Methamphetamine Overdose: Trends and Harm Reduction

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Acknowledgements

Traditional Custodians of the lands upon which we meet today and work more broadly, and all First Nations people present today

Australian Government Department of Health, Disability and Ageing for funding the national Drug Trends program

Drug Trends team and collaborators for the work presented here

Those with lived and living experience of substance use who have contributed to the data presented here

Support and information services

Alcohol and other Drug Hotline: 1800 250 016

Lifeline: 13 11 14

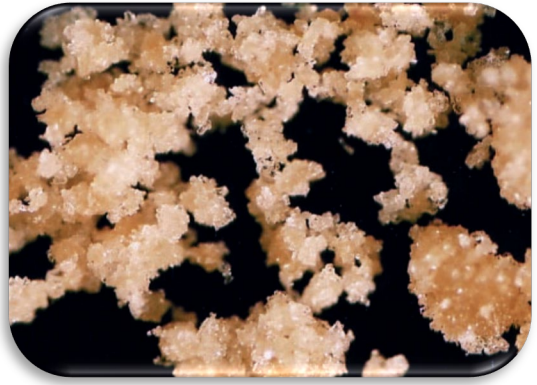
Family Drug Support: 1300 368 186

Alcohol and Drug Foundation - DrugInfo

What do we mean when we talk about methamphetamine?

A potent synthetic stimulant drug that is manufactured in clandestine laboratories from chemicals, and forms part of a broader family of amphetamine-type stimulants

Crystal (‘ice’)



Base

Powder (‘speed’)

What does methamphetamine toxicity look like?

Acute methamphetamine toxicity

Major signs and symptoms	
Physical	● Arrhythmia (irregular heartbeat) ● Tachycardia (accelerated heartbeat) ● Hypertension (high blood pressure) ● Hyperthermia (high temperature) ● Chest pain ● Seizures ● Sudden collapse ● Haemorrhagic stroke
Behavioural	● Delirium ● Paranoia ● Mania

Methamphetamine & the heart

	Pathology
Chronic	● Cardiomegaly (enlarged heart) ● Left ventricular hypertrophy (left pumping chamber thickened, reduced pumping efficiency) ● Coronary artery disease (‘clogging’ of arteries) ● Dilated cardiomyopathy (heart chambers dilate, reduced pumping efficiency) ● Hypertensive/Ischaemic heart disease

Resources

Darke, S., Lappin, J. & Farrell, M. (2024) *The pocket guide to drugs and health – Revised Editioin*. London: Silverback Publishing.

Drugs and the body – Psychostimulants
https://www.youtube.com/watch?v=ynZ0D3w7Q_k

NDARC Fact Sheet *Methamphetamine*
https://ndarc.med.unsw.edu.au/sites/default/files/ndarc/resources/NDA073%20Fact%20Sheet%20Methamphetamine.pdf

What to do in the event of methamphetamine toxicity?

X

Ignore reports of racing heart or chest pain

Give them depressants (e.g. alcohol)

Put them in a shower or the bath

Leave the person alone or let them ‘sleep it off’

✓

Call an ambulance

Stay with the person in a safe/quieter environment if possible

If unconscious, place in recovery position

If overheated, consider cooling them (e.g., loosen tight clothes, damp cloths)

How to reduce risk of toxicity?

Take regular breaks between using and try to avoid using consecutive days

Plan ahead around keeping hydrated (avoiding alcohol, caffeinated drinks) and eating

Try and get sleep or rest in a non-stimulating environment

Avoid using other drugs, including depressants (e.g., alcohol, benzos) and consider medications you might be on

Avoid using alone and ask a trusted person to keep an eye out for you

Try a small amount first, consider drug checking if available, and carry naloxone in case of opioid involvement

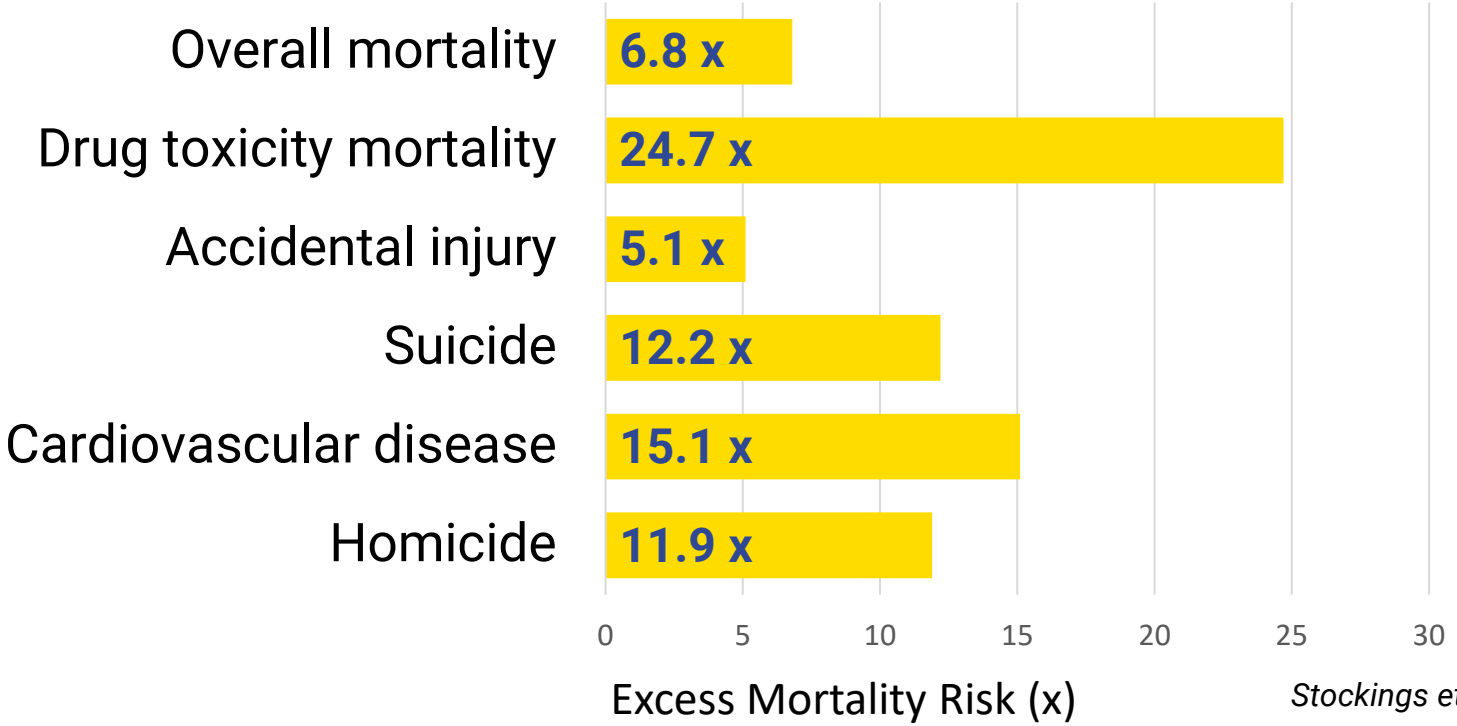
What trends are we seeing in methamphetamine harms?

Increased risk with regular meth. use compared to the general population:

- ⏫ Substance dependence
- ⏫ Non-fatal toxicity
- ⏫ Depression
- ⏫ Psychosis
- ⏫ Violence
- ⏫ HIV and hepatitis C
- ⏫ Stroke / myocardial infarction
- ⏫ Respiratory & lung disease
- ⏫ Skin and soft tissue infection
- ⏫ Non-fatal injury
- ⏫ Poorer neonatal outcomes
- ⏫ Parkinson’s disease

Farrell et al. (2019)

Excess mortality risk of regular meth. use compared to the general population:

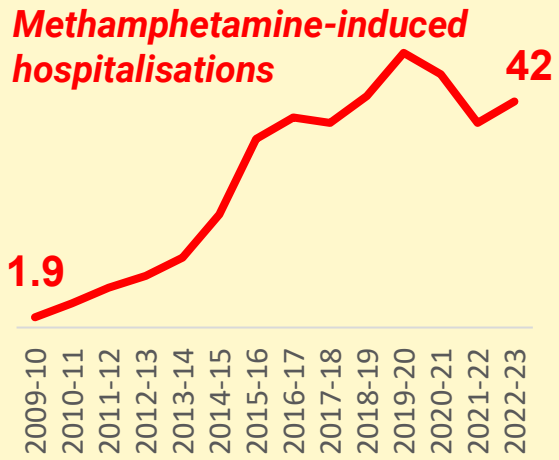


Stockings et al. (2019)

Methamphetamine-related harms in Australia

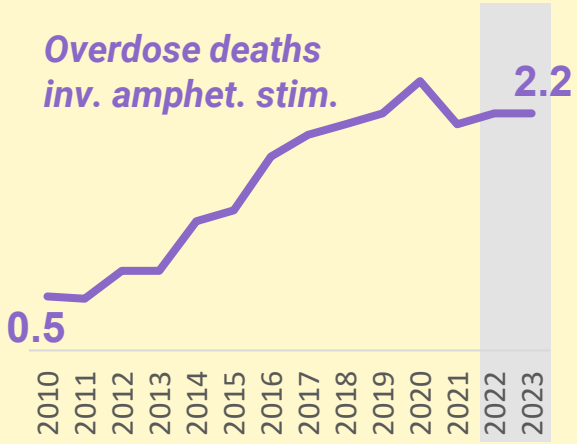
Methamphetamine harms **increased** from around 2010 to 2019-2020, thereafter appearing to **stabilise at this high level**, with continued **strong treatment demand.**

HOSPITALISATIONS
per 100,000 people (all ages)



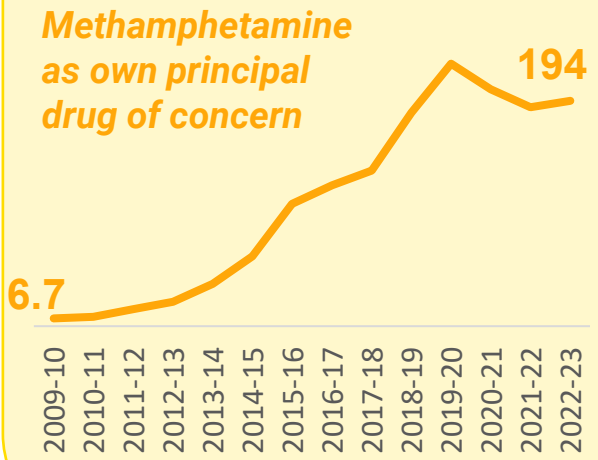
Chrzanowska et al. (2025)

DEATHS
per 100,000 people (all ages)



Chrzanowska et al. (2025)
Shaded estimates are preliminary & include other stimulants

CLOSED TREATMENT EPISODES
per 100,000 people aged 10+



NDARC (2025)

Who experiences higher rates of harm?

AGE

Deaths: **25-54** years

Hospitalisations: **20-49** years

South Australia
Northern Territory

Deaths:

Unintentional poisoning

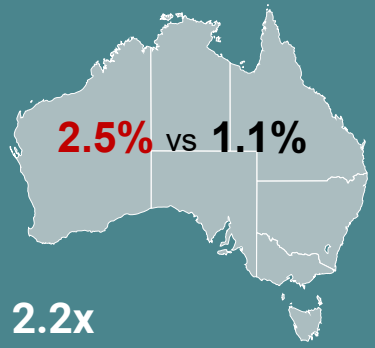
Hospitalisations:

Mental and behavioural disorder due to substance use

Remote and very remote areas

Methamphetamine harms among Aboriginal and Torres Strait Islander people

Use in the last 12 months
(meth/amphetamine)

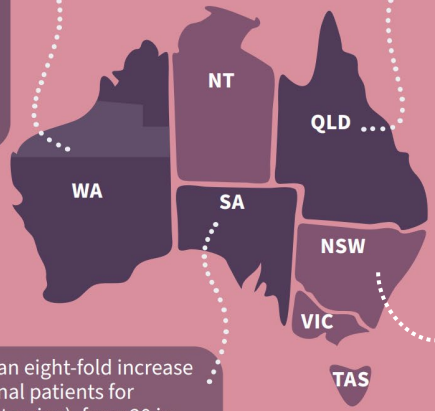


2.2x
Aboriginal and Torres Strait Islander people aged 14 years and over are 2.2 times more likely to use meth/amphetamine than non-Indigenous people

2025 AIHW

Between 2011 and 2015, 69% of ATS related emergency department presentations in the Pilbara region of Western Australia (WA) were Aboriginal and Torres Strait Islander people, despite representing just 16% of this population [44]. Of those admitted, 53% identified as Aboriginal. Mental and behavioural problems was the most common reason for presentation with psychotic disorder being most common for admission.

Methamphetamine-related hospital admissions in Queensland (Qld) increased for Indigenous people, from 18 in 2009-10 to 443 in 2015-16 [45].



In South Australia (SA), there was an eight-fold increase in hospitalisations among Aboriginal patients for stimulants (including methamphetamine), from 20 in 2007-08 to 162 in 2015-16 [46].

2020 Australian Indigenous HealthInfoNet

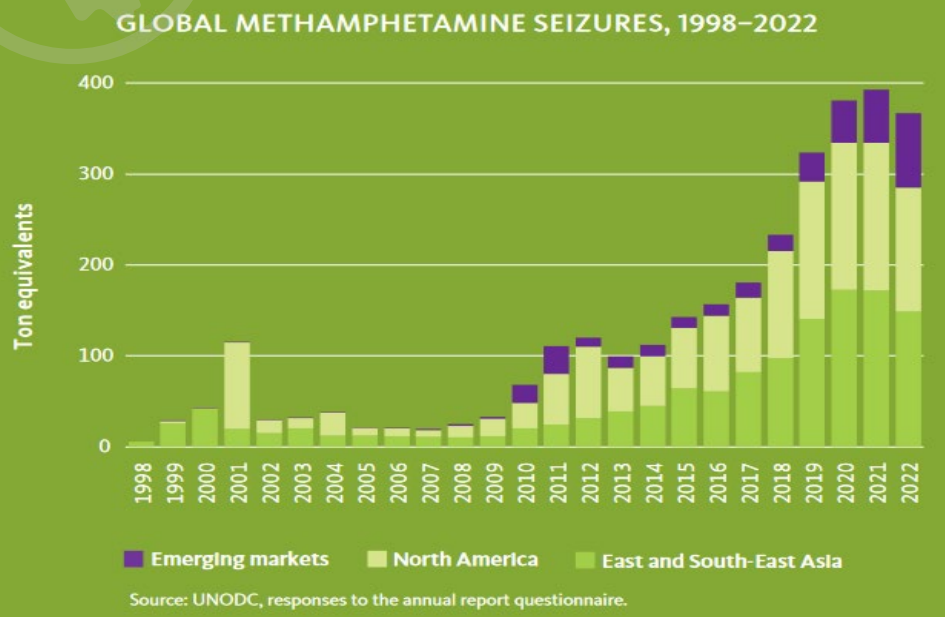
9x
In New South Wales, the rate of methamphetamine-related hospitalisations among Indigenous people was nine times higher than non-Indigenous people

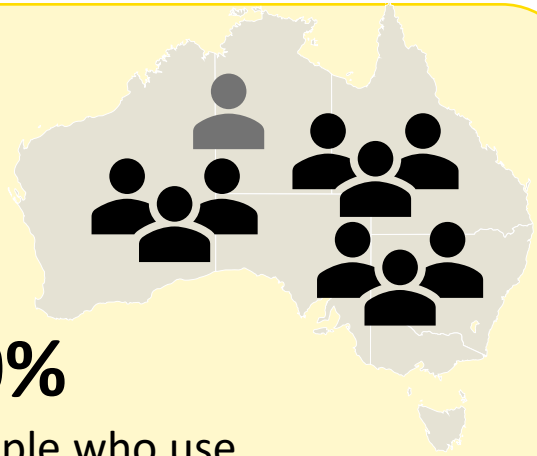
2022-23 HealthStats NSW

Why might harms be increasing?

1. Ease and changes in supply

“The world is seeing record levels of cultivation and manufacture of methamphetamine, with markets continuing to expand in East and South-East Asia and in South-West Asia.”



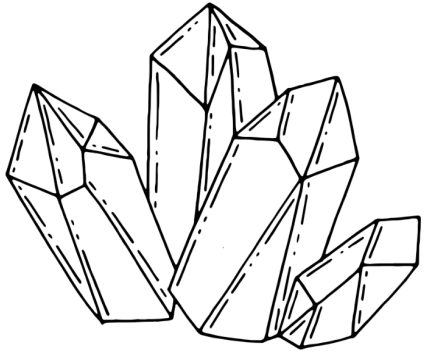


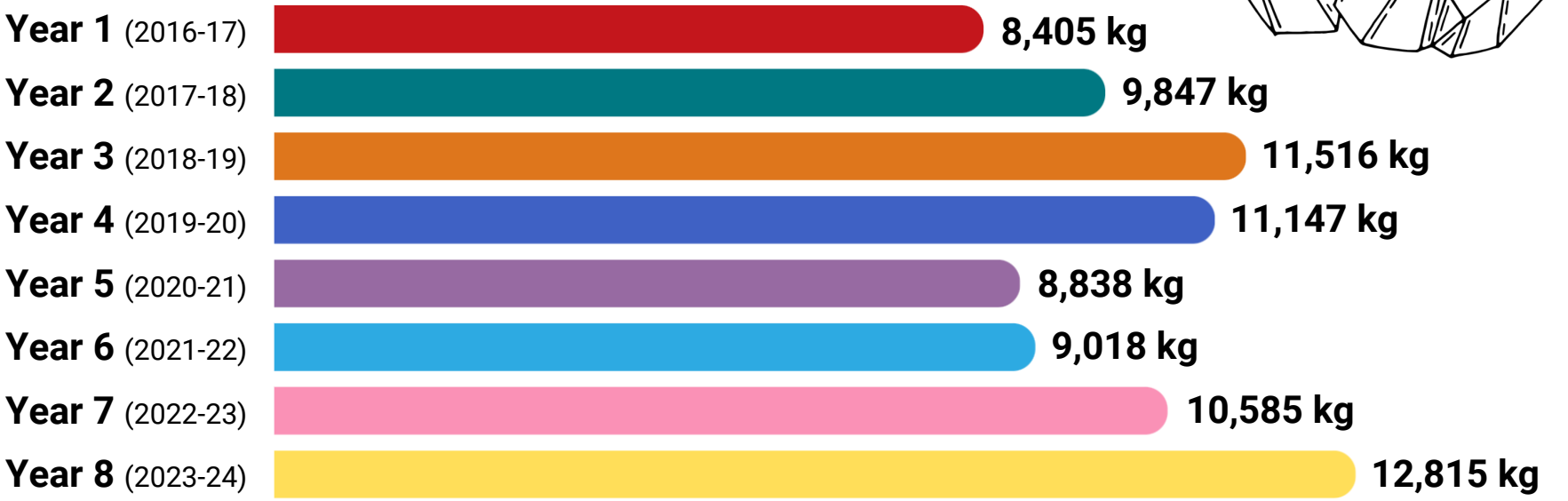
>90%

of people who use methamphetamine in Australia surveyed since 2014 report that crystal methamphetamine is ‘easy’ or ‘very easy’ to obtain

Sutherland et al., 2024a/2024b

2. Rise in consumption

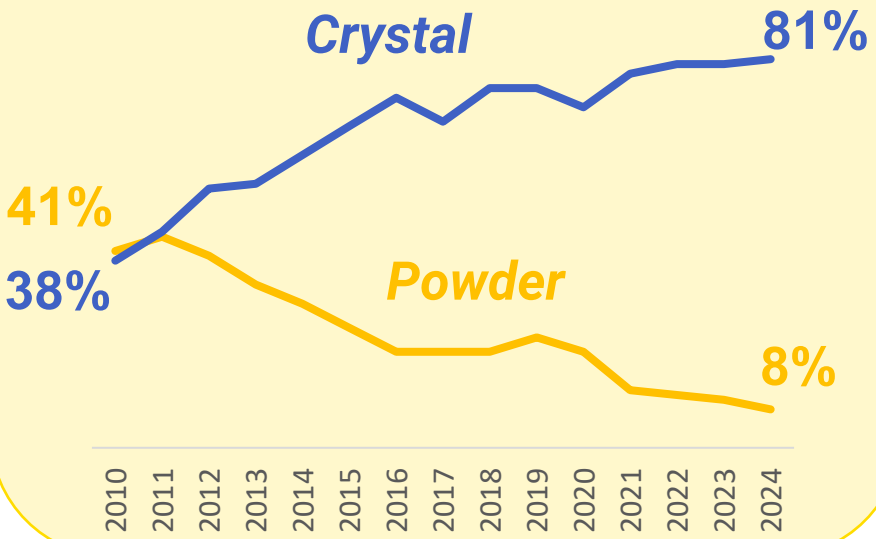




National Wastewater Drug Monitoring Program (2025)

3. Shift to higher purity form and riskier patterns of use

Past six-month use among people who inject drugs



Route of administration of crystal methamphetamine

97% *Injected*
41% *Smoked*
4.1% *Swallowed*
2.8% *Snorted*

Frequency of use of crystal methamphetamine in last 6 months

Sutherland et al. (2024)

What interventions might help reduce risk of harm?

Which interventions work to reduce use?

Review of evidence for treatment of problematic stimulant use

Psychosocial interventions:

- Psychosocial interventions may increase abstinence compared to no treatment
- Contingency management increases abstinence and retention in treatment compared to treatment as usual
- CBT may improve retention in treatment

Pharmacotherapy interventions:

- Psychostimulant pharmacotherapies do not improve retention in treatment
- Prescription stimulants may not reduce methamphetamine use

To read more

McKetin et al. (2024)

Which interventions work to reduce harms?

	Injecting risk behaviour	HIV incidence	HCV incidence	Sexually transmitted infections	Overdose
Condom provision		↓		↓	
Sterile injecting equipment	↓	↓	↓		↓
Drug consumption rooms	↓				↓
Use of safe inhalation methods	↓				
HIV testing	↓				
Hepatitis C testing	↓				
Pre-exposure prophyaxis (PrEP) for HIV	↓	↓			
PrEP for sexually transmitted infections				↓	
Hepatitis C treatment	↓				
HIV treatment		↓			
Sexually transmitted infection treatment				↓	
Compulsory detention centres	↑				
Criminalisation of drug use	↑	↑			

Farrell et al. (2019)

Received: 29 March 2024 | Accepted: 12 November 2024
DOI: 10.1111/add.16730

RESEARCH REPORT

ADDICTION SSA

Lisdexamfetamine in the treatment of methamphet dependence: A randomised, placebo-controlled trial

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Funding information
National Health and Medical Research Council, Grant/Award Number: NHMRC APP1109466; St Vincent's Curse Foundation; St Vincent's Health Australia's Inclusive Health Program; National Centre for Clinical Research on Emerging Drugs, University of New South Wales School of Medicine, Department of Health, State Government of Victoria; Edith Collins Centre, Royal Prince Alfred Hospital

Abstract

Aims: This study tested the efficacy and safety of a 12-week co in reducing methamphetamine use, an outcome which is associ in health and wellbeing, in people dependent on methamphetam

Design, setting and participants: This study was a randomise controlled trial conducted in six specialist outpatient clinics Newcastle and Sydney, Australia (2018–2021). Participants we amphetamine dependence, reporting at least 14 use days out (62% male, 38% female, < 1% other; mean age 39 years).

Interventions: Participants were randomly allocated 1:1 to a 15- amfetamine (1-week induction to 250 mg, 12-week mainte reduction; n = 80) or matched placebo (n = 84), followed-up to W

Measurements: The primary efficacy measure was past 28-da at Week 13. Safety was assessed by adverse event rates. Secon methamphetamine use during the 12-week treatment period an

Findings: Nine randomized participants did not start treatment lisdexamfetamine and four allocated to placebo) and were excl Fifty-seven per cent of participants were retained on study end-point. There was only weak evidence of a lisdexamfetam [adjusted difference in days of methamphetamine use = 2.2, CI = −0.5 to 5.0; P = 0.49]. However, throughout the wh maintenance phase, the lisdexamfetamine group had fewer da use in total (difference = 8.8, 95% CI = 2.7–15.0; P = 0.005)

LiMA Investigator Group: Anthony Gill, Craig Rodgers, Mark Hunkeldeln, Will Liaw and Zhixin Liu

For affiliations refer to page 1357

ORIGINAL PAPER

Drug and Alcohol Review ARAD WILEY

The reflections of health service providers on imp contingency management for methamphetamine disorder in Australia

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Funding information
National Centre for Clinical Research on Emerging Drugs Seed Funding, Grant/Award Number: NCR4SF07

Abstract

Introduction: Contingency management (CM) is the most reducing methamphetamine use. We sought to understand taken up to manage methamphetamine use disorder in Aust

Methods: Six focus groups (4–8 participants per group) health workers from agencies in Australia that provided dr to people who use methamphetamine. These agencies had n delivering CM for substance use. The potential acceptabi implementing CM in their services were discussed.

Results: Participants felt that it would be beneficial to ha treatment for methamphetamine use disorder. This sentime cerns that CM conflicted with a client-centred harm-reducti it dictated the goal of treatment as abstinence. It was also pe coercive and seen to reify the power imbalance in the th and therefore potentially reinforce stigma. There was also co lic's perception and the political acceptability of CM, who the inequity of providing incentives only to clients with a m disorder. Some concerns could be ameliorated if the goals could be tailored to a client's needs.

Discussion and Conclusions: Many healthcare workers w as an effective treatment option for people with methamph but CM would need to be sufficiently flexible to allow it t needs and implemented in a way that did not adversely in relationship.

Original Paper

Effect of a Smartphone App (S-Check) on Actual and Intended Help-Seeking and Motivation to Change Methamphetamine Use Among Adult Consumers of Methamphetamine in Australia: Randomized Waitlist-Controlled Trial

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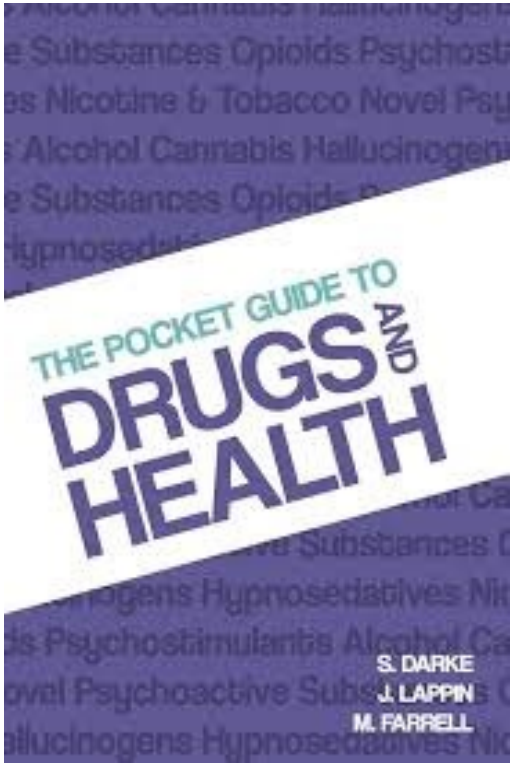
Abstract

Background: Interventions are required that address delays in treatment-seeking and low treatment coverage among people consuming methamphetamine.

Objective: We aim to determine whether a self-administered smartphone-based intervention, the "S-Check app" can increase help-seeking and motivation to change methamphetamine use, and determine factors associated with app engagement.

Methods: This study is a randomized, 28-day waitlist-controlled trial. Consenting adults residing in Australia who reported using methamphetamine at least once in the last month were eligible to download the app for free from Android or iOS app stores. Those randomized to the intervention group had immediate access to the S-Check app, the control group was wait-listed for 28 days before gaining access, and then all had access until day 56. Actual help-seeking and intention to seek help were assessed by the modified Actual Help Seeking Questionnaire (mAHSQ), modified General Help Seeking Questionnaire, and motivation to

Further Resources



Drugs and the Body: Psychostimulants

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The Difference is Research

Methamphetamine

What is methamphetamine?

Methamphetamine is a potent synthetic stimulant drug that is manufactured in clandestine laboratories from chemicals, including those used in cold and flu medications (e.g. pseudoephedrine). Methamphetamine is made in Australia and imported from other countries.

Methamphetamine is part of a larger family of drugs known as Amphetamine-Type Stimulants (ATS), which also includes amphetamine and ecstasy. Amphetamine was common in Australia until the late 1990s when it was supplanted by methamphetamine. In Australia methamphetamine is sold on the street under various names, including 'meth', 'ice', 'crystal', 'shard', 'speed', 'fina', 'base', 'fire' and 'skates'.

Highly purified methamphetamine can have a translucent crystalline appearance, hence the street names 'crystal' and 'ice'. Methamphetamine can also be sold as a powder (often called 'speed') or, less often, as a damp oily substance (called 'base') or liquid.

Methamphetamine, particularly the crystalline form of the drug, is usually sold in points (approximately 0.1 grams). The powder form of the drug is also sold in larger quantities (half-grams, grams). The powder form of methamphetamine is typically diluted with adulterants (usually glucose or sucrose), resulting in a lower purity. The crystalline form of the drug is usually not 'cut' with adulterants but it may still contain impurities from the manufacturing process.

The crystalline form of methamphetamine is usually smoked but it can also be injected. The powder form of the drug is usually injected, snorted or swallowed, while the damp or oily form ('base') is usually either swallowed or injected.

How many people use methamphetamine?

Australia has one of the highest recorded rates of methamphetamine use globally.

According to the 2013 **National Drug Strategy Household Survey**, 2.3% of Australians aged 14 or older currently use methamphetamine. Use is most common amongst young adults, with 5.8% of 20 to 29 year olds reporting past year use in 2013. Half of these people use crystalline methamphetamine.

Although the number of people who use methamphetamine has remained stable over the past decade, the number of people who report the use of crystalline methamphetamine has substantially increased.

NDARC's Illicit Drug Reporting System found that crystal methamphetamine use by people who inject drugs (PWID) has increased by 34 per cent since 2010, climbing six per cent each year for the past three years.

There has also been an increase in the number of people using methamphetamine weekly or more often, and the number of people estimated to be dependent on methamphetamine.

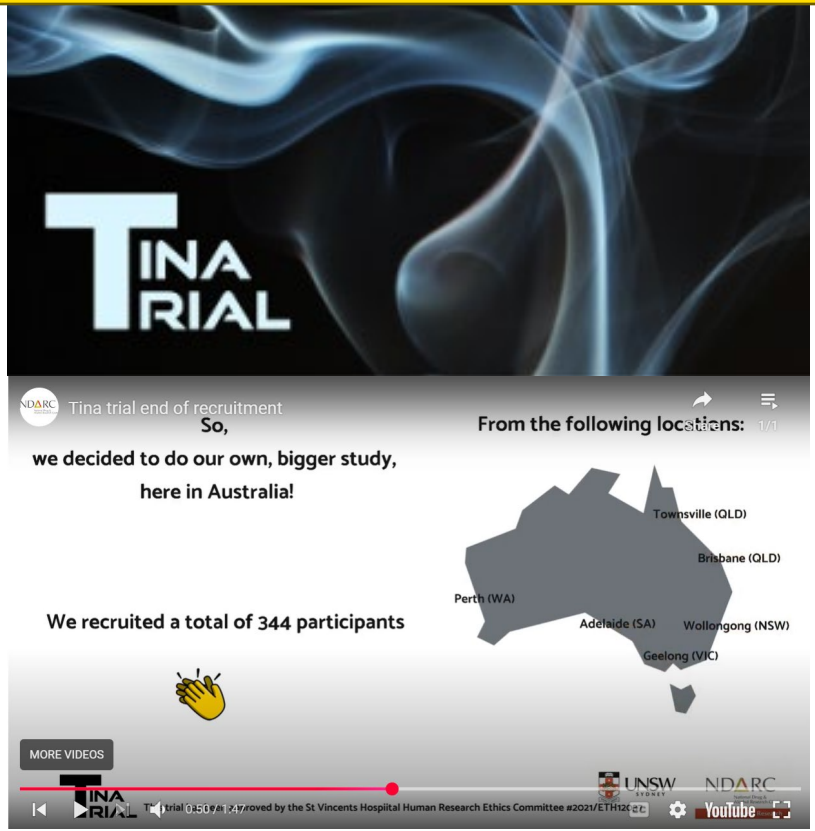
What are the effects?

Methamphetamine is a stimulant drug which increases arousal, alertness and produces a sense of euphoria.

The effects come on rapidly (within minutes) if smoked or injected. Snorting or swallowing produces a less intense high that can take up to half-an-hour to occur.

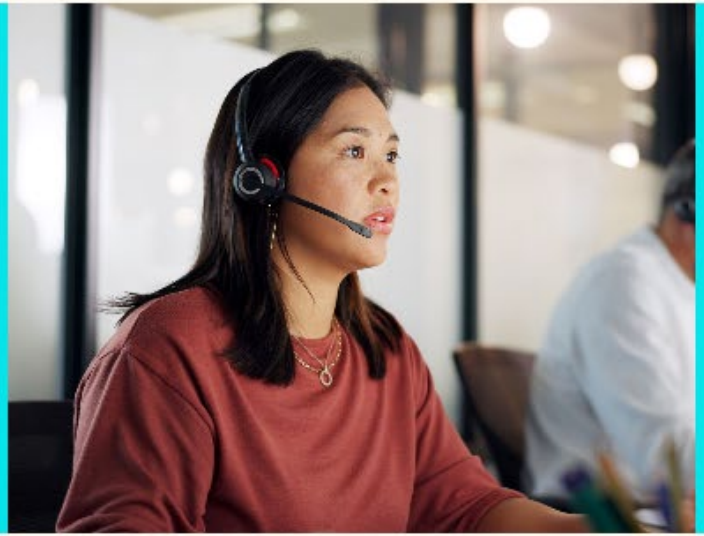
The high from the drug is most intense for the first 1-2 hours, with the stimulant effects persisting for 6-12 hours. The drug takes 2-3 days to leave the body.

Clinical trial designed to see whether mirtazapine, an antidepressant medication, can help people reduce their use of methamphetamine



Resources

Resources to support clinicians working with methamphetamine and other emerging drugs.



Thank you

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www.unsw.edu.au/research/ndarc

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