†	12*
Living with partner in past month (%)	32	14*	13*
Methamphetamine use			
Duration (median years)	21	24	16†
Days used in past month (median)	8	8	14*
Main route of administration in past month (%)			
Inject	85	86	63**
Smoke	12	11	31**
Snort or swallow	3	3	7
Smoked methamphetamine in past month (%)	40	32	53*
SDS score (median)	4	3	4
Dependent in past month (%)	56	43	52
DSM-IV dependence in past year (%)	87	73†	88
Crystalline methamphetamine main form used (%)	98	92†	92
Other drug use in past month			
Inject any drugs (%)	93	95	62***
No. other drug classes used (median)	6	5	4***
Heroin use (%)	74	100**	N/A
Days of heroin use (median)	6	7	N/A
Other opioids[a] (%)	99	30***	17***
Ecstasy (%)	7	3	19**
Benzodiazepines (%)	68	54	35***
Tobacco (%)	100	97	93*

†p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Comparisons in the middle column reflect Heroin vs. OST; comparisons in the right hand column reflect the No heroin/OST group vs. OST & heroin groups combined. Demographic and other drug use variables from Tables 1-3 excluded if p > 0.05.

[a]Includes prescribed and non-prescribed; other opioids includes opioid substitution therapy.

Characteristics of smokers vs. injectors

Crystalline methamphetamine can be inhaled when heated (i.e., smoked) and recent increases in crystalline methamphetamine use have been associated with an increasing trend toward smoking the drug. In the current sample, only 20% of participants reported smoking as the main method by which they took methamphetamine (cf. 76% for injecting and 5% for swallowing or snorting). There were some notable differences in the characteristics of participants who smoked compared to injecting the drug (Table 6).

Crystalline methamphetamine smokers were significantly younger, had been using for less time, and were less likely to use opioids (and conversely more likely to use ecstasy). Smokers also had more schooling, were more likely to live in a private dwelling (versus public housing) and were slightly less likely to have a prison history.

Even though there was a trend toward less frequent methamphetamine use among people who smoked methamphetamine, they had the same levels of dependence as participants who injected. It should be noted that these were not exclusive groups of smokers and injectors: 34% of injectors had also smoked methamphetamine in the past month, and 23% of the crystalline methamphetamine smokers had injected a drug in the past month.

Table 6 Characteristics of participants by whether they usually smoked or injected methamphetamine

	Main route of methamphetamine use	
	Inject (n = 134)	Smoke (n = 35)
Demographics		
Male (%)	71	63
Age (median years)	42	33***
Completed years of schooling (median)	10	12***
Tertiary qualifications (%)	55	40
Unemployed (%)	71	57
Single (%)	76	83
Heterosexual (%)	93	97
Currently have children under 18 years of age (%)	43	40
Live in a private dwelling (%)	12	37***
Live in public housing (%)	77	60*
Have you ever been in prison or juvenile detention (%)	62	46†
Methamphetamine use		
Age of first use (median years)	18	18
Duration of use (median years)	23	12***
Days of use in the past month (median)	12	6†
SDS score (median)	4	3
Dependent in the past month (%)	56	43
DSM-IV methamphetamine dependence past year (%)	82	91
Crystalline methamphetamine main form used (%)	96	100
Other drugs use in the past month		
Inject any drug (%)	98	23***
No. other drug classes used (median)	5	5
Heroin (%)	54	26**
Ecstasy (%)	6	20**
Inhalants (%)	1	9**
Currently enrolled in OST (%)	41	23*

†p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Comparisons were for injecting versus smoking methamphetamine. There were no significant differences in living situation or the use of other drugs in the past month between these groups.

Characteristics of recent initiates to methamphetamine use

In light of recent increases in crystalline methamphetamine use in Australia, we calculated the year in which participants first used methamphetamine to gain an understanding of whether participants had initiated use recently or whether they constituted a more established cohort of drug users. Figure 2 is a histogram showing the proportion of the sample who initiated methamphetamine use by year.

This shows that the vast majority of participants initiated methamphetamine use in the 1990s, indicating that they were an older established cohort of people who use drugs. However, the relative increase in the proportion of participants initiating use after 2010 would reflect a more recent cohort of recruits to methamphetamine use. These participants would have taken up using methamphetamine since the most recent increase in crystalline methamphetamine use in Australia, which occurred from 2010.[1]

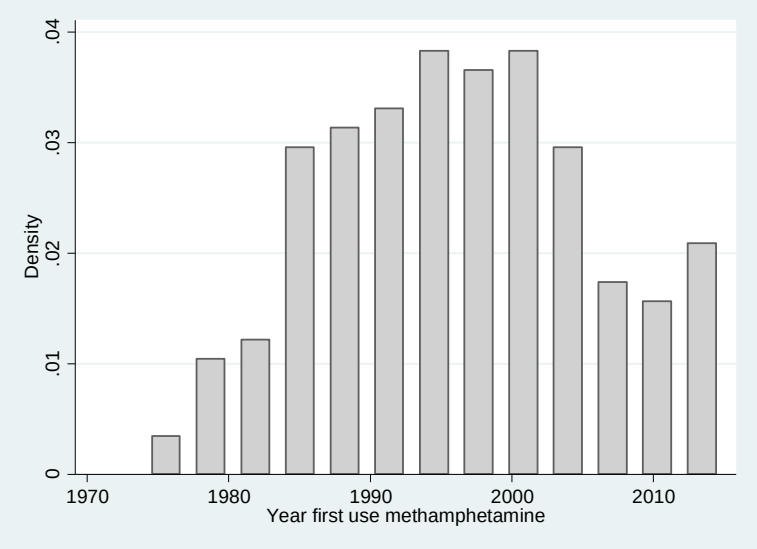

Figure 2 Histogram of year participants initiated methamphetamine use

Only 10% of participants fell into this category (i.e., 10% of participants had initiated use in 2010 or more recently). As expected these participants were much younger (median of 21 vs. 41 years) and had been using the drug for fewer years (4 vs. 22 years).

These more recent initiates to methamphetamine use were very different from remaining participants in terms of their demographics (Table 7). More recent initiates were more likely to be women (50% vs. 30%); they were more likely to live in a private share house rather than public housing, and not have children; they had more schooling and were less likely to have a trade qualification; and they were less likely to be unemployed or have a prison history.

More recent initiates to methamphetamine also had different drug use patterns: they were far less likely to inject drugs, use heroin or be enrolled in OST, and conversely more likely to use ecstasy, cocaine, hallucinogens and inhalants. They also used methamphetamine less often although were similarly likely to report symptoms of dependence (Table 7). There was no significant difference in their self-reported lifetime history of psychiatric diagnoses (not shown in Table 7).

Key points

Methamphetamine use occurred mostly in an older established cohort of people who injected heroin and/or were on OST

There was a smaller, more recent cohort of younger people in a higher socio-economic bracket who smoked methamphetamine

Table 7 Participant characteristics by whether they initiated methamphetamine use since 2010

	Year first used methamphetamine	
	< 2010 (n = 164)	2010+ (n = 18)
Demographics		
Age (median)	41	21**
Male (%)	70	50†
Years of schooling (median)	10	12**
Trade qualification (%)	40	11*
University degree (%)	12	17
Unemployed (%)	70	44*
Prison history (%)	59	28*
Living situation		
Public housing (%)	74	33***
Living alone in past month (%)	45	17*
Living with children[a] (%)	45	11**
Private dwelling (%)	16	44**
Share house (%)	20	44*
Methamphetamine use		
Age of first use (median)	18	18
Duration of use (median years)	22	4***
Days of use in past month (median)	10	3†
SDS score (median)	4	3
Dependent in past month (%)	53	39
Main route of methamphetamine use (%)		***
Inject	82	7
Smoke	15	73
Swallow	2	13
Snort	1	7
Inject any drug in the past month (%)	87	22***
Enrolled in OST (%)	40	6**
No. other drug classes used in past month (median)	5	5
Other drug use in the past month (%)		
Heroin (%)	51	17**
Cocaine (%)	10	28*
Ecstasy (%)	9	39***
Hallucinogens (%)	7	22*
Inhalants (%)	1	22***

†p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Comparisons were for 2010+ versus < 2010. P values for differences across multiple categories are placed against the variable name. Where there were multiple categories for a variable, the p value reflects significance across all categories.

[a]Children of any age.

3.2 Treatment or other help for methamphetamine use

Thirty-one per cent of the sample reported ever receiving treatment for their methamphetamine use. This was more common amongst participants dependent on methamphetamine (38% vs. 23%, p = 0.023). Treatment was defined as receiving detoxification, rehabilitation, or counselling for drug use from a specialist drug treatment centre.

Only 6% of participants received treatment for methamphetamine use in the past year (n = 11). This was almost exclusively amongst participants who were currently dependent on methamphetamine (11% vs. 1% for participants not currently dependent on methamphetamine, $\chi^2_{(df = 1)} = 7.2$, p = 0.007).

As shown in Table 8, more participants had sought help for their methamphetamine use from sources other than drug treatment agencies in the past year (30%) than from these agencies (6%), with this similarly being more common amongst participants currently dependent on methamphetamine (40% vs. 18%, $\chi^2_{(df = 1)} = 10.8$, p = 0.001).

The most common non-AOD treatment services from which participants sought help were general practitioners (GPs), counsellors and peer-based services. We did not collect further information on these services or on the nature of the help received via these services. Help from GPs could include specialist AOD services provided via some of the larger primary health care services in the ACT (cf. family practices). Help from counsellors could reflect both private counsellors and counselling services received from various non-AOD services (e.g., mental health support services). Similarly, peer-based services may not necessarily reflect only AOD-related peer support services.

Together 32% of the sample had either received specialist drug treatment or other professional help for their methamphetamine use in the past year. This was more common among people who were dependent on methamphetamine (45% vs. 18%, $\chi^2_{(df = 1)} = 14.7$, p < 0.001).

Key points

Few participants had been to drug treatment for their methamphetamine use

More had sought help from other sources, such as their GP, counsellors or peer-based services

Table 8 Percentage of participants who had received drug treatment or professional help (by source of help) for methamphetamine use in the past year

	Dependent on methamphetamine		
	No (n = 88)	Yes (n = 94)	Total (n = 182)
Drug treatment (%)	1	11**	6
Any other professional help (%)	18	40**	30
General practitioner	11	24*	18
Peer-based service	6	17*	12
Counsellor	8	17	13
Psychologist	5	6	6
Online help	0	8	6
Other[a]	1	8*	4

†p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Comparisons were for dependent on methamphetamine in the past month versus not dependent on methamphetamine in the past month

[a]Other services accessed included other social and health services (e.g., via NSPs, social workers, hospitals, probation officers)

3.3 Barriers to seeking help for methamphetamine use

Reasons for not seeking help for methamphetamine use amongst participants currently dependent on methamphetamine (SDS score 4+, n = 94) are shown in Figure 3. As described in the methods section of this report, these descriptors were pre-specified (based on the Barriers Questionnaire), and the participant rated whether or not each was a reason for not seeking help for their methamphetamine use.

Many of the commonly endorsed reasons for not seeking help in this group were around not wanting to stop using methamphetamine, including that people liked the effects of the drug (i.e., "I like getting high") and they didn't want to be told to stop using (i.e., "I don't want to be told to stop using drugs").

Structural barriers to receiving treatment included treatment not being available when participants wanted help, a perception that they would have to wait too long to get into treatment, and not being able to afford treatment.

In addition, there were barriers suggesting a lack of perceived benefit from treatment. For example, participants believed that treatment wouldn't help them or that they would fail at treatment, or that they had bad experience with treatment previously.

Some reasons for not seeking help included concerns that participants did not know what would happen to them if they went to treatment, or that they were afraid of what might happen to them.

Stigma-related and other structural barriers (e.g., need for time off work, transport) were less commonly cited as important reasons for not seeking help in this sample.

Key points

Liking the effects of methamphetamine, and not wanting to stop using the drug, was a key reason for not accessing drug treatment

Having to wait to get into treatment, and the cost of treatment, were also reasons for not going to treatment

There was a lack of awareness of, and fear of, what treatment involved

Some participants felt that treatment would not help them

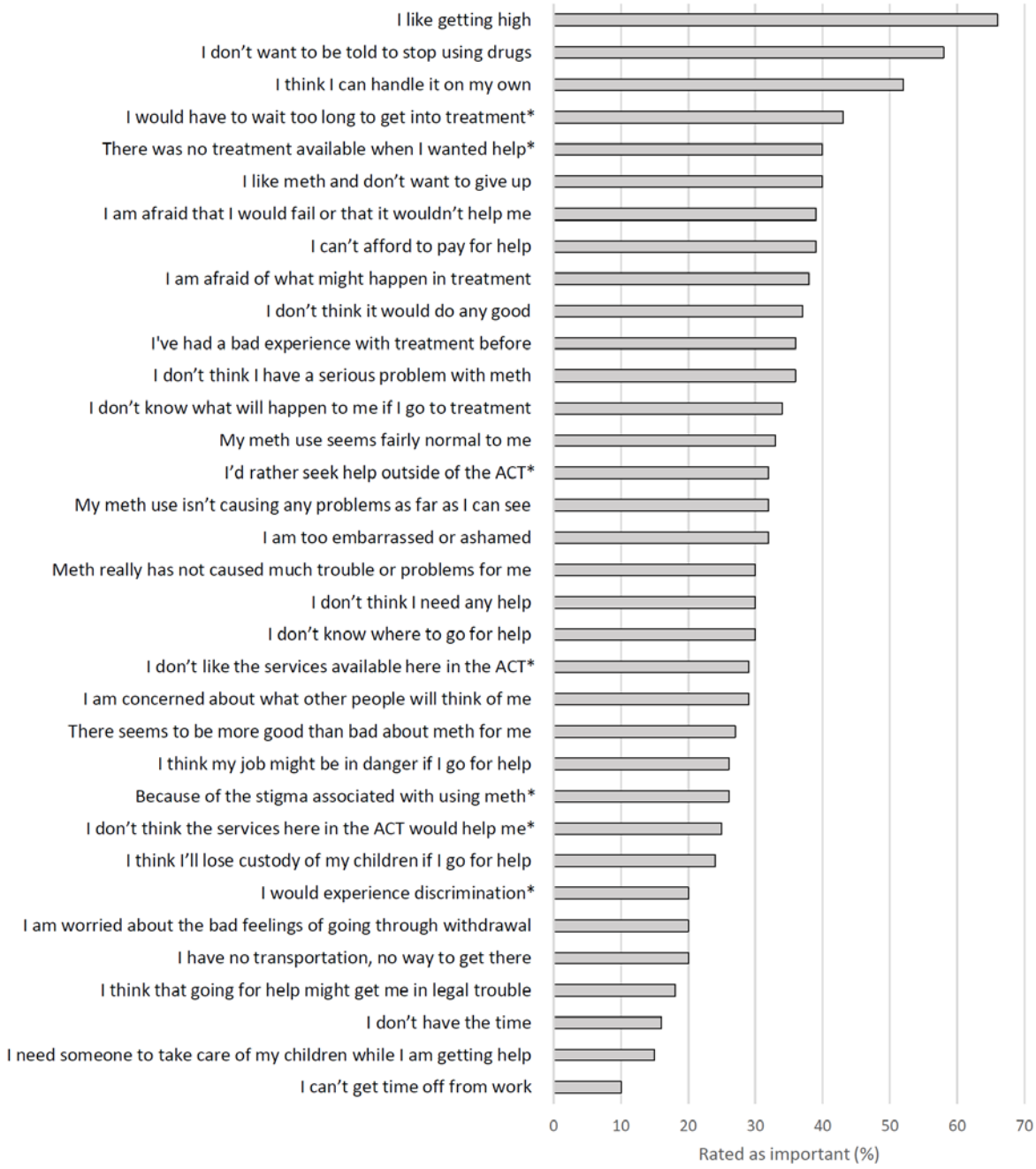

Figure 3 *Reasons that were rated as important for not seeking help for methamphetamine use amongst participants dependent on methamphetamine in the past month (n = 94)*

*[*Reasons added by the advisory group]*

3.4 Willingness to seek help from different sources

Participants were asked how willing they would be to seek help from various types of services if they were experiencing problems from their methamphetamine use. Each service type was rated on a scale of one (very unlikely to seek help from the service) to seven (very likely to seek help from the service), where higher scores reflected participants being more likely to seek help from that type of service (Table 9).

Participants were most likely to report that they would not seek help from anyone. Otherwise, peer-based services and drug counselling were the most likely services from which participants would seek help if they had a problem, followed by GPs.

For GPs, 35% of participants indicated that they would be very unlikely to seek help from a GP (score of 1), whereas most remaining participants indicated that they would be very likely to seek help from a GP (44% had help seeking scores of 5-7). Participants were more willing to seek help from their GP (score of 4 or more) if their GP already knew that they used methamphetamine (69% vs. 36%, $\chi^2_{(df = 1)} = 18.1$, $p < .001$) or they were men (54% vs. 36% for women, $\chi^2_{(df = 1)} = 5.3$, $p = 0.022$).

Participants were unlikely to report that they would seek help via a phone or internet service, although this was correlated with age. Specifically, younger participants were more likely to report that they would seek help from an internet service ($r_s = 0.32$, $p < .001$) and there was a similar trend for phone helpline ($r_s = 0.15$, $p < .051$). Participants who were dependent on methamphetamine in the past month were relatively more likely to report that they would seek help from a drug counselling or rehabilitation service.

There were no significant differences in help seeking by opioid use category or main route of administration (data not shown).

Key points

Most participants said that they would not seek help from anyone if they had a problem with their methamphetamine use

Peer-based services and counselling services were the most likely sources of help that people would seek

Men were more likely than women to report being willing to seek help from a GP

Table 9 Participants' willingness to seek help by past month methamphetamine dependence

	Methamphetamine dependence in the past month		Total sample (N = 183)
	No (n = 89)	Yes (n = 94)	
If you were having problems from your methamphetamine use, how likely is it that you would seek help from the following people? (median score)			
You would not seek help from anyone	5	5	5
A peer-based service	4	5	4
A drug counselling service	3	4*	4
A doctor or GP	2	4	3
A detox program	2	3	2
A drug rehabilitation service	1	3*	2
A private psychologist or counsellor	1	2	2
A psychiatrist	1	2	1
A phone helpline	1	1	1
An internet service	1	1	1

* p < .05, **p <.001, *** p < .001

Note. Scores reflect the participant's rating on a scale of 1 to 7 of willingness to seek help from each source, where 1 was extremely unlikely and 7 was extremely likely. This was a continuous hypothetical scale with no further adjectives assigned to the interim scores of 2 to 6. Participants could opt out of rating the service if they were unsure or felt that it was not applicable.

3.5 Awareness and use of ACT alcohol and other drug services

To assess participants' awareness of services in the ACT, we asked participants to list all the services that they knew of where they could get help for their methamphetamine use. We then read aloud a list of alcohol and other drug (AOD) services in the ACT (listed in Table 10) and asked participants if they recognised each of these services, and whether they had ever attended each of them.

When participants were asked where they could go in the ACT to get help for their methamphetamine use, they mentioned few treatment services. Despite recognising various AOD services within the ACT, most participants had not attended these services (Table 10).

The most well recognised and used services were Canberra Alliance for Harm Minimisation and Advocacy (CAHMA, a peer based support, advocacy and education service) and the Needle and Syringe Programs operated by the Directions service. High awareness of these services, and also the Directions drug and alcohol counselling service, is likely to be related to our having recruited a proportion of participants via the Directions NSPs and flyers placed at CAHMA.

Recognition of the Karralika and Arcadia House rehabilitation services was also high. However, attendance at these rehabilitation services was less common.

Low awareness/attendance at some services is likely to be due to their targeting specific populations (e.g., Gugan Gulwan Young Aboriginal Cooporation, which targets young Aboriginal and Torres Strait Islander people, and the Ted Noffs Foundation, where most of their services are for young people).

Table 10 Participants' awareness and use of ACT AOD services (N = 183)

	Mentioned (%)	Recognised (%)	Ever attended[a] (%)
Inpatient withdrawal unit (Building 7)	22	55	26
ACT Health alcohol and drug counselling services	24	59	27
Directions counselling service	42	73	37
Arcadia House (residential rehabilitation + day program)	25	81	15
Karralika Programs (residential rehabilitation)	21	76	19
Salvation Army Canberra Recovery Service (residential rehabilitation)	12	59	16
Ted Noffs (residential rehabilitation and outpatient services)	5	58	4
Winnunga Nimmityjah Aboriginal health service (broad-based clinical services for Aboriginal and Torres Strait Islander communities)	13	58	20
Gugan Gulwan Youth Aboriginal Corporation (broad-based support for Aboriginal and Torres Strait Islander communities)	5	25	9
The Connection (Indigenous peer-based outreach)	3	24	9
Toora Women (residential rehabilitation and outreach services)	7	48	5
CAHMA services (peer-based outreach)	36	70	54
Civic Directions NSP	48	85	67
Woden Directions NSP	41	79	54

[a] For any reason

Note. The information on the nature of these services provided is indicative only and may not include all services provided by these services. Information about what these services provide can be found on the ATODA directory: http://directory.atoda.org.au/ or by contacting the relevant service directly.

Factors affecting awareness of ACT health services

There was significant variation in awareness of health services by opioid use category (Table 11). Participants who had not used heroin in the past month and/or who were not enrolled in OST had much lower awareness of services than other participants. Similarly, participants who did not inject methamphetamine (81% of whom smoked methamphetamine) were less likely to recognise all services (Table 12).

There was no significant difference in the awareness of services by past month dependence on methamphetamine, with the exception of CAHMA, which was more likely to be recognised by participants dependent on methamphetamine (79% vs. 60%, $p = 0.006$).

Table 11 Percentage of participants who recognised each ACT AOD service by opioid use category

	Opioid use category		
	OST (n = 68)	Heroin (n = 37)	No heroin/OST (n = 77)
Recognised service (%)			
Inpatient withdrawal unit	66	68	40***
ACT Health alcohol and drug counselling services	71	62	47**
Directions counselling service	79	78	64*
Arcadia House	90	78	74*
Karralika Programs	85	81	66**
Salvation Army Canberra Recovery Service	74	65	44***
Ted Noffs	69	73	42***
Winnunga Nimmityjah Aboriginal health service	56	65	56
Gugan Gulwan Youth Aboriginal Corporation	22	27	26
The Connection	21	35	22
Toora Women	54	57	39*
CAHMA services	75	76	62†

†p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Comparisons were Heroin vs. OST; No heroin/OST vs. OST & heroin combined. Data for NSP services are presented separately below.

Table 12 Percentage of participants who recognised each ACT AOD service by main route of methamphetamine administration

	Methamphetamine route of administration	
	Inject (n = 136)	Other (n = 46)
Recognised service (%)		
Inpatient withdrawal unit	61	35**
ACT Health alcohol and drug counselling services	65	41**
Directions counselling service	79	52**
Arcadia House	87	65**
Karralika Programs	84	54***
Salvation Army Canberra Recovery Service	64	43*
Ted Noffs	64	43*
Winnunga Nimmityjah Aboriginal health service	64	37**
Gugan Gulwan Youth Aboriginal Corporation	24	26
The Connection	27	17
Toora Women	55	30**
CAHMA services	81	38***

†p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Comparisons were Injection vs. other route of methamphetamine administration. Data for NSP services are presented separately below.

Factors affecting attendance of services

Lower awareness of services amongst participants who did not use opioids was mirrored in their being less likely to have ever attended services. However, the disparity in having ever attended services by opioid use category was only apparent for some services, including ACT Health services (inpatient withdrawal and the ACT Health alcohol and drug counselling services), the Karralika programs, and CAHMA services (Table 13).

Low attendance at the inpatient withdrawal unit was particularly related to smoking crystalline methamphetamine. Amongst participants in the "No heroin/OST" group, only 4% of crystalline methamphetamine smokers (one person) had ever attended this service.

Table 13 Participants' attendance at each ACT AOD service by opioid use category

	Opioid use category		
	OST (n = 68)	Heroin (n = 37)	No heroin/ OST (n = 77)
Ever attended service (%)			
Inpatient withdrawal unit (Building 7)	43	22	13**
ACT Health alcohol and drug counselling services	38	24	19*
Directions counselling service	43	35	34
Arcadia House	13	19	16
Karralika programs	31	19	8**
Salvation Army Canberra recovery service	18	14	16
CAHMA services	62	57	45***

†p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Comparisons were Heroin vs. OST; No heroin/OST vs. OST & heroin combined. Note: There were no statistically significant group differences for services omitted from the table. Data for NSP services are presented separately below.

Awareness and use of NSP services amongst participants who injected drugs

Amongst participants who had injected any drug in the past month (n = 145), 96% were aware of (recognised) one of the two Directions NSP services. Participants who had not used heroin in the past month or were not enrolled in OST were less likely to recognise these services (92% vs. 99%, $\chi^2_{(df = 1)} = 5.1$, p = 0.023), and slightly less likely to have ever accessed them (79% vs. 90%, $\chi^2_{(df = 1)} = 3.0$, p = 0.084).

Key points

There was a high level of awareness of NSP services among injectors

There was more limited awareness and use of the various other AOD treatment services in the ACT

Awareness of AOD services was comparatively low for non-opioid users, particularly for crystal methamphetamine smokers

3.6 Contact with other health services

Although contact with other health services was high, most of this contact was not because of presentations for methamphetamine use specifically (e.g., methamphetamine intoxication or overdose; Table 14). Non-methamphetamine-related presentations could include presentations where methamphetamine was a contributing factor (e.g., accidents or injuries related to intoxication) and/or the broader health needs in this population.

Contact with emergency departments was particularly high, and elevated compared to the general population: 43% of participants had attended an emergency department in the past year. This compares with 13% of the Australian general population aged 15 years or older having used an emergency department in the past year.[40] Emergency department presentations were more common among participants who had used cocaine in the past month (67% vs. 40%, $\chi 2_{(df = 1)} = 5.5$, $p = 0.019$). Other demographic and drug use factors were not significantly related to having attended an emergency department in the past year.

Around one in five of these emergency department presentations were for methamphetamine use. Methamphetamine-related emergency department presentations were more common amongst participants who were currently dependent on methamphetamine (12% vs. 3%, $\chi^2_{(df = 1)} = 4.3$, $p = 0.038$). Half of the participants who had attended the emergency department for methamphetamine use were referred to other services for their drug use (e.g., treatment), but this represented only 3% of the total sample.

For participants who had attended a GP in the past year (90% of the sample), 44% reported that their GP was aware of their methamphetamine use. Twenty-two per cent had received help for their methamphetamine use from their GP and a further 29% would be willing to get help for their methamphetamine use from their GP. Amongst participants who had not already received help for their methamphetamine use from their GP, men were more likely than women to be willing to get help for their methamphetamine use from their GP (45% vs. 22%, $\chi^2_{(df = 1)} = 5.5$, $p = 0.019$). Participants who had dependent children were less willing to get help for their methamphetamine use from their GP (27% vs. 45%, $\chi^2_{(df = 1)} = 4.0$, $p = 0.045$).

The high level of contact with psychiatrists (Table 14) is likely to reflect psychiatric comorbidity in the sample (see section 3.11), although it is noteworthy that around one-third of psychiatrist visits were methamphetamine-related.

Key Points

Most contact with health services was not for methamphetamine use, but for other health issues

Contact with emergency departments was notably high

Emergency department presentations for methamphetamine use were more common amongst people who were dependent on the drug

Around half of participants said that they had discussed their methamphetamine use with their GP or would be willing to do so

Table 14 Past year attendance at other health services

	Total sample (N = 183)
General hospital or psychiatric hospital admission (%)	
Any attendance	22
Methamphetamine-related	9
Emergency department (%)	
Any attendance	43
Methamphetamine-related	8
Referred to AOD service	3
Ambulance (%)	
Any attendance	31
Methamphetamine-related	8
Psychiatrist (%)	
Any attendance	27
Methamphetamine-related	10
Counsellor (%)	
Any attendance	40
Methamphetamine-related	21
General practitioner (%)	
Any attendance	90
Methamphetamine-related	20

3.7 Criminal justice involvement

Just over one-quarter of participants (28%) reported having been arrested in the past year, and 7% said that they had been arrested for a methamphetamine-related offence (e.g., methamphetamine possession, supply).

Other offences for which people reported having been arrested were mostly theft/robbery, assault and damage to property or public disorder (Table 15).

The only significant factors related to being arrested for an offence in the past year were having a prison history (69% vs. 52%, $\chi^2_{(df = 1)} = 4.2$, $p = 0.041$) and current cannabis use (90% vs. 76%, $\chi^2_{(df = 1} = 4.8$, $p = 0.028$).

Key points

Around one-in-four participants had been arrested within the past year

Arrests were mostly for methamphetamine possession/supply, theft or robbery, assault, damage to property or public order offences

Table 15 Offences for which participants had been arrested in the past year

	Total sample (N = 183)
Arrested for any offence in the past year (%)	28
Offence arrested for in the past year (%)	
Methamphetamine-related offence (e.g., use, possession, supply)	7
Offences against the person	7
Property damage	7
Theft and related offence	5
Public order offences	4
Robbery and extortion	3
Deception and related offences	3
Offences against justice procedures	3
Driving under the influence of drugs	3
Other illicit drug offences	2
Road traffic and motor vehicle offenses	2
Dangerous or negligent acts	1
Driving under the influence of alcohol	1

Note: Details of offences included in each category can be found in Appendix 2

3.8 Quality of life

The AQoL was used to measure participants' quality of life. The AQoL provides a utility score for each participant that is scaled such that a score of 1.0 is the best possible health state and 0 is the worst possible health state, equivalent to death.

Participants' mean AQoL utility score was 0.52, suggesting that, on average, they had a relatively lower quality of life than the average Australian. (The mean AQoL utility score for the Australian general population aged 16 to 65 years ranges from 0.77 to 0.84.[35])

The AQoL also provides scores on four dimensions of functioning: independent living, relationships, senses (e.g., vision and hearing) and mental health. Scores are similarly scaled from zero to one, where 1 reflects optimal functioning (no impairment) and zero reflects poor functioning. However, these scores are not on the same scale as the utility scores and should therefore not be directly compared with the utility scores.[35]

AQoL dimension scores show relatively worse quality of life on dimensions of relationships and mental health, but with relatively little evidence of impairment on independent living and senses (e.g., hearing, vision) (Figure 4).

Current dependence on methamphetamine was associated with lower mean utility scores (0.45 vs. 0.59, $t = 3.8_{(df = 172)}$ $p < .001$) and also lower median scores on the AQoL relationship dimension (0.74 vs. 0.82, $\chi^2_{(df = 172)}$ $p = 6.6$, $p = 0.010$).

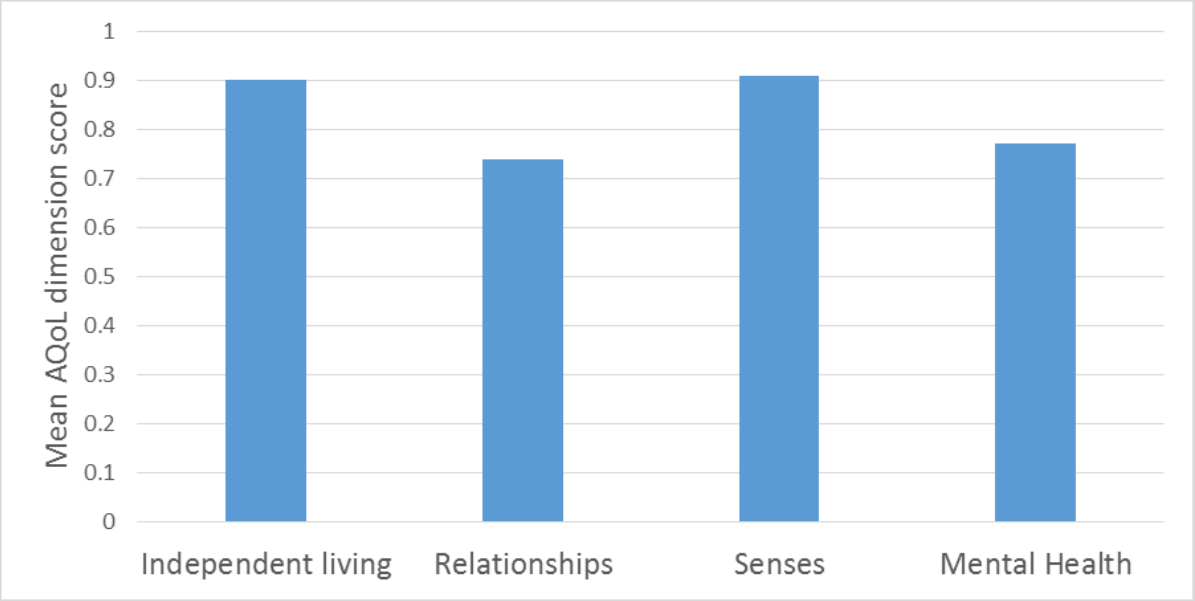

Figure 4 Mean value scores on each of the AQoL dimensions

Key point

Participants, particularly those dependent on methamphetamine, had a worse quality of life than the average Australian. This was related to poor quality social relationships and poor mental health

3.9 Behavioural risk for blood-borne viruses and sexually transmitted infections

Injecting risk

Eighty per cent of the sample had injected a drug in the past month (n = 145). Amongst those who injected, 42% injected daily or more often. Injecting daily or more often was more common for participants who were using heroin and not in OST than for either OST or other participants (60% vs. 35% and 38% respectively; $\chi^2_{(df = 2)} = 6.1$, p = 0.047; Figure 5).

For participants who had injected in the past month, 7% had shared a needle during this time. All of these participants indicated that they had shared a needle because they could not get access to a clean needle.

Most participants who injected (89%) had obtained clean needles from an NSP in the past month, although many participants also obtained clean needles from other places (54% had obtained them from a pharmacy, 41% from a vending machine and 34% from a friend).

Twenty-eight per cent of participants had shared other injecting equipment (tourniquets, swabs).

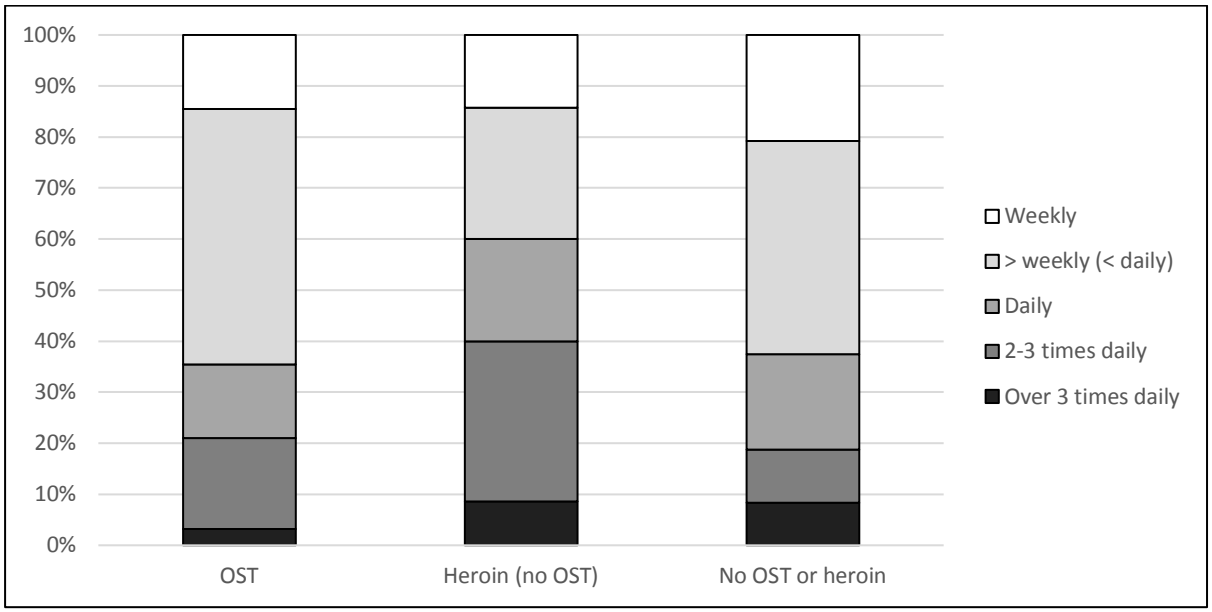

Figure 5 Frequency of injecting in the past month by opioid use category amongst participants who had injected any drug in the past month

Smoking methamphetamine

Forty-four per cent of participants had smoked methamphetamine in the past month (n = 80). The vast majority of these participants had shared a pipe (86%), had done so on a median of three to five occasions, and with a median of two different people having used the pipe before them.

Twenty-eight per cent of participants who had shared a pipe reported having lesions on their lips (i.e., burns, sores, cuts), representing a possible avenue for blood-borne virus transmission. This group were more likely to be currently dependent on methamphetamine (74% vs. 42%, $\chi^2_{(df = 1)} = 5.5$, p = 0.019) and to have been diagnosed with schizophrenia (37% vs. 6%, $\chi^2_{(df = 1)} = 10.6$, p = 0.001).

Sixty-eight per cent of participants who smoked methamphetamine in the past month had also injected drugs during that time (or 30% of the entire sample), introducing an avenue for secondary transmission of blood-borne viruses in the event that they also had lip lesions.

Sexual risk behaviour

Half of the sample (51%) was sexually active in the past month. Sexual activity was more common amongst participants who were not using heroin or on OST (61% vs. 32% and 49% respectively, $\chi^2_{(df = 2)} = 8.3$, $p = 0.016$) and younger participants ($r_s = -0.40$, $p < .001$).

Participants who were sexually active typically had one partner within the past month (74%), with the remaining participants having two (14%) or three or more partners (12%). Thirty-four per cent of participants who were sexually active in the past month had unprotected sex with a casual sex partner (17% of the full sample).

Testing for BBV and STI

The vast majority of participants had been tested for HIV, hepatitis B and C (88%, 88% and 84% respectively) at some point in their lifetime, and 77% had been tested for other STI. In total, 92% of participants had been tested for sexually transmitted infections. Testing was most often done by a GP (72%), with 16% having been tested through a sexual health clinic and 41% having received testing through other locations, these mostly being alcohol and other drug services, hospitals and prisons.

Key points

Needle sharing was low

One in four participants shared other injection-related equipment

Sharing of pipes by people with burns or sores on their lips was a risk factor for BBV transmission

Unprotected sex with casual sex partners was a potential risk factor for STI transmission

Most participants had been tested for BBV and other STI via their GP

3.10 Drug driving

Sixty-five per cent of the sample (n = 117) had driven a vehicle in the past year. Of these participants, almost half (46%) had been tested for drink-driving and 27% had been tested for drug-driving. Most participants who were tested for drug-driving had also been tested for drink-driving (91%), consistent with ACT Policing's standard roadside drug and alcohol testing protocols.

The majority of participants thought it was likely that they would be tested for drug driving in the coming year (32% and 33% cited likely and very likely respectively). Participants who had been tested for drug-driving in the past year were more likely to believe that they were very likely to be tested in the coming year relative to other participants (50% vs. 27%, $\chi^2_{(df = 1)} = 5.5$, $p = 0.019$). They were also more likely to report not having driven after taking drugs because of roadside drug testing (75% vs. 48%, $\chi^2_{(df = 1)} = 6.0$, $p = 0.014$).

Key points

Around one in four participants had been tested for drug-driving

Roadside drug testing was a deterrent for driving while drug-affected for most participants who had been been previously tested

3.11 Mental health

History of mental disorders

The majority of participants reported having ever been diagnosed with depression or anxiety (70% and 59% respectively) and 35% had been diagnosed with PTSD (Table 16). Psychotic disorders were relatively less common but still substantially elevated compared to the general population, with 29% of participants reporting having been diagnosed with either schizophrenia or mania (cf. lifetime prevalence in the general population of < 4%[41]).

Table 16 Percentage of participants who had been diagnosed with various mental health disorders

Have you ever been told by a doctor that you had:	Total sample (N = 183)
Depression (%)	70
Anxiety (%)	59
ADHD (%)	25
PTSD (%)	35
Schizophrenia (%)	18
Mania or bipolar (%)	16
Any other psychosis (%)	3

Current psychiatric symptoms

Psychiatric symptoms reported by participants in the past month are shown in Table 17. The presence of a symptom reflects a score of 4 or greater on the Brief Psychiatric Rating Scale, which indicates symptoms of clinically significant intensity.[36]

The majority of participants who were dependent on methamphetamine reported clinically significant levels of depression and anxiety (Table 17). Depression and anxiety were also significantly more common amongst participants who had been diagnosed with PTSD (Figure 6).

Suicidal ideation was reported by 26% of participants, more often amongst participants who were dependent on methamphetamine (Table 17). Suicidality occurred almost exclusively amongst participants with current depressive symptoms (44% vs. 3% for participants who were not currently depressed, $\chi^2_{(df = 1)} = 36.1$, $p < .001$).

Symptoms of paranoia (i.e., suspiciousness) and hallucinations were each experienced by around one-third of participants in the past month and were more common amongst participants dependent on methamphetamine (Table 17). These symptoms were also more common amongst participants who had been diagnosed with schizophrenia or bipolar disorder ($p < .05$); however, they still affected around one-in-five participants who had not been diagnosed with these disorders (suspiciousness 24%, hallucinations 21%).

Half of participants reported hostility in the past month and 19% reported hostility in the severe range (BPRS score of 6 or 7) which would reflect physical violence or damage to property. Self-neglect (31%) reflected irregular eating patterns and/or poor personal care.

Other symptoms on the BPRS were less commonly reported (up to 10% of participants) and are not documented here.

Table 17 Psychiatric symptoms in the past month by dependence on methamphetamine in the past month

	Dependent on methamphetamine		Total sample (N = 183)
	No (n = 89)	Yes (n = 94)	
Past month symptom (%)			
Anxiety	52	79***	66
Depression	46	71**	59
Suicidality	18	34*	26
Hostility	43	53	48
Suspiciousness	24	40*	32
Usual thought content	22	30	26
Hallucinations	22	39**	31
Self-neglect	32	30	31

* p < 0.05, ** p < 0.01, *** p < 0.001. Comparisons were for participants dependent on methamphetamine in the past month versus participants not dependent on methamphetamine in the past month. The presence of a symptom reflects a score of 4+ on the corresponding BPRS item, which indicates a clinically significant symptom.

Key points

There were very high rates of mental health problems

Dependence on methamphetamine was related to anxiety, depression, suicidality, paranoia and hallucinations

One in three participants had been diagnosed with PTSD

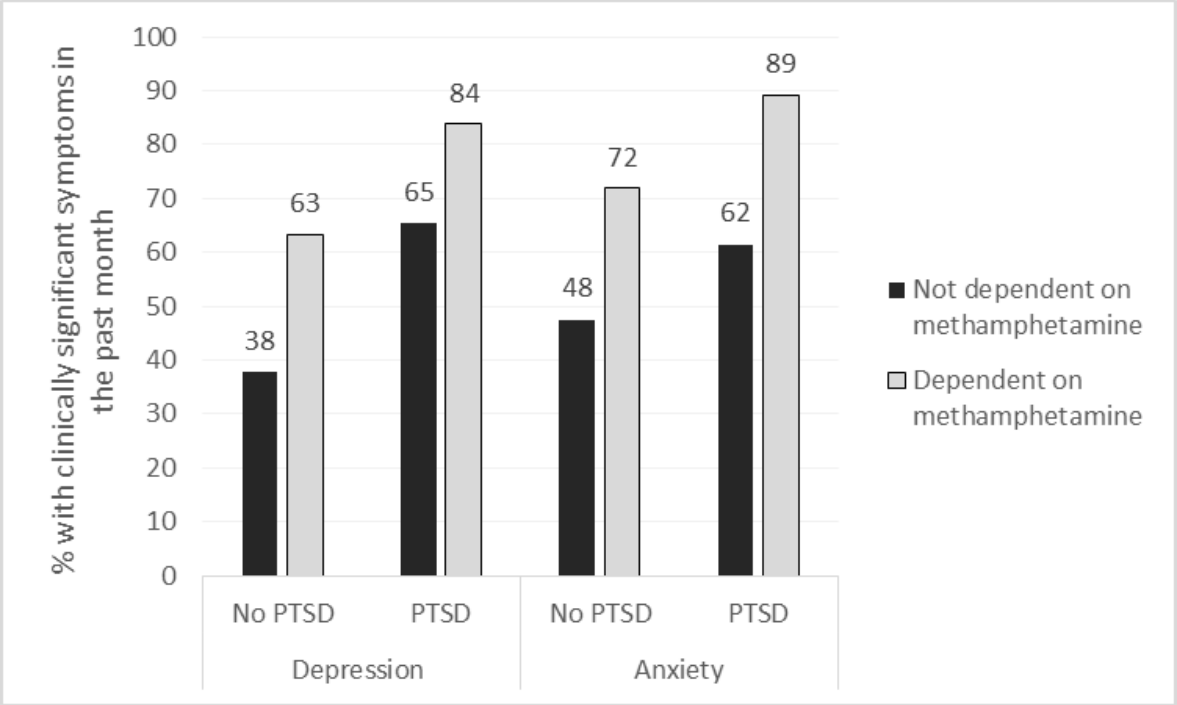

Figure 6 Symptoms of depression and anxiety by a history of PTSD and current methamphetamine dependence

3.12 Estimating the number of methamphetamine users in the ACT

Using the benchmark multiplier method, we estimated the number of regular (monthly) and dependent methamphetamine users in the ACT. This involved deriving a multiplier from the survey data which could be applied to the number of methamphetamine treatment episodes in the ACT, as explained below.

The number of treatment episodes in the ACT for methamphetamine use (benchmark data)

In 2015-16 there were 1,392 episodes of treatment for methamphetamine use recorded in the ACT MDS AODTS. Of these only 330 were within the benchmark data definition, that is, episodes of care for clients residing within the ACT aged 18-64 years of age, and for treatment modalities included in the benchmark data definition (detoxification, n = 33; residential rehabilitation, n = 78; counselling, n = 191; other, n = 28).

Excluded episodes were for clients residing outside the ACT (n = 427), and episodes for clients within the ACT where the main type of treatment provided was assessment only (n = 265), support and case management (n = 148), information and education only (181) and pharmacotherapy (n = 8). We decided to exclude these types of treatment on the grounds that they were not captured in the survey data on treatment episodes used to calculate the multiplier. We chose to include treatment episodes that were classified as "other" treatment because it was unclear what these other treatment episodes involved, and we could not confirm that they did not include treatment episodes captured in the multiplier. This would have had minimal impact on the prevalence estimates as these other treatment episodes comprised only 8% of treatment episodes included in the benchmark dataset.

Deriving the multiplier for treatment data

As explained in section 2.2, two multipliers were derived for the benchmark treatment data: one for the entire sample, which represented at least monthly use of methamphetamine (referred to hereafter as "regular use") and one for the subsample who were dependent on methamphetamine in the past month, defined as having a score of 4 or greater on the SDS scale (referred to as "dependent use"). Treatment episodes used to derive the multiplier were matched to the benchmark data (see section 2.2 for details) and were based on participants aged 18-64 years of age. Four per cent of participants aged 18-64 years, and seven per cent of participants in this age range who were dependent on methamphetamine, had received treatment for methamphetamine use in the past year, with a range of 1 to 4 treatment episodes per person. The multiplier was the inverse of the rate of methamphetamine treatment episodes in these respective samples of participants, which is shown in Table 18. The multiplier for regular use was 11.4 and for dependent use it was 6.7.

Table 18 Rate of treatment admissions in the past year for regular and dependent methamphetamine use

		Rate of treatment admissions in the past year[a]	Multiplier (95% CI)
	n	Mean (95% CI)	
Regular use	182	0.088 (0.054 – 0.143)	11.4 (7.0 – 18.6)
Dependent use	94	0.149 (0.088 – 0.251)	6.7 (4.0 – 11.3)

[a]Rate of treatment admissions for 18-64 years calculated based on a Poisson distribution

Estimated number of methamphetamine users in the ACT

Prevalence estimates for methamphetamine use were calculated by multiplying the benchmark data (330 treatment episodes) by the multiplier for regular and dependent use respectively (Table 19). This yielded an estimate of 3,754 people in the ACT aged 18-64 who had used methamphetamine at least monthly in the past year, with 2,216 (59%) of these people being dependent on the drug. The breadth of the 95% confidence limits reflects the imprecision of the estimate, with this ranging from 2,300 regular users, of whom 1,300 were dependent, to 6,100 regular users, of whom 3,700 were dependent. This equated to a population prevalence of less than 2% of 18-64 year olds resident in the ACT (1.5% for regular use and 0.9% for dependent use).

Table 19 Estimated number of regular and dependent methamphetamine users in the ACT

	No. treatment episodes (benchmark data)	Multiplier (95% CI)	Estimated number of methamphetamine users (95% CI)	Past year prevalence (%, 95% CI)[a]
Regular	330	11.4 (7.0 – 18.6)	3,754 (2,300 – 6,127)	1.45 (0.89 – 2.37)
Dependent	330	6.7 (4.0 – 11.3)	2,216 (1,312 – 3,741)	0.86 (0.51 – 1.45)

[a] Calculated using the estimated resident population of the ACT aged 18 to 64 years at June 2016.
Note: The multiplier used in the estimation was precise to six decimal places, and therefore the estimates presented in Table 19 will differ slightly from those manually derived by readers using the multiplier reported in Table 19. Because the estimates are not accurate to this level of precision, we recommend presenting the estimated number of methamphetamine users to the nearest 100.

Treatment coverage

The treatment coverage for the sample was 7% for dependent on methamphetamine use. That is, 7% of participants dependent on methamphetamine residing in the ACT aged 18-64 years received treatment from a specialist drug treatment service within the ACT (detoxification, counselling, residential rehabilitation, or other treatment, but not pharmacotherapy, case management, assessment only, or

information and education only). These participants started an average of two treatment episodes each during that year (95% CI 1-3 episodes).

Key points

We estimated that there were approximately 3,800 regular methamphetamine users in the ACT, of whom around 2,200 were dependent on the drug

This represents less than 2% of ACT residents aged 18-64 years of age

Treatment coverage for methamphetamine dependence in the past year was estimated at 7%

4 Discussion

4.1 Comment on the findings

Extent of methamphetamine use in the ACT

We estimated that there were around 3,800 adults in the ACT who used methamphetamine on a regular basis (at least monthly) of whom approximately 2,200 were dependent on the drug. This equates to a population prevalence of less than 2% for 18-64 year olds (1.5% of adults had used methamphetamine regularly within the past year, and a subset of around 0.9% were dependent). These estimates were imprecise (ranging from 0.5% to 2.4% of the population aged 18-64 years) due to the low rate of treatment admissions in the survey sample. This also meant that we were unable to provide estimates for specific sub-populations (e.g., breakdown of prevalence by age and sex).

These figures represent the first attempt to estimate the extent of problematic methamphetamine use in the ACT, and only the second attempt to undertake an indirect prevalence estimation exercise for illicit drug use in the ACT (the first attempt being for heroin use in the early 1990s[42]). The estimates are plausible in comparison to the NDSHS data, from which it was estimated that 2.2% of ACT residents aged 14+ years had used methamphetamine in the past year, and around 0.7% had used at least monthly. The fact that the NDSHS prevalence estimates are lower than our indirect prevalence estimates is expected due to the under-sampling of heavy drug use in household surveys, and because we restricted the age range of our prevalence estimates to 18-64 years, the segment of the adult population most likely to use the drug.

Rates of regular and dependent methamphetamine use in the ACT were slightly below the national average (estimated at 2.1% and 1.25% respectively in 2013-14[38]). The lower prevalence within the ACT may be due to differences in our methods compared to those used to derive the national prevalence estimates. However, a lower prevalence is consistent with 2016 waste-water data analysis, which also suggested that the ACT had lower levels of methamphetamine consumption than other states and territories in Australia.[43] Although prevalence estimates cannot be derived from waste-water analysis,[44] the quantity of methamphetamine detected in waste-water is a good proxy for the level of use.

Key points

Estimates for regular and dependent methamphetamine use in the ACT were slightly lower than the national average

These estimates were imprecise but plausible in comparison with other national data

The primary limitation of these estimates is that they assume we surveyed a representative sample of regular/dependent methamphetamine users in the ACT. Our recruitment methods were biased toward injecting opioid users (and conversely away from crystalline methamphetamine smoker – see Limitations). This would have biased our estimates should these sub-groups of the population have had different rates of treatment admissions for methamphetamine use, but we did not find any evidence that this was the case.

A further caveat is that we relied on a single prevalence estimate based on drug treatment data. In the case of indirect prevalence estimation, confidence in the results can be improved by comparison of

estimates derived via several different sets of indicator data (e.g., hospital data, arrest data). This is because each data set has its own idiosyncrasies which can lead to bias. Although reliance on a single set of indicator data is not ideal, the treatment data (and the corresponding treatment multiplier) reflect the most robust of the three data sources we considered. This is because of the detail provided for each drug treatment episode in the ACT MDS AODTS, which allowed us to closely match the benchmark treatment data to the multiplier derived from our survey.

Patterns of methamphetamine and other drug use

Almost all methamphetamine users in the ACT took the high purity crystalline form of the drug ("crystal meth", or "ice"). This signals a nearly complete shift in the market from lower purity powder methamphetamine or amphetamine (i.e., "speed"), which dominated through the 1990s and early 2000s.[27,45]

Methamphetamine has a five-fold greater effect on brain chemicals than its predecessor amphetamine[46], eliciting a stronger euphoria — this underpinning its higher dependence liability.[6] The crystalline form of methamphetamine ("ice"), in particular, is associated with more frequent use patterns[19] and higher rates of dependence than the powder form of the drug[5], and its use has been related to increased problems from methamphetamine use in Australia.[1] It is therefore likely that the predominance of crystalline methamphetamine use in the ACT will be associated with increased methamphetamine-related treatment demand and harms, even if the number of people using methamphetamine remains stable.

We found evidence for two distinct groups of people using crystalline methamphetamine in the ACT. First, the use of the drug had been taken up amongst an older group of people who had a long history of injecting heroin, many of whom were enrolled in OST. In this context, methamphetamine use formed a pattern of polysubstance use amongst this established group of people who injected drugs. The second group were suggestive of a "new" cohort of crystalline methamphetamine smokers who had recently taken up use of the drug, and some of whom were beginning to experience problems from their use. This latter group is consistent with trends seen at the early stages of an epidemic. The characteristics of each group, and their implications, are discussed below in more detail.

The new cohort of young crystalline methamphetamine smokers

Younger crystalline methamphetamine smokers were mostly in their early adulthood, had a relatively short using career, tended to be better educated, and had patterns of other drug use that were indicative of social drug use (e.g., ecstasy use). The use of crystalline methamphetamine amongst younger adults is likely to reflect the increased availability of crystalline methamphetamine use since 2010[1], affecting patterns of drug use amongst more recent birth cohorts.

Despite their recent initiation into methamphetamine use, a surprising proportion of this younger cohort (39%) were dependent on methamphetamine. This is consistent with the onset of dependence for substance use occurring in late adolescence and early adulthood (18-29 years of age).[47] Once established, dependence on methamphetamine (similar to other drugs) can persist throughout adulthood,[48] with treatment seeking not occurring for a decade or more after the onset of dependence symptoms.[48] Not only can this lead to entrenched patterns of drug use and health issues from long-term substance dependence, it also means that the impact of this new cohort of crystalline methamphetamine smokers on drug treatment demand will only become fully apparent over the next decade or longer.

Providing early intervention to this younger group of crystalline methamphetamine smokers therefore has the potential to circumvent the development of entrenched substance dependence and the longer term impact on treatment demand. However, early interventions need to be specifically tailored toward this group as they generally have a low perceived need for help, even despite the emergence of dependence symptoms.[49,50] The perceived desirable effects of stimulant drugs (e.g., on sociability,

energy etc.), and the lack of a strong physical withdrawal syndrome (cf. heroin use), means that help-seeking can be delayed relative to drugs like heroin.[48]

Our identification of a group of younger regular/dependent crystalline methamphetamine users suggests the existence of a broader population of young people who are using crystalline methamphetamine at lower levels, and who may benefit from prevention initiatives. We were not able to capture this population in our survey because we only surveyed people who had already progressed to regular use, and also because we could not interview people under 18 years of age, who may have been in the early stages of use (e.g., 45% in this sample initiated methamphetamine use before they were 18 years old).

The use of crystalline methamphetamine amongst older people who injected heroin

The use of crystalline methamphetamine had also been taken up amongst an older group of people who had a long-standing history of injecting heroin or other opioids, including people enrolled in OST. This group mostly injected crystalline methamphetamine but also smoked the drug. The use of methamphetamine amongst people who inject heroin is well documented,[51-54] and reflects the high rates of polysubstance use seen with injecting drug use. People who inject heroin will switch between drugs (e.g., dependent on availability),[55,56] while individuals enrolled in OST often continue to use other drugs, including methamphetamine.[57]

The use of methamphetamine may introduce new harms to people who inject opioids, for which harm reduction tactics are not well developed. For example, harm reduction strategies for opioid overdose (e.g., naloxone) are well developed, as are services to reduce the risk of BBV infection within this group (e.g., provision of sterile injecting equipment via NSPs). However, there are no equivalent strategies to manage episodes of methamphetamine-related paranoia or other harms commonly associated with the use of the drug (e.g., elevated risk of stroke, "meth mouth", sexual risk behaviour). Ongoing methamphetamine use may undermine the benefits of OST (e.g., BBV risk associated with ongoing drug injection). Around half of the participants enrolled in OST in our sample were dependent on methamphetamine, suggesting a possible need for additional treatment to manage levels of methamphetamine use.

Key points

Crystalline methamphetamine use will drive increasing treatment demand, even if the number of people who use methamphetamine remains stable

A new cohort of young crystalline methamphetamine smokers suggests an opportunity for early intervention

Strategies to reduce methamphetamine-related harms amongst heroin users/OST clients need to be considered

Strategies to address tobacco and cannabis related health effects are needed

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Patterns of other substance use

The vast majority of participants also smoked tobacco, highlighting the potential for anti-smoking strategies (which may include tobacco control) to improve health in this population. Although tobacco is often perceived as a lesser concern than methamphetamine or other illicit drug use, tobacco smoking has well-documented health consequences including cardiovascular and cerebrovascular pathology, increased risk of chronic obstructive pulmonary disorders and various cancers, particularly lung

cancer.[58,59] Tobacco smoking is likely to compound cardiovascular pathology seen in chronic methamphetamine users (e.g., cardiomyopathy) and exacerbate the risk of cardiovascular events associated with methamphetamine use (e.g., sudden cardiac death) by increasing atherosclerosis.[60]

The health effects of daily cannabis smoking on lung health should also be considered (80% of participants in this sample smoked cannabis, and, amongst those who did, the majority smoked daily or almost daily). The adverse effects of cannabis use on lung function are less well documented than those for tobacco, but they include chronic bronchitis during periods of regular cannabis smoking,[61] which may compound the ill-effects of tobacco smoking on lung function and also increase the risk of respiratory failure in opioid overdose.[62]

Treatment coverage

Treatment coverage for methamphetamine dependence was low, with only 7% of participants dependent on methamphetamine having received specialist treatment within the past year for methamphetamine use (including detoxification, rehabilitation and drug counselling). Participants were more likely to get professional help other than from specialist drug treatment services: 45% of people dependent on methamphetamine had received some form of professional help related to their methamphetamine use in the past year, most commonly from their GP.

There are few other estimates of treatment coverage within Australia to compare the ACT estimates. However, those that do exist for methamphetamine have also revealed low treatment coverage. Published estimates of treatment for methamphetamine use range from 25-38%[13,49,15,63] although variation in the definitions of treatment and the time-frames used in different studies hinders any direct comparison with the current estimate of treatment coverage.

Low treatment coverage is not specific to methamphetamine dependence.[63] According to the 2007 National Survey of Mental Health and Wellbeing, the past year rate of professional help for substance use disorders in the Australian population was found to be 24%.[64] However, it does stand in contrast to the greater than 50% coverage seen for opioid use.[65,63] where treatment coverage is bolstered by the availability of pharmacotherapy options (e.g., 57% of current heroin users in our sample were enrolled in OST).

Key points

Methamphetamine treatment coverage is very low

Low methamphetamine treatment coverage has also been found in previous studies in Australia

Treatment coverage for drugs other than heroin is typically low

High levels of help received from GPs could reflect that several primary health care services exist within the ACT that provide specialist AOD support. Episodes of AOD-related care provided via these services would not necessarily be captured within our definition of specialist drug treatment. High rates of AOD-related contact with GPs may also reflect OST prescribing, given the high rates of opioid use in this sample. Therefore, further investigation would be necessary to understand which types of GP services were being accessed and what type of help was being provided.

We also found that men would be more willing than women to seek help for methamphetamine use from their GP. We cannot be certain why this gender disparity existed, although it could plausibly be

related to concerns about child custody, as women were more likely to have dependent children (59% vs. 35% for men) and reside with dependent children (33 vs. 6%); participants with dependent children were significantly less willing to discuss their methamphetamine use with their GP. Other possibilities could include greater stigma for women using the drug, gender differences in prescribing of medications which may be affected by methamphetamine use (e.g., urine testing for OST, prescribing of antidepressants or sleep medication) or broader gender-related differences in GP–patient interactions.[66]

Barriers to seeking treatment

One of the most disconcerting findings in our survey was that participants indicated that they would be unlikely to seek help from anyone if they were having problems from their methamphetamine use. Although this response could reflect the stigma attached to using an illicit drug, particularly methamphetamine, concern about stigma and discrimination did not feature strongly amongst the various reasons people cited for not seeking treatment. Examination of those reasons for which participants would not seek help from treatment services suggested a more complex range of factors were driving people's reluctance to seek help from treatment services.

Amongst these factors was a very strong desire to continue to use methamphetamine. People liked the effects of methamphetamine and did not go to treatment because they did not want to be told to stop using drugs. This phenomenon is not specific to methamphetamine use and reflects a conundrum in managing all forms of substance dependence, with competing motivations arising from the hedonic and desirable effects of intoxication against the adverse impacts that can occur with dependence. This strong motivation to continue methamphetamine use suggests that the perceived focus of drug treatment on ceasing or reducing drug use as a primary goal is likely to be a deterrent for many people.

The provision of low threshold services that provide support for methamphetamine-related issues, rather than focussing on the reduction of methamphetamine use as a goal, is one strategy to engage with people who have a low perceived need for treatment. Responding to this barrier to treatment has also been addressed using motivational enhancement strategies (e.g., through the online "Breaking the Ice" program[67]), which can successfully increase help-seeking in people who use methamphetamine. Other strategies to reduce harm related to methamphetamine use for individuals who continue to use the drug are discussed in the subsequent sections on mental health needs and BBV/STI risk and prevention.

There were also a variety of reasons reported for not attending treatment that suggested a lack of awareness of what treatment options were available and what they might involve, and a lack of confidence in their effectiveness (e.g., participants reported that they were afraid of what might happen to them if they went to treatment, or that they did not think treatment would help them). This could explain why many people indicated that they would not seek help from anywhere if they had a problem with their use. Improving knowledge of the different treatment options available, what they involve, and establishing clearer expectations around the goals of different types of treatment, and likely post-treatment outcomes, may help alleviate these reservations.

Lack of awareness of ACT specialist drug and alcohol services was apparent and necessarily would present a barrier to people not seeking help from these services. This was particularly true for people who did not use opioids, and even more apparent amongst crystalline methamphetamine smokers. Up to two-thirds did not recognise the name of specific ACT-based drug treatment services. Participants had better recognition of the not-for-profit service sector names, which could reflect their branding (e.g., naming of services as "Directions", "Karralika" and "Arcadia House") and/or related marketing of these services. Conversely, lower recognition of government services may reflect their more descriptive naming (e.g., the "withdrawal services" provided at the Canberra Hospital, dubbed by some consumers as "Building 7"). Although these descriptive names provide information on what these services do, such generic names have less traction in people's minds.

One of the more important barriers to receiving treatment was that treatment was not available when people sought help. There was also a perception that people would have to wait too long to get into treatment. When interpreting this finding, consideration needs to be given to people's expectations of how quickly they should be able to enter drug treatment (e.g., they may expect that they should be able to start treatment immediately) versus the practical constraints around enrolling in drug treatment (e.g., the need to go through an assessment process prior to entering treatment, the duration of waiting list once they have been accepted into drug treatment). Engaging people rapidly into treatment when they present for help is critical to improving treatment coverage. Therefore, additional processes may be needed to engage with people immediately, and/or provide support during waiting periods.

Many participants held a view that they could not afford treatment. To some readers, this may seem at odds with most services being government run or not-for-profit. However, considering most participants in this study were on very low income, the cost of treatment may nonetheless represent a significant proportion of their income and thus be perceived a barrier to attending. Treatment fees may also restrict the participants' capacity to cover the cost of other expenses while being in treatment (e.g., rent), particularly if being in treatment would involve a loss of income or incur additional expenses (e.g., child care). The perception of cost could also reflect the high cost of private treatment services that have been promoted in the media, suggesting a need to inform people about the costs of services that are available within the ACT, particularly lower cost (e.g., publicly funded) services.

Peer-based services are likely to play a pivotal role in communicating information about the nature of services available to support people who are using methamphetamine. Of all of the services we listed in our survey, participants rated peer-based services as the most likely place that they would seek help (followed closely by counsellors). There was also relatively good awareness of peer-based services amongst people who used methamphetamine, although (as with other services) awareness was lower amongst non-opioid users and especially amongst crystalline methamphetamine smokers. Additional efforts may be needed to provide peer-based outreach to this group.

Key points

Low threshold services that target harms from use, and increase help seeking, may be beneficial to engage with people who do not want to stop using methamphetamine

Education and marketing around the types of treatment services available, what they offer, their cost and wait times, may improve treatment coverage

Additional efforts are needed to engage with crystalline methamphetamine smokers

Mental health needs

The high rates of mental health disorders, and poor quality of life related to poor mental health, indicate a clear need to provide mental health support services for this population. Rates of depression and suicidality, particularly coupled with low rates of service contact, flag a critical need for suicide prevention information (e.g., suicide call-back services) to be provided via outreach (e.g., NSPs). High rates of depression among people dependent on methamphetamine are common.[68,69] Although depression is often premorbid to methamphetamine use, and alleviated by intoxication with methamphetamine,[70] heavy use can worsen depression through a dysregulation of brain chemicals

involved in mood.[71,72,73] These changes can last for up to several months, and are normalised by methamphetamine intoxication[72], perpetuating a cycle of using the drug to alleviate depression.[72]

We found substantial comorbidity between PTSD and depression, which is often seen among people with substance use disorders,[74] and which is associated with a particularly high suicide risk.[75] Trauma leading to PTSD can arise from childhood abuse,[76,77] and can be perpetuated by adverse life-events associated with an illicit drug-using lifestyle.[78] Drug treatment services need to be trauma-informed to avoid perpetuating stress responses (and consequent relapse risk) amongst drug treatment entrants who have PTSD.[79] PTSD symptoms do not necessarily resolve following drug treatment, and therefore additional treatment for PTSD is necessary.[80]

Paranoia and hallucinations were more common among people dependent on methamphetamine, and is similar to rates seen in previous surveys of people who use methamphetamine.[81,82] Heavy methamphetamine use can exacerbate and precipitate symptoms of psychosis, particularly in people with an underlying vulnerability to psychosis, or when coupled with other risk factors (e.g., stress, sleep deprivation).[83,84,85] Most symptoms of psychosis seen in people who use methamphetamine are transient and do not warrant hospitalisation or antipsychotic medication, although they can have a negative effect on the person's social relationships and occupational functioning. Harm reduction strategies (e.g., educating consumers to cut-back on their use when they experience early signs of psychosis) can be a useful way of managing the risk of psychotic symptoms.

Participants also reported high rates of anxiety. The relationship between methamphetamine use and anxiety is not well understood. Methamphetamine has the potential to increase anxiety by increasing arousal, and, in doing this, produce panic-like symptoms (e.g., rapid heartbeat, sweating, shortness of breath). These symptoms of methamphetamine intoxication may have conflated ratings of anxiety. Paranoia, which can be associated with methamphetamine use, is also associated with high levels of anxiety.[86] Alternatively, people with pre-existing social anxiety may be drawn to the confidence-enhancing effects of methamphetamine.

Key points

Support for mental health is needed in AOD services

Suicide prevention information is critically needed in AOD outreach settings

AOD services need to be 'trauma-informed'

Harm reduction strategies (e.g., education) for paranoia and hallucinations are needed

HIV and other BBV/STI risk and prevention

Risk reduction strategies need to target both BBV and STI in this population. That is, they need to not only address injecting behaviour but also sexual health and the potential for infections to be spread through burns and other skin lesions from smoking crystalline methamphetamine.

NSP coverage was very high among the participants who injected drugs. Not being able to access sterile needles was a rarity. Having said this, awareness and use of NSP services was slightly lower amongst methamphetamine injectors who were not injecting heroin, suggesting additional efforts may be needed to engage with methamphetamine injectors through NSP and outreach services.

Even though the sharing of used needles was very low in this sample, 28% of participants who injected had shared other injecting equipment (e.g., tourniquets, swabs). Sharing of non-sterile drug preparation equipment can present a similar risk of hepatitis C transmission risk as sharing used syringes,[87] and therefore this presents a mechanism for the transmission of hepatitis C and possibly also other BBV[87]. We did not assess which specific equipment was shared (e.g., spoons vs. tourniquets or swabs), so there remains some uncertainty about what level of risk this poses.

Methamphetamine use also presents a risk of HIV and other STI transmission through sexual risk behaviour.[54,88-91] This was a sexually active population which included a minority of people who had multiple sex partners and unprotected sex with casual sex partners in the past month. We found that sexual activity was higher amongst younger participants who were not using opioids, suggesting that sexual health messages need to particularly target this group. This pattern of results is likely to be linked to the libido-enhancing effects of methamphetamine[92] and/or the converse loss of libido that can occur with chronic opioid use.[93]

The risk of sexual transmission also applies to hepatitis A and B, as these infections can be spread via both sexual contact and via exposure to blood, although this risk can be managed with vaccination. The risk of sexual transmission of hepatitis C, which is more prevalent among people who inject drugs, and for which there is no vaccine, is fortunately considered very low,[94,95] and generally limited to individuals who engage in high risk sexual activity (e.g., men who have sex with men, sex workers).

Key points

There are multiple transmission mechanisms for HIV, hepatitis and other BBV

BBV risk reduction strategies are needed to reduce sharing of drug preparation and injection-related paraphernalia

Improved awareness of NSPs is needed for non-opioid injectors

Strategies are needed to reduce the risk of BBV transmission through pipe-sharing

Sexual health and risk-reduction around STI transmission is important for this population

In addition, there was also the potential for transmission of BBV through smoking pipes. Sharing of ice pipes was an almost ubiquitous practice among people who smoked methamphetamine. Pipe-sharing can provide a mechanism for BBV transmission when people have burns or sores on their lips (which can occur from smoking ice through a glass pipe). Around one-quarter of crystalline methamphetamine smokers reported burns or sores on their lips. This suggests a need to educate crystalline methamphetamine users about the risks associated with sharing pipes (and not to share pipes if they have burns or sores), along with information on how to avoid and treat burns. Although one obvious possibility for imparting this knowledge would be to provide information (e.g., leaflets) to crystalline methamphetamine smokers via ice-pipe retailers, our impression was that these retailers were not immediately receptive to promoting information about methamphetamine use within their premises. Consultation with consumers and other relevant parties will be needed to determine the most effective means of communicating this information to crystalline methamphetamine smokers.

Reaching younger crystalline methamphetamine smokers will be challenging because of their lack of contact with NSPs or other injecting-related outreach services. GPs would be one possible way of accessing this younger group because most reported receiving sexual health testing through their GP, and they generally had high levels of GP contact. Mechanisms for how to do this would need to be considered in consultation with GP; for example, considering what relevance the issue of methamphetamine has to their practice (e.g., mandatory reporting issues, prescribing of psychoactive medications), what information may be useful to them and their patients (e.g., treatment options, STI and BBV risk, referral information for mental health issues), and what mechanisms would be most appropriate to facilitate communication between GPs and their patients (e.g., leaflets in waiting rooms, GP training on how to discuss illicit drug use).

4.2 Implications for providing treatment and other health services

It is clear that treatment coverage for methamphetamine dependence in the ACT is very low. Even if our figures were imprecise, and potentially biased by not having a perfectly representative sample, correcting for such biases would unlikely bring the treatment coverage to an optimal level. Understanding what implications this has for providing treatment is more complicated.

It is tempting to assume that low drug treatment coverage is an indication that more treatment places are needed. However, there are number of factors that require careful consideration in deciding whether more treatment is needed, and, if so, how much treatment and what this treatment should look like. These include how existing services are being used, barriers to services currently available, and what proportion of people are likely to seek treatment even should services be readily available. Specifically:

- If the desired outcome is to provide an optimal level of treatment coverage to reduce dependence on methamphetamine, then the number of treatment places that seek to address dependence deserves consideration.
- Low awareness of treatment services means that providing more treatment places without improving awareness of these services is unlikely to substantially improve treatment coverage.
- Low threshold services, including those that are not necessarily abstinence-based, are likely to be critical in engaging people who are dependent on this drug but for whom their desire to continue using is a deterrent to accessing treatment.

In providing treatment for methamphetamine use, consideration also needs to be given to the types of treatment services that are most effective for treating dependence on methamphetamine[96-98] and the specific issues related to methamphetamine that need to be considered when designing an optimal treatment environment.

Consistent with broader research, high need for mental health support was clear from the current survey of people dependent on methamphetamine within the ACT, with particularly high levels of depression, anxiety, suicide risk, paranoia and hallucinations. Developing the capacity to manage mental health issues amongst people presenting to treatment for methamphetamine use is likely to benefit from collaboration and linkages with the mental health sector to share information (e.g., on best practices for managing substance use/mental health disorders) and to identify appropriate treatment strategies and pathways for individuals who have comorbid mental health and substance use disorders.

The poor quality of life and high level of social and welfare needs in this population suggest a need to link drug treatment with broader welfare and criminal justice services. Many participants were reliant on disability support and public housing. Parental support and child protection are likely to be important, as many people had children but were not currently residing with their children, suggesting custody issues. High rates of arrest and incarceration point to a potential for therapeutic jurisprudence and

diversionary approaches within the criminal justice system to reduce rates of recidivism in this population.

Finally, approaches are needed to reduce harms related to the use of methamphetamine and address many of the comorbid issues in this population among the vast majority of people who do not attend drug treatment. This need includes suicide prevention information, information on mental health services, and legal and social welfare support services, as well as services available for drug use (including accurate information about drug treatment services, what these services offer, their costs and waiting times). Peer support organisations (e.g., CAHMA), GPs and possibly emergency departments represent avenues through which this information could be provided to access people who are not engaged with treatment services.

Prevention strategies for HIV (and other BBV/STIs) may also need to be reconsidered for this population due to the multiple potential avenues for transmission of BBVs and STIs. HIV prevention strategies need to target not only injecting behaviour but also sexual health and the potential for infections to be spread through burns and other skin lesions, as these are a risk for blood-borne viruses and also infective endocarditis. Sexual health messages around STI prevention need to particularly target those who do not concurrently use opioids as a high risk group. Reaching this group is challenging because many do not inject drugs, hence do not have contact with NSPs or other injecting-related outreach services. GPs would be one possible way of accessing this group because most reported receiving sexual health testing through their GP, and generally they had high levels of GP contact.

Key points

Improving treatment coverage and providing health services for methamphetamine use in the ACT needs to consider:

How existing treatment services are being used

Overcoming existing barriers to treatment (knowledge of services, wait-times)

Ensuring a breadth of services, including 'low threshold' services, to engage with people who do not want to reduce their drug use

The capacity of treatment and other health services to support people who use methamphetamine (e.g., capacity to manage suicide risk, depression, paranoia)

The effectiveness of treatments being provided for methamphetamine dependence

Links between treatment and broader mental health, legal and social welfare services

Options for therapeutic jurisprudence to reduce incarceration rates

HIV, hepatitis and other BBV/STI prevention approaches to be modified to consider multiple potential routes of transmission (sexual risk, pipe smoking and injecting)

4.3 Limitations

How representative is the sample?

The key limitation of our research is that it was based on a snow-ball sample of people who used methamphetamine within the ACT. Being a hidden population, we are not able to verify the representativeness of the survey sample.

The likely representativeness of our sample was bolstered by having a reasonably large sample size for a small geographic area, and a variety of recruitment points from which we sampled through chain referral. However, the low socio-economic nature of the sample, and relatively higher recruitment rates via particular services (e.g., NSPs), and high rates of OST enrolment in the sample, suggests that our sample may have been biased toward this end of the population. This bias also reflects that fact that the survey was conducted during work hours (Monday to Friday) and participants were reimbursed for their participation, and therefore would have been more accessible and appealing to people who were not employed.

It also seemed that younger crystalline methamphetamine smokers were difficult to access via our recruitment methods, suggesting that this cohort may have been under-represented. It may have been that, because these people were more likely to be employed, they were less able to complete a survey during weekdays. This cohort may also have more to lose by disclosing their illicit methamphetamine use, or they may be more concerned about being recognised as someone who uses methamphetamine, with many not having had previous contact with specialist AOD services. Comparison of our survey data (20% smoked crystalline methamphetamine) with ACT drug treatment data (41% of methamphetamine treatment episodes involved smoking crystalline methamphetamine) suggests an under-representation of crystalline methamphetamine smokers.

In sum, it seems quite likely that our sample was biased toward people who used heroin or other opioids, particularly those with lower socio-economic status, and away from the younger cohort of crystalline methamphetamine smokers, which we found evidence of, including those who would be higher functioning consumers and employed. On the other hand, polysubstance use is a well-documented phenomenon amongst people who use methamphetamine, as is the overlap with the opioid-using population[51-54,55,56,57] and both tend to coalesce with disadvantage. Constraining the sample to participants who did not use opioids would merely provide a biased view of the population who use methamphetamine. The view provided by our sample, in contrast, reflects an actuality of methamphetamine use among people who inject opioids, including those who are enrolled in OST.

Do the findings apply to people who use methamphetamine only occasionally?

Our results apply to individuals who use methamphetamine at least monthly, and not less often. People who use methamphetamine at least monthly represent a small proportion of all consumers of methamphetamine. For example, around 6-7% of Australians have ever tried methamphetamine, but only 1-2% have used in the past year. Of past year users, only around one-third have used at least monthly.[20]

We targeted individuals who were using methamphetamine at least monthly for pragmatic reasons. While the vast majority of people who have tried methamphetamine have not used the drug regularly, it is difficult to examine patterns of use and related health service needs amongst people who have not used the drug recently. Past month use provides a window within which we could obtain reliable self-report about current use levels, dependence and related harms.

Amongst this group of more regular methamphetamine users, we found half were dependent on the drug. This is similar to previous community-based samples of people using methamphetamine at least monthly. For example, a similar survey in Sydney found 56% of people using methamphetamine at

least monthly were dependent (using the same criteria as in this study).[5,99] Our results are also consistent with the NDSHS, where around half to two-thirds of individuals who used methamphetamine monthly reported using the drug weekly or more often[20] (a proxy for heavy or dependent methamphetamine use). The results are also generally consistent with high levels of dependence seen among people who have used the drug more often (e.g., Sara and colleagues[99] found that nearly half of those individuals who had used stimulants on five or more occasions met the criteria for a stimulant use disorder).

Is self-reported drug use valid?

The validity of self-reported illicit drug use is often questioned, although it has been shown to be reliable when confidentiality was assured as it was in this study.[100] Naturally, there is a possibility that participants who had not used methamphetamine may have enrolled in the study to obtain remuneration. To offset this risk, we assured participants that they would be free to participate regardless of their past month drug use (with past month drug use forming the basis for most of our analyses). However, there remains a question about how accurately participants could recall events, although most of the questions related to the past month and have been validated for use in survey research with people who use illicit drugs. Where participants were intoxicated or unable to concentrate sufficiently to complete the survey, the interview was terminated and the data not included in the analysis.

Key points

The survey sample was biased toward older opioid injectors of low socio-economic status and away from younger crystal methamphetamine smokers

The results should not be generalised to people who use methamphetamine less than monthly

Despite the limitations of self-report, it is sufficiently reliable when surveys are confidential, and validated measures are used, as was the case in this study

4.4 Conclusion

This was the first in-depth study of methamphetamine use to be conducted in the ACT. It has revealed that, although levels of use are not elevated relative to other parts of Australia, there are a substantial number of people in the ACT who use crystalline methamphetamine on a regular basis, around half of whom are dependent on the drug. We found evidence of two relatively distinct populations of people who used methamphetamine: older people who injected heroin, who were also using crystalline methamphetamine as a pattern of polysubstance use, and a younger cohort of relatively recent initiates to methamphetamine use who primarily smoked the drug. Although these populations have different policy implications, they shared in common high rates of dependence; many had poor mental health, and multiple other social and welfare needs. Most of these people were not engaged with existing specialist alcohol and other drug services to get help for their methamphetamine use, relying instead on primary health care or other generic services.

In sum, the findings from this research suggest that there is a significant opportunity to optimise services to engage with, and respond to the needs of, people who use methamphetamine. Providing more treatment places is likely to be a necessary part of the solution to this situation, but it will be more important to engage with consumers to inform them of the services available, and to make sure that those services meet their needs.

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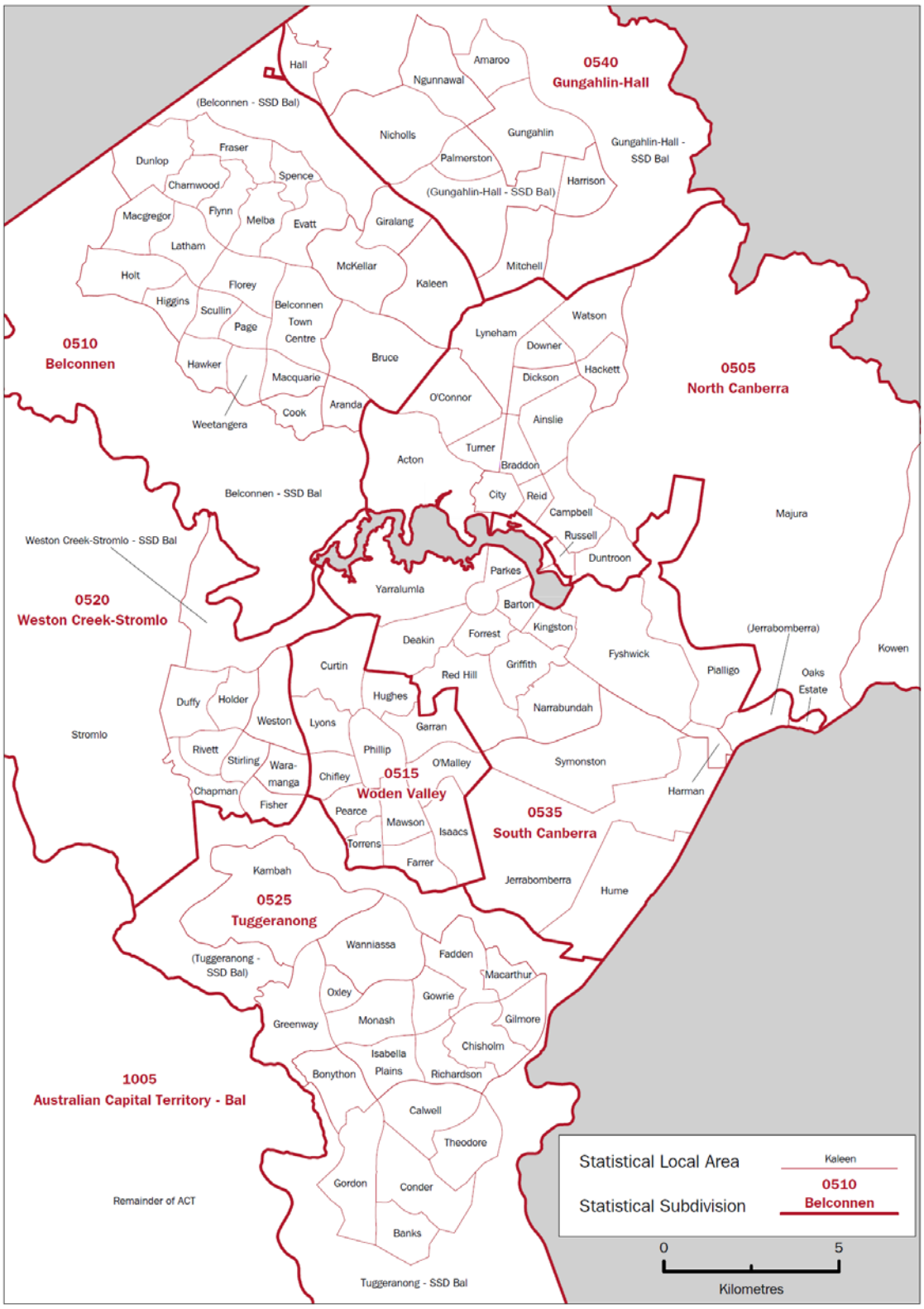
6 Appendix 1



Source: Australian Bureau of Statistics, Australian Standard Geographical Classification 1260.0

7 Appendix 2

Offence Categories

Offences against the person:	Murder
	Conspiracies and attempts to murder
	Manslaughter and driving causing death
	Assault
	Other acts intended to cause injury
	Sexual assault
	Non-assaultive sexual offences
Dangerous or negligent acts endangering persons:	Dangerous or negligent operation of a vehicle
	Other dangerous of negligent acts endangering persons
Robbery and extortion:	Robbery (aggravated or non-aggravated)
	Blackmail and extortion
Theft and related offences:	Break and enter
	Motor vehicle theft and related offences
	Theft (except motor vehicles)
	Receiving or handling proceeds of crime
	Illegal use of property (except motor vehicles)
Deception and related offences:	Fraud, forgery or false financial instruments
	Counterfeiting currency and related offences
	Dishonest conversion
	Bribery
	Other deception offences (e.g., misrepresentation of profession)
Property damage and environmental pollution:	Property damage (e.g., graffiti)
	Environmental pollution (e.g., noise pollution)
Public order offences:	Disorderly conduct (e.g., conspiracy)
	Regulated public order offences (e.g., prostitution)
Illicit drug offences:	Import or export illicit drugs
	Deal or traffic in illicit drugs
	Manufacture or cultivate illicit drugs
	Possess and/or use illicit drugs
	Other illicit drug offences
Road traffic and motor vehicle regulatory offences:	Driving licence offences
	Road vehicle registration and roadworthiness offences
	Regulatory driving offences (e.g., DUI, speeding)
	Pedestrian offences
Offences against justice procedures:	Breach of justice order (e.g., breach of bail)
	Other offences against justice procedures (e.g., resist arrest)
	Offences against Government security
	Offences against Government operations
Other:	e.g., Weapons and explosive offences
	Abduction and related offences
	Harrassment and related offences
	Public health and safety offences
	Commercial/industry/financial regulation
	Immigration regulation offences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