

# **CORRELATES OF DEPRESSION AND ANXIETY IN A COMMUNITY COHORT OF PEOPLE WHO PRIMARILY SMOKE METHAMPHETAMINE**



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Zoe Duncan, BPsychSc, Rebecca Kippen, PhD, Keith Sutton, PhD, Bernadette Ward, PhD, Paul A Agius, MSc, Brendan Quinn, PhD, Paul Dietze, PhD

# Methamphetamine and mental health

Methamphetamine use is associated with several adverse mental health outcomes including:

- Psychosis
- Violent behaviour
- Suicide
- Depression

Research Paper

## Mental health outcomes associated with the use of amphetamines: A systematic review and meta-analysis

Rebecca McKetin<sup>a,\*</sup>, Janni Leung<sup>a,b</sup>, Emily Stockings<sup>a</sup>, Yan Huo<sup>b</sup>, James Foulds<sup>c</sup>,  
Julia M. Lappin<sup>a,d</sup>, Craig Cumming<sup>e</sup>, Shalini Arunogiri<sup>f,g</sup>, Jesse T. Young<sup>e,h,i,j</sup>, Grant Sara<sup>k,l</sup>,  
Michael Farrell<sup>a</sup>, Louisa Degenhardt<sup>a</sup>

<sup>a</sup> National Drug and Alcohol Research Centre, University of New South Wales, Sydney, Australia

<sup>b</sup> Faculty of Health and Behavioural Sciences, The University of Queensland, Australia

<sup>c</sup> Department of Psychological Medicine, University of Otago, Christchurch, New Zealand

<sup>d</sup> School of Psychiatry, University of NSW, Sydney, Australia

<sup>e</sup> School of Population and Global Health, The University of Western Australia, Perth, Western Australia, Australia

<sup>f</sup> Turning Point, Eastern Health, Richmond, VIC, Australia

<sup>g</sup> Eastern Health Clinical School, Monash University, Box Hill, VIC, Australia

<sup>h</sup> National Drug Research Institute, Curtin University, Perth, Australia

<sup>i</sup> Justice Health Unit, Centre for Health Equity, Melbourne School of Population and Global Health, The University of Melbourne, Parkville, VIC, Australia

<sup>j</sup> Centre for Adolescent Health, Murdoch Children's Research Institute, Parkville, VIC, Australia

<sup>k</sup> Northern Clinical School, Sydney Medical School, University of Sydney, Australia

<sup>l</sup> InforMH, System Information and Analytics Branch, NSW Ministry of Health, Australia

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### ABSTRACT

**Background:** The use of amphetamines is a global public health concern. We summarise global data on use of amphetamines and mental health outcomes.

**Methods:** A systematic review and meta-analysis (CRD 42017081893). We searched Medline, EMBASE, PsycInfo for methamphetamine or amphetamine combined with psychosis, violence, suicidality, depression or anxiety. Included studies were human empirical cross-sectional surveys, case-control studies, cohort studies and randomised controlled trials that assessed the association between methamphetamine and one of the mental health outcomes. Random effects meta-analysis was used to pool results for any use of amphetamines and amphetamine use disorders.

**Findings:** 149 studies were eligible and 59 were included in meta-analyses. There was significant heterogeneity in effects. Evidence came mostly from cross-sectional studies. Any use of amphetamines was associated with higher odds of psychosis (odds ratio [OR] = 2.0, 95%CI 1.3–3.3), violence (OR = 2.2, 95%CI 1.2–4.1; adjusted OR [AOR] = 1.4, 95%CI 0.8–2.4), suicidality OR = 4.4, 95%CI 2.4–8.2; AOR = 1.7, 95%CI 1.0–2.9) and depression (OR = 1.6, 95%CI 1.1–2.2; AOR = 1.3, 95%CI 1.2–1.4). Having an amphetamine use disorder was associated with higher odds of psychosis (OR = 3.0, 95%CI 1.9–4.8; AOR = 2.4, 95%CI 1.6–3.5), violence (OR = 6.2, 95%CI 3.1–12.3), and suicidality (OR = 2.3, 95%CI 1.8–2.9; AOR = 1.5, 95%CI 1.3–1.8).

**Interpretation:** Methamphetamine use is an important risk factor for poor mental health. High quality population-level studies are needed to more accurately quantify this risk. Clinical responses to methamphetamine use need to address mental health harms.

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# Common mental health disorders in Australia

- 13% of the population have an anxiety disorder.
- 10% have symptoms of depression.
  - These two disorders commonly overlap.
- Substance use disorders are the third most common mental health disorder.
  - commonly co-occur with anxiety and depression.

Australian Bureau of Statistics (2018) *National Health Survey: First Results, 2017-18*. Available at: <https://www.abs.gov.au/statistics/health/health-conditions-and-risks/national-health-survey-first-results/latest-release#mental-and-behavioural-conditions>

# Methamphetamine research gaps

More research is needed on:

- People recruited in community settings
- People whose primary method of administration is smoking



<https://www.businessinsider.com/mental-physical-effects-of-cocaine-2016-5?r=AU&IR=T>

# VMAX study

## VMAX:

- Monitors the nature and course of methamphetamine use in those who primarily used non-injecting methods of administration on entry to the study.
- 850 community-based individuals who use methamphetamine across metropolitan and rural Victoria.





# Sub-study aims

- i) Determine the prevalence rates of moderate to severe anxiety and depression in the VMAX cohort.
- ii) Examine whether the experience of moderate to severe anxiety and moderate to severe depression were associated with demographic, socio-economic, substance use, or other social and health factors.

# Data and methods

## Outcomes

- Moderate to severe depression
- Moderate to severe anxiety
- Moderate to severe depression or anxiety

## Exposures

- Gender, age, residential location, Aboriginal and Torres Strait Islander status, relationship status, employment, education, homelessness, level of social support, route of administration, poly-drug use, years of use, level of dependence, victim of violence, self-reported health status

## Data Analysis

- Prevalence rates
- Multivariate logistic regression
- SPSS Version 26.0

# Results

Percentage distribution of PHQ-9 (depression) and GAD-7 (anxiety) scores (n=725)

		GAD-7		
		None to mild anxiety (score 0–9) %	Moderate to severe anxiety (score 10–21) %	Total %
PHQ-9	None to mild depression (score 0–9) %	40.8	8.3	49.1
	Moderate to severe depression (score 10–27) %	13.2	37.7	50.9
	Total %	54.0	46.0	100.0



# Exposures

Demographic characteristics	Socio-economic characteristics	Patterns of Substance Use	Other health and social factors
Gender (Male/Female)	Employment (yes or no)	Route of administration (smoking, injecting, other)	Victim of violence (yes or no)
Age (Years)	Education (Above year 11, or below)	Polydrug use (# of drugs past month)	Self-reported Health status (Excellent, Very Good, Good, Fair, Poor, Very Poor)
Aboriginal or Torres Strait Islander (yes or no)	Homelessness (yes or no)	Years of use (# of years)	
Residential location (Major city, regional centre, large rural town, medium or small rural town)	Level of social support (medium to high, or low)	Severity of Dependence (dependent, non-dependent)	
Relationship Status (Single or in a relationship)			

# Moderate to severe depression

Demographic characteristics		aOR	P-value	Lower CI	Upper CI
Gender	Male	1.00			
	Female	1.34	0.112	0.93	1.93
Age		0.96	0.010	0.93	0.99
Residential Location	Major city	1.00			
	Regional Centre	0.75	0.273	0.45	1.26
	Large regional town	<b>0.38</b>	<b>&lt;0.001</b>	<b>0.24</b>	<b>0.63</b>
	Medium to small rural town	0.69	0.261	0.37	1.31
Aboriginal or Torres Strait Islander	No	1.00			
	Yes	<b>0.57</b>	<b>0.037</b>	<b>0.34</b>	<b>0.97</b>
Relationship Status	In a relationship	1.00			
	Single	1.24	0.260	0.85	1.82

# Moderate to severe depression

Socioeconomic characteristics		aOR	P-value	Lower CI	Upper CI
Employment Status	Employed	1.00			
	Not employed	<b>2.91</b>	<b>&lt;0.001</b>	<b>1.84</b>	<b>4.59</b>
Level of Education	≥ Year 11	1.00			
	≤ Year 10	1.04	0.858	0.71	1.51
Homelessness	No	1.00			
	Yes	1.05	0.816	0.72	1.53
Level of social support	Medium to High	1.00			
	Low	1.41	0.078	0.96	2.07

# Moderate to severe depression

Substance use patterns		aOR	P-value	Lower CI	Upper CI
Route of Administration	Injecting	1.00			
	Smoking	<b>0.51</b>	<b>0.018</b>	<b>0.29</b>	<b>0.89</b>
	Other	0.56	0.147	0.26	1.23
Poly drug use	# of drugs	1.04	0.326	0.96	1.14
Years of use	# of years	1.04	0.022	1.01	1.07
Severity of Dependence	Non-Dependent	1.00			
	Dependent	<b>4.50</b>	<b>&lt;0.001</b>	<b>3.05</b>	<b>6.64</b>

Other social and health Factors		aOR	P-value	Lower CI	Upper CI
Victim of Violence	No	1.00			
	Yes	0.90	0.610	0.61	1.33
Self-reported Health Status	Fair to Excellent	1.00			
	Poor to very poor	<b>4.03</b>	<b>&lt;0.001</b>	<b>2.52</b>	<b>6.43</b>

# Moderate to severe anxiety

Demographic characteristics		aOR	P-value	Lower CI	Upper CI
Gender	Male	1.00			
	Female	<b>1.45</b>	<b>0.038</b>	<b>1.02</b>	<b>2.05</b>
Age		0.98	0.258	0.95	1.01
Residential Location	Major city	1.00			
	Regional Centre	1.38	0.208	0.84	2.26
	Large regional town	0.82	0.397	0.52	1.30
	Medium to small rural town	0.99	0.967	0.53	1.83
Aboriginal or Torres Strait Islander	No	1.00			
	Yes	0.80	0.392	0.48	1.33
Relationship Status	In a relationship	1.00			
	Single	0.80	0.230	0.55	1.15

# Moderate to severe anxiety

Socioeconomic characteristics		aOR	P-value	Lower CI	Upper CI
Employment Status	Employed	1.00			
	Not employed	<b>1.88</b>	<b>0.005</b>	<b>1.21</b>	<b>2.93</b>
Level of Education	≥ Year 11	1.00			
	≤ Year 10	0.88	0.486	0.61	1.27
Homelessness	No	1.00			
	Yes	1.16	0.431	0.81	1.66
Level of social support	Medium to High	1.00			
	Low	1.29	0.178	0.89	1.86



# Moderate to severe anxiety

Substance use patterns		aOR	P-value	Lower CI	Upper CI
Route of Administration	Injecting	1.00			
	Smoking	0.90	0.679	0.53	1.51
	Other	1.44	0.350	0.67	3.06
Poly drug use	# of drugs	1.06	0.161	0.98	1.16
Years of use	# of years	1.02	0.258	0.99	1.05
Severity of Dependence	Non-Dependent	1.00			
	Dependent	<b>3.48</b>	<b>&lt;0.001</b>	<b>2.39</b>	<b>5.08</b>

Other social and health Factors		aOR	P-value	Lower CI	Upper CI
Victim of Violence	No	1.00			
	Yes	1.45	0.049	1.00	2.10
Self-reported Health Status	Fair to Excellent	1.00			
	Poor to very poor	<b>3.47</b>	<b>&lt;0.001</b>	<b>2.26</b>	<b>5.32</b>

# Conclusion

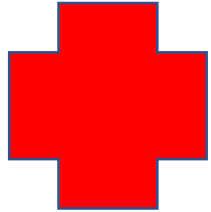


Higher levels of depression and anxiety in people that use methamphetamine, compared to the general population.

# Conclusion



Higher levels of depression and anxiety in people that use methamphetamine, compared to the general population.

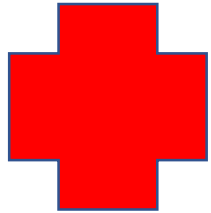


Health services in contact with people that use methamphetamine  
are likely to encounter comorbid depression or anxiety.

# Conclusion

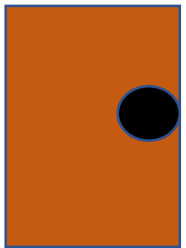


Higher levels of depression and anxiety in people that use methamphetamine, compared to the general population.



Health services in contact with people that use methamphetamine

are likely to encounter comorbid depression or anxiety.



Integrated Models



“No wrong door” approach



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## Disclosure of interests

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