



# Self-reported sexual engagement among a sample of people who regularly use ecstasy and/or other illicit stimulants in Australia, 2023

Raimondo Bruno<sup>1,2</sup> and Sophie Radke<sup>2</sup>

<sup>1</sup> National Drug and Alcohol Research Centre, UNSW Sydney, <sup>2</sup> School of Psychological Sciences, University of Tasmania. For further information: [Raimondo.Bruno@utas.edu.au](mailto:Raimondo.Bruno@utas.edu.au)



Data was collected as part of the Ecstasy and Related Drugs Reporting System (EDRS). Annual interviews were conducted with people residing in Australia who used ecstasy and/or other illicit stimulants monthly or more frequently and were aged 18 or older.

## Key Findings

Australia  EDRS



In an Australian sample of people who regularly use ecstasy and/or other illicit stimulants, **21%** reported abstinence and **60%** low sexual engagement.



Sexually engaged participants primarily had only **1 or 2** sexual partners.



Only a **small minority** of participants had patterns of sexual engagement that put them at the greatest exposure of STIs.



However, this group had the **highest rate** (64%) of engaging in recent sexual health check-ups.



This shows that this minority group are predominantly connected with, and utilising the **appropriate** services.

## Introduction

There appear to be contrasting trends in sexual engagement and sexually transmissible infections occurring concurrently at the population level in Australia.

Monitoring by the Kirby Institute has demonstrated a tripling in rates of infectious syphilis notifications in Australia over the past decade, to 24.3 notifications per 100,000 in 2022; and a doubling of rates of gonorrhoea (133.8 notifications per 100,000 in 2022) (1). Rates of chlamydia notifications have been more stable over the decade, at 386.5 notifications per 100,000 in 2022.



In contrast, multiple studies have identified a decline in the frequency of partnered sexual activity over recent years. This has been identified in the United Kingdom (UK), the United States (US), Germany and Japan, among others (2,3,4). In the US, this change has been causally associated with declines in alcohol use (5,6). In Australia, the Australian Study of Health and Relationships identified a significant decline in frequency of heterosexual partnered sex between 2002 and 2013 (7). In the most recent SWASH Lesbian, Bisexual and Queer Women's Health Survey, there was a substantial increase in the proportion of participants that reported that they had never had sex with anyone (5% in 2018; 17% in 2020) (8). There has also been an overall trend towards increases in the proportion of participants that reported sex with a single partner between 2019 and 2023 in the Sydney and Melbourne GBQ+ Community Periodic Surveys of gay, bisexual and queer men, and non-binary people who have sex with gay, bisexual and queer men (9,10).

Concurrently, there have been noted declines in rates of condom use among people engaging in penetrative sex: the Australian Survey of Secondary Students and Sexual Health have shown declining use of condoms over the past decade, from 68% on the last occasion of sexual experience in 1997 to 49% in 2021 (11). A decline in condom use was also apparent in the 'It's Your Love Life' periodic survey of young (15-29 year-old) heterosexually identified people in NSW and the ACT (12). In the GBQ+ Community Periodic Surveys, there was likewise an increase in reporting of condomless anal sex among participants in Sydney and Melbourne between 2019 and 2023 (9,10), a continuing trend that has been at least partially associated with use of pre-exposure prophylaxis (PrEP) (13).



Use of illicit drugs has been associated with engagement in risky sexual behaviours (14), and use of drugs prior to engaging in sexual activities has been regarded as a risk factor for adverse outcomes (15). Given these trends in sexual engagement, use of condoms and changes in rates of sexually transmissible infections, we aimed to:

1. Characterise patterns of sexual engagement in a sample of people in Australia that regularly use ecstasy and/or other illicit stimulants;
2. Examine the demographic and drug use profile of groups with different patterns of sexual engagement; and
3. Examine whether different patterns of sexual engagement are associated with sexual and broader risk factors.

## Methods

Data was collected in 2023 as part of the Ecstasy and Related Drugs Reporting System (EDRS). Interviews were conducted with 708 people residing in Australian capital cities who used ecstasy and/or other illicit stimulants on a monthly or more frequent basis and were aged 18 or older. Interviews were carried out face-to-face (41%), via telephone (44%), and through videoconferencing (15%). Please refer to the [EDRS Background and Methods](#) (16) and the [National 2023 EDRS report](#) (17) for further details.

The EDRS collects a wide range of individual-level information, including demographic and health characteristics as well as patterns of drug use. We used items about sexual behaviour in the previous four weeks as the basis for this bulletin. These were used to determine: the number of sexual partners in the past four weeks; the number of days in the past four weeks that a participant reported engaging in penetrative condomless sex and penetrative sex with a condom; and the number of days in the past four weeks that a participant had sex where they had and had not used alcohol or other drugs before or during sexual activity. For these questions, 667 participants provided answers and were used as the study population reported here.

Latent profile analysis is a technique used to identify groups of individuals based on their responses across multiple variables. Here we have applied it to identify groups of participants based on their engagement in the measured sexual activities. Latent profile analysis was conducted using the tidyLPA and mclust R packages in jamovi on the 527 participants that reported any sexual activity with another person in the previous four weeks. The remaining participants who did not report any sexual activities with another person were not included in the latent profile model analysis but were retained as a reference group. Sociodemographic factors, drug use, and sexual health and behaviours of each latent profile were compared to the referent group using unadjusted multinomial logistic regression.



## Results

One fifth of participants (21%, n=141) did not report engaging in any sexual activities with another person in the previous four weeks and were retained as a group named 'abstinent' for comparison with latent profiles.

### *Latent profile model selection*

Based on comparison of model fit, entropy and the bootstrapped likelihood ratio test, as well as interpretability, a five profile solution was identified as optimal, which attained a greater entropy value over less complex model (0.962, this is a measure between 0 and 1 of how well each individual matches a latent profile); and the bootstrap likelihood ratio test identifying that a five profile solution was a significantly better fit than a four profile solution ( $p < 0.010$ ) and that a six profile solution did not offer a more adequate solution than a five profile model ( $p = 0.584$ ).

### *Latent profiles of sexual engagement*

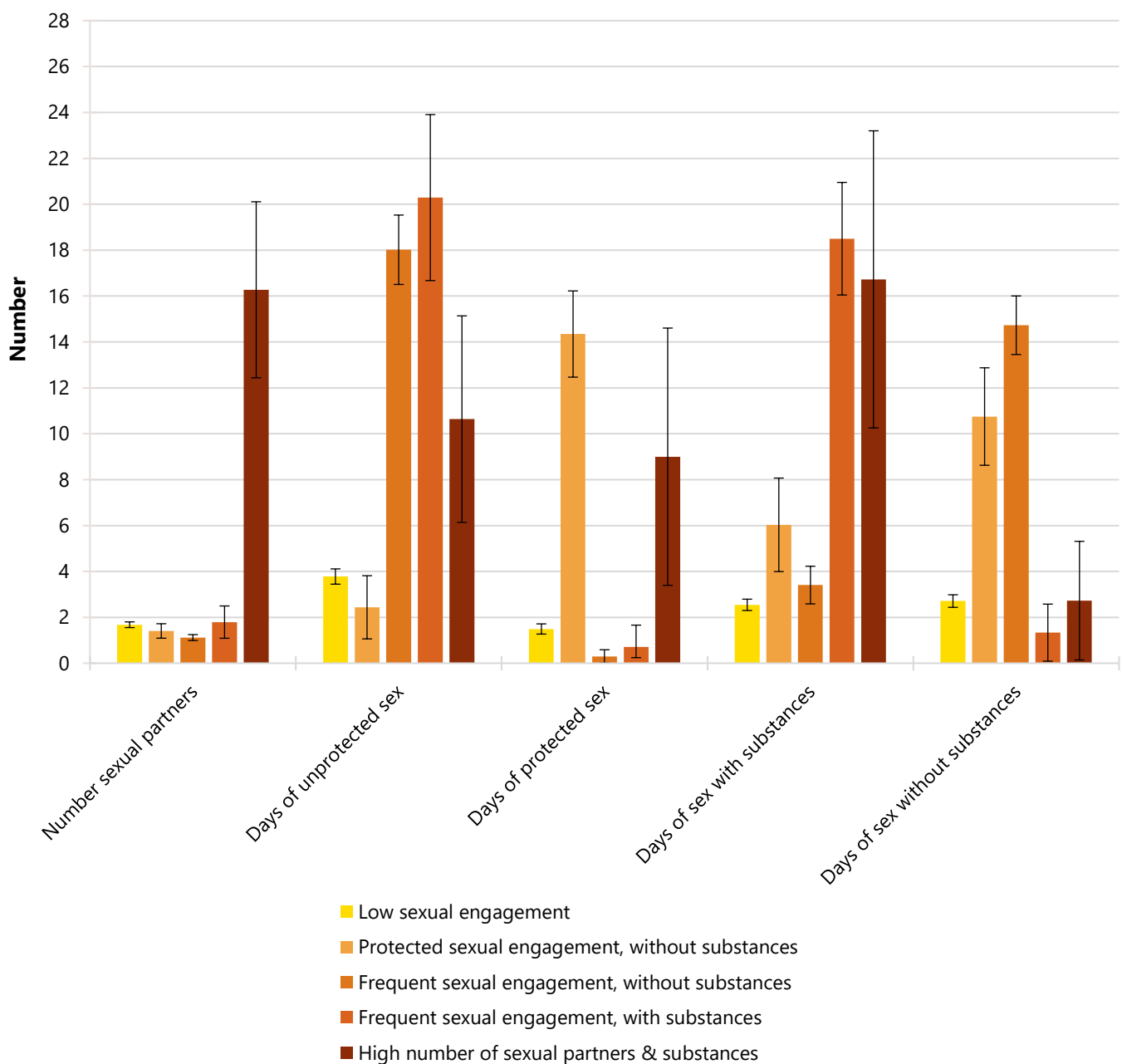
The majority of participants (60.0%, n=400) formed a 'low sexual engagement' group, that had an average of 1.7 partners, 95%CI [1.5, 1.8], and primarily engaged in condomless penetrative sex, on a small number of occasions (mean=3.8 occasions, 95%CI [3.4, 4.1]) (Figure 1).

Three other profiles emerged that all had a small number of partners but differed on how often they engaged in sexual activity and its context. One profile – 'frequent sexual engagement, with substances' – (3.6%, n=24) had an average of 1.8 partners, 95%CI [1.1, 2.5], and engaged in condomless sexual activity on the majority of days (mean=20.3 days, 95%CI [16.8, 23.9]), mainly in the context of alcohol or substance use. A second

profile – ‘frequent sexual engagement, without substances’ – (8.8%, n=59) had an average of 1.1 partners, 95%CI [1.0, 1.2], and engaged in condomless sexual activity on most days (mean=18.0 days, 95%CI [16.5, 19.5]), mainly, but not exclusively, outside the context of alcohol or substance use. A third profile – ‘protected sexual engagement, without substances’ – (4.8%, n=32) had an average of 1.4 partners, 95%CI [1.1, 1.7], and engaged in sexual activity on a little over half of the time (mean=14.3 days, 95%CI [12.5, 16.2]), primarily but not always using condoms and primarily but not always in the absence of substance use.

There was only one very small group – ‘high number of sexual partners and substances’ – (1.6%, n=11) that reported a high number of sexual partners (mean=16.2 partners, 95%CI [12.4, 20.1]). Approximately half of their encounters did not include condoms (condomless: mean=10.6 days, 95%CI [6.1, 15.1]; with condom: mean=9.0 days, 95%CI [3.4, 14.6]), and the majority of these were in the context of alcohol or other drugs (mean=16.7 days, 95%CI [10.3, 21.0]).

**Figure 1. Characteristics of the five profiles of sexual engagement, 2023**



## Results

### Demographic characteristics and substance use among the latent profiles

Those in the 'frequent sexual engagement, with substances' group reported significantly higher weekly ecstasy and related drug (ERD) use than the abstinent group (Table 1). Additionally, this group had significantly higher scores for the Alcohol Use Disorders Identification Test (AUDIT) and ecstasy Severity of Dependence (SDS) than the abstinent group.

**Table 1. Demographic and substance use correlates of the six profiles of sexual engagement, 2023**

	Abstinent [ref]	Low sexual engagement	Protected sexual engagement, without substances	Frequent sexual engagement, without substances	Frequent sexual engagement, with substances	High number of sexual partners & substances
<b>% Sample population</b>	21.1 (n=141)	60.0 (n=400)	4.8 (n=32)	8.8 (n=59)	3.6 (n=24)	1.6 (n=11)
<b>Demographics</b>						
Mean age (years)	28.1	27.6	27.4	24.1	29.5	28.5
% Male (vs. all other)	44	<b>61***</b>	63	<b>59*</b>	46	73
% Heterosexual (vs. all other)	70	73	63	73	58	45
<b>% Substance use</b>						
Weekly+ ERD use	43	46	47	34	<b>71*</b>	73
AUDIT score $\geq 16^{\wedge}$	26	35	31	29	<b>46*</b>	-
Ecstasy SDS score $\geq 3^{\#}$	9	10	-	-	<b>25*</b>	0
Methamphetamine SDS score $\geq 4^{\#}$	15	11	-	-	25	-
Injected last month	-	-	0	0	-	-

Note. - Values suppressed due to small cell size ( $n \leq 5$  but not 0).  $\wedge$  Total Alcohol Use Disorders Identification Test (AUDIT) score range is 0-40, with higher scores indicating greater likelihood of hazardous and harmful drinking. A score of 16 or more indicates harmful or hazardous drinking (16-19) or possible alcohol dependence ( $\geq 20$ ). Ecstasy and related drugs (ERD) includes ecstasy/MDMA, MDA, methamphetamine, cocaine, LSD, ketamine, GHB, hallucinogenic mushrooms/psilocybin, mephedrone or other stimulant New Psychoactive Substances (NPS).  $\#$  Severity of Dependence Scale (SDS) scores calculated out of those who used ecstasy/methamphetamine recently (past six months). A cut-off score of  $\geq 3$  and  $\geq 4$  is used to indicate screening positive for potential ecstasy and methamphetamine dependence, respectively. \* $p < 0.050$ ; \*\* $p < 0.010$ ; \*\*\* $p < 0.001$  based on univariate logistic regression models with the abstinent category as a reference.

## Results

### *Sexual behaviours and sexual health among the latent profiles*

The majority of those in the two highest exposure profiles had recently had sexual health checkups (50% or more) and were significantly more likely than the abstinent group to have done so (Table 2). One third (35%) of the 'low sexual engagement' group had recently had a sexual health checkup, making them also significantly more likely to have done so than the abstinent group. Those in this group had significantly higher rates of recent sexually transmitted disease (STD) diagnosis (8%) compared to the abstinent group.

**Table 2. Sexual activity and substance use correlates of the six profiles of sexual engagement, 2023**

	Abstinent [ref]	Low sexual engagement	Protected sexual engagement, without substances	Frequent sexual engagement, without substances	Frequent sexual engagement, with substances	High number of sexual partners & substances
<b>% Sample population</b>	21.1 n=141	60.0 n=400	4.8 n=32	8.8 n=59	3.6 n=24	1.6 n=11
<b>% Substance use outcomes (past year)</b>						
Alcohol overdose	13	<b>22*</b>	16	19	21	0
Non-alcohol overdose	16	20	16	22	25	-
<b>% Sex-related outcomes</b>						
Substance use impaired sexual consent (past 4 weeks)	0	10	-	9	-	0
HIV test (last 6 months)	0	2	0	0	0	0
Sexual health checkup (last 6 months)	26	<b>35*</b>	28	31	<b>50*</b>	<b>64*</b>
Diagnosed STI (last 6 months)	-	<b>8*</b>	-	-	-	-

Note. - Values suppressed due to small cell size (n≤5 but not 0). \* $p < 0.050$ ; \*\* $p < 0.010$ ; \*\*\*  $p < 0.001$  based on univariate logistic regression models with the abstinent category as a reference.

## Discussion

Possibly in contrast to stereotypes, in this sample of people who regularly use ecstasy and/or other illicit stimulants, the majority reported either abstinence (21%) or low sexual engagement (60%), primarily with 1 or 2 partners and a little over weekly partnered sexual activity engagement in the past four weeks.

There were only a small minority of participants – around 5% - that had patterns of sexual activity engagement that put them at the greatest exposure to sexually transmissible infections. These groups also had the highest rates of engaging in recent sexual health checkups, which demonstrates that this group are predominantly connected with, and utilising the appropriate services.

The close associations between these two highest risk groups and the heaviest levels of substance use underscores the importance of provision of sexual health (and alcohol use) screening and information/education to those who frequently use ecstasy and/or other illicit stimulants or who present for help with these substances. Likewise, it demonstrates the potential benefit of screening and information/education about substance use to those presenting frequently to sexual health services.



## References

1. King J, McManus H, Kwon J, Gray R, McGregor S. (2023). HIV, viral hepatitis and sexually transmissible infections in Australia: Annual surveillance report 2023. Kirby Institute, UNSW Sydney. Available from: <https://doi.org/10.26190/f5ph-f972>
2. Wellings K, Palmer MJ, Machiyama K, Slaymaker E. Changes in, and factors associated with, frequency of sex in Britain: Evidence from three National Surveys of Sexual Attitudes and Lifestyles (Natsal). *BMJ*. 2019 May 7;365:l1525. Available from: <https://doi.org/10.1136/bmj.l1525>
3. Beutel ME, Burghardt J, Tibubos AN, Klein EM, Schmutzer G, Brähler, E. Declining sexual activity and desire in men—Findings from representative German surveys, 2005 and 2016. *J Sex Med*. 2018 May;15(5):750–56. Available from: <https://doi.org/10.1016/j.jsxm.2018.03.010>
4. Ghaznavi C, Sakamoto H, Yoneoka D, Nomura S, Shibuya K, Ueda P. Trends in heterosexual inexperience among young adults in Japan: Analysis of national surveys, 1987–2015. *BMC Public Health*. 2019 Apr 8;19(1):355. Available from: <https://doi.org/10.1186/s12889-019-6677-5>
5. Twenge JM, Sherman RA, Wells BE. Declines in sexual frequency among American adults, 1989–2014. *Archives of Sexual Behavior*. 2017 Mar 6;46(8):2389-401. Available from: <https://doi.org/10.1007/s10508-017-0953-1>
6. Lei L, South, SJ. Explaining the decline in young adult sexual activity in the United States. *Journal of Marriage and Family*. 2020 Sep 28;83(1):280-295. <https://doi.org/10.1111/jomf.12723>
7. Badcock PB, Smith AMA, Richters J, Rissel C, de Visser RO, Simpson JM, et al. Characteristics of heterosexual regular relationships among a representative sample of adults: The Second Australian Study of Health and Relationships. *Sexual Health*. 2014 Nov 7;11(5):427-38. Available from: <https://doi.org/10.1071/SH14114>
8. Mooney-Somers J, Deacon RM, Anderst A, Rybak LSR, Akbany AF, Philios L, et al. Women in contact with the Sydney LGBTIQ communities: Report of the SWASH Lesbian, Bisexual and Queer Women’s Health Survey 2016, 2018, 2020. Sydney: Sydney Health Ethics, University of Sydney. 2020. ISBN: 978-1-74210-475-1
9. Broady T, Chan C, MacGibbon J, Bavinton B, Smith AKJ, Mao L, et al. Gay Community Periodic Survey: Sydney 2023. Sydney: Centre for Social Research in Health, UNSW Sydney. 2023 Sep 1. Available from: <https://doi.org/10.26190/g48d-zh77>
10. MacGibbon J, Broady T, Chan C, Bavinton B, Mao L, Smith, AKJ, et al. Gay Community Periodic Survey: Melbourne 2023. Sydney: Centre for Social Research in Health, UNSW Sydney. 2023 Sep 1. Available from: <https://doi.org/10.26190/7wa0-5j30>
11. Power J, Kauer S, Fisher C, Bellamy R, Bourne A. The 7th National Survey of Australian Secondary Students and Sexual Health 2021 (ARCSHS Monograph Series No. 133). Melbourne: The Australian Research Centre in Sex, Health and Society, La Trobe University. 2022 Dec 22. Available from: <https://doi.org/10.26181/21761522>
12. Adam PCG, de Wit JBF, Janssen M, Murray C, Estoesta J, Ketsuwan I, et al. 2018 It’s Your Love Life periodic survey: Sexual health promotion needs of heterosexually-identified young people in NSW. Sydney: UNSW Centre for Social Research in Health. 2020 May. Available from: <https://doi.org/10.26190/5ecc76e17854b>
13. Holt M, Lea T, Mao L, Kolstee J, Zablotska, I., Duck, T, et al. Community-level changes in condom use and uptake of HIV pre-exposure prophylaxis by gay and bisexual men in Melbourne and Sydney, Australia: Results of repeated behavioural surveillance in 2013–17. *The Lancet HIV*, 2018 June 6;5(8):e448-56. Available from: [https://doi.org/10.1016/S2352-3018\(18\)30072-9](https://doi.org/10.1016/S2352-3018(18)30072-9)

14. Paquette R, Tanton C, Burns F, Prah, P, Shahmanesh, M, Field N, et al. Illicit drug use and its association with key sexual risk behaviours and outcomes: Findings from Britain’s third National Survey of Sexual Attitudes and Lifestyles (Natsal-3). PLOS ONE. 2017 May 18;12(5):e0177922. Available from: <https://doi.org/10.1371/journal.pone.0177922>
15. Gómez-Núñez MI, Molla-Esparza C, Gandia Carbonell, N, Badenes Ribera L. Prevalence of intoxicating substance use before or during sex among young adults: A systematic review and meta-analysis. Arch Sex Behav. 2023 Mar 10;52(6):2503–26. Available from: <https://doi.org/10.1007/s10508-023-02572-z>
16. Sutherland R, Karlsson A, King C, Uporova J, Chandrasena U, Jones F, et al. Ecstasy and Related Drugs Reporting System (EDRS) Interviews 2023: Background and Methods. Sydney: National Drug and Alcohol Research Centre, UNSW Sydney; 2023.
17. Sutherland R, Karlsson A, King C, Uporova J, Chandrasena U, Jones F, Gibbs D, Price O, Dietze P, Lenton S, Salom C, Bruno R, Wilson J, Grigg J, Daly C, Thomas N, Radke S, Stafford L, Degenhardt L, Farrell M, & Peacock A. Australian Drug Trends 2023: Key Findings from the National Ecstasy and Related Drugs Reporting System (EDRS) Interviews. Sydney: National Drug and Alcohol Research Centre, UNSW Sydney; 2023. Available from: <https://doi.org/10.26190/1qta-pe36>

## Funding and Copyright

Funded by the Australian Government Department of Health and Aged Care under the Drug and Alcohol Program ©NDARC, UNSW SYDNEY 2024. This work is copyright. You may download, display, print and reproduce this material in unaltered form only (retaining this notice) for your personal, non-commercial use or use within your organisation. All other rights are reserved. Requests and enquiries concerning reproduction and rights should be addressed to NDARC, UNSW Sydney, NSW 2052, Australia via [drugtrends@unsw.edu.au](mailto:drugtrends@unsw.edu.au).

## Recommended Citation

Bruno R, Radke S. Self-reported sexual engagement among a sample of people who regularly use ecstasy and/or other illicit stimulants in Australia, 2023. Drug Trends Bulletin Series. Sydney: National Drug and Alcohol Research Centre, UNSW Sydney; 2024. Available from: <https://doi.org/10.26190/unsworks/30411>

## Acknowledgements

- The participants who were interviewed for the EDRS in the present and in previous years.
- The agencies that assisted with recruitment and interviewing.
- The EDRS is funded by the Australian Government of Health and Aged Care under the Drug and Alcohol Program.

## Participating Researchers and Research Centres



- Dr Rachel Sutherland, Antonia Karlsson, Julia Uporova, Olivia Price, Udesha Chandrasena, Haniene Tayeb, Professor Louisa Degenhardt, Professor Michael Farrell and Associate Professor Amy Peacock, National Drug and Alcohol Research Centre, University of New South Wales, New South Wales;
- Zachary Lloyd, Dr Campbell Aiken and Professor Paul Dietze, Burnet, Victoria;
- Sophie Radke and Associate Professor Raimondo Bruno, School of Psychology, University of Tasmania, Tasmania;



- Dr Jodie Grigg and Professor Simon Lenton, National Drug Research Institute and enAble Institute, Curtin University, Western Australia; and
- Catherine Daly, Dr Jennifer Juckel, Dr Natalie Thomas and Associate Professor Caroline Salom, Institute for Social Science Research, The University of Queensland, Queensland.