

ORIGINAL PAPER



WILEY

Substance use among trans and gender diverse young people in Australia: Patterns, correlates and motivations

Sasha Bailey¹ | Ashleigh Lin² | Angus Cook² | Sam Winter³ |
 Vanessa Watson⁴ | Dani Wright-Toussaint⁵ | Emma L. Barrett¹ |
 Nicola Newton¹ | Yael Perry⁵ | Lucinda Grummitt¹ | Penelope Strauss^{2,5}

¹The Matilda Centre for Research in Mental Health and Substance Use, Faculty of Medicine and Health, The University of Sydney, Sydney, Australia

²School of Population and Global Health, University of Western Australia, Perth, Australia

³School of Population Health, Curtin University, Perth, Australia

⁴Western Australian Department of Health, YouthLink, North Metropolitan Area Health Service, Perth, Australia

⁵Telethon Kids Institute, University of Western Australia, Perth, Australia

Correspondence

Sasha Bailey, Level 6, G05 Jane Foss Russell Building, Camperdown, NSW 2005, Australia.
 Email: sasha.bailey@sydney.edu.au

Abstract

Introduction: There is a dire paucity of research into the burden, correlates and motives of substance use among trans young people in Australia.

Method: Using data from a national survey of Australian trans young people ($N = 859$, $M_{\text{age}} = 19.4$), we estimated prevalence of past 6-month substance use (tobacco, alcohol, cannabis, other drugs) and lifetime substance use disorder diagnoses. Covariate-adjusted multivariate logistic regression models tested associations between substance use types with 18 interpersonal factors. Open-ended responses regarding substance use motives ($n = 489$) were qualitatively analysed using thematic analysis with an interpretative phenomenological approach.

Results: Prevalence of lifetime substance use disorder diagnosis was 13.5% (95% confidence interval [CI] 11.1, 16.1). Alcohol use was most reported (72.4%; 95% CI 68.9, 75.6) followed by tobacco (31.1%; 95% CI 27.7, 34.6) and cannabis (30.6%; 95% CI 27.2, 34.2). Trans women reported highest rates of alcohol and cannabis use; use of other drugs was highest among trans men. Highest risk of substance use was observed among trans youth who experienced discrimination, intimate partner abuse, peer rejection and lack of family support (adjusted odds ratios ranging 1.5 to 3.0). Four multi-levelled themes of substance use motives were identified: circumstantial use, somatic use, feeling better about oneself and one's life, and harm reduction.

Discussion and Conclusions: While substance use among trans young is largely circumstantial, hedonistic and altruistic, facilitating self-exploration, friendship and community connectedness, substance use among trans young people is highly prevalent and may be used to cope with sleep difficulties, depression/anxiety and cisnormativity, including delays and waitlists for accessing gender-affirming care.

KEYWORDS

adolescents, gender diverse, motives, substance use, trans

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2024 The Author(s). *Drug and Alcohol Review* published by John Wiley & Sons Australia, Ltd on behalf of Australasian Professional Society on Alcohol and other Drugs.

1 | INTRODUCTION

Many trans young people (i.e., people whose gender differs from that presumed for them at birth) engage in substance use in the spirit of pleasure, fun and community connectedness rather than harm [1, 2]. Notwithstanding this, there is growing international research suggesting that trans young people use more substances, more frequently, at higher intensities and from earlier ages, and thus experience significantly more substance use-related harms, compared with their cisgender counterparts [3, 4]. Yet in Australia specifically, there is severely limited research regarding substance use among trans young people, largely due to the exclusion of adequate gender indicators in relevant datasets [5, 6]. The only available Australia-specific dataset derives from the seminal *Writing Themselves In* survey series which has been run since 1998 [7], which found between 25% and 34% of trans people aged 14 to 17 years, and 42% to 48% of trans people aged 18 to 21 years, reported any substance use within the past 6 months [7]. However, substance-specific patterns of use among trans young people in Australia are largely unavailable, particularly those affecting trans women. Moreover, much of the international literature on substance use is not specific to trans young people [3, 8] and typically pertains to trans adults rather than trans young people [9–11]. Additional research studies drawing on larger sample sizes of trans young people in Australia specifically are required to produce reliable estimates of the burden and distribution of substance use, as well as potential-related harms among this population.

It is important to note that substance use, per se, does not infer harms related to substance use or risky or harmful substance use, in either trans or cisgender young people. Closer and more nuanced, agency-centred inspection of substance use and related harms among trans people suggests some substance use among this group may be pleasure-seeking, conducive of experiences of intimacy and connection, and feelings of introspection and self-exploration [2, 12]. The current study consciously ‘problematise’ aspects (and not the totality) of substance use among trans young people specifically related to the harmful impact on physical and neurocognitive development associated with substance use before the age of 25 [13, 14]. Furthermore, the disproportionate rates of substance use among trans young people compared with their cisgender peers, in turn, may disproportionately incur more potential harms and related economic and social costs across the lifespan.

Addressing the inequitable burden of substance use among trans young people requires the identification of modifiable risk factors on which to focus prevention and treatment efforts. Previous research on correlates of

substance use among trans young people has highlighted the significant role of distal stressors such as discrimination and victimisation [15]. A 2015 study of 292 trans young women aged 16–24 years in the United States found that those who had experienced gender-related discrimination were over twice as likely to report recent drug use, over three times as likely to report multiple drug use, and over four times as likely to report multiple heavy drug use, compared to those who had not experienced gender-related discrimination [16]. Conversely, family and school settings, typically operationalised in a risk factor, deficit-focused context, may serve as protective factors for substance use provided that they affirm, support and include trans young people. Findings from the Canadian Trans Youth Health Survey of 323 trans young people aged 14–18 years found that those reporting higher scores of family connectedness and school connectedness were between 59% and 90% less likely to report past-month smoking cigarettes [17]. Notwithstanding this, a recent scoping review of substance use prevalence, patterns, and correlates of substance use among trans young people notes that there is a lack of consistent evidence regarding protective factors for substance use among trans young people [15].

On a broader level, there is a paucity of research seeking to understand why trans people use substances. Current literature often refers to gender minority stress theory, specifically, the notion that cisnormative society marginalises trans people thereby causing ill-health [18]. Gender minority stress is commonly cited as an explanation of disparities in substance use among trans young people [9, 19]. Despite previous high-quality epidemiological research identifying risk and protective factors of substance use among trans young people, the mechanisms underlying substance use in this population outside the context of minority stress is largely under-researched [15]. Much of the current literature is largely concerned with the quantitative occurrence of substance use [9, 15], and this methodological approach does not elicit a description of the rich, embodied contexts within which substance use among trans young people occurs. Hence, investigating trans young peoples’ self-perceived reasons for substance use may elucidate important levers for prevention and treatment efforts.

Given these research gaps with public health importance, the current study has three primary aims: to examine the: (i) patterns; (ii) correlates; and (iii) motivations for substance use among trans young people in Australia.

2 | METHODS

This study uses data from the Trans Pathways survey, a mixed-methods, cross-sectional online study conducted

from February 2016 to August 2016. Participants in the current study were trans young people aged 14–25 years in Australia who completed the survey during the recruitment period ($N = 859$, $M_{\text{age}} = 19.37$, $SD = 3.15$). Eligibility criteria for young people included identifying as trans, being aged between 14 and 25 years at the time of the study, and currently living in Australia. The Trans Pathways online questionnaire was advertised and promoted widely through social media, particularly Facebook, Twitter and Tumblr. Study advertisements were also promoted through queer and trans departments at universities, trans and queer support groups, parent support groups, peer-led safe spaces, various trans health and rights organisations in Australia, trans and mainstream medical and mental health services, radio and by word of mouth [20]. Study questionnaire materials were developed with community consultation with trans young people and parents of trans young people, who were also involved throughout the research process. Further information on the Trans Pathways survey has been previously published [20].

2.1 | Measures

2.1.1 | Recent substance use

Participants were asked to indicate their substance use in the last 6 months, with 11 options in total: tobacco, alcohol, cannabis, amphetamine type stimulants, inhalants, sedatives or sleeping pills, hallucinogens, opioids, other stimulants not for prescribed use, none or other (please specify). Participants checked all the tick boxes that applied. Tobacco, alcohol and cannabis use responses were each dichotomised (1 = Yes, 0 = No) to indicate past 6-month use of tobacco, alcohol and cannabis use, respectively.

Given the low cell counts associated with some substance use items, all substance use items excluding cigarette and alcohol use (cannabis, amphetamine type stimulants, inhalants, sedatives or sleeping pills, hallucinogens, opioids and other stimulants not for prescribed use) were combined to indicate a participants' past 6-month use of 'other drugs'. Participants who responded 'Yes' to any of these constituent substances were coded as having recently used other drugs whereas participants who responses 'No' to all of these constituent substances were coded as not having recently used other drugs. While the purchase age of tobacco and alcohol is 18 years, our use of the term 'other drug use' excludes tobacco and alcohol intentionally to promote consistent reporting aligned with previous estimates of the burden of other drug use

(excluding tobacco and alcohol) among young people in Australia [5, 21].

Participants were also asked whether they had used alcohol or other drugs, not including tobacco/cigarettes when they were alone within the past 6 months (1 = 'Yes', 0 = 'No') and whether they had ever injected a drug other than for prescribed medical purposes (1 = 'Yes', 0 = 'No').

2.1.2 | Substance use disorder

Participants were asked a set of questions about possible mental health problems (e.g., depression, anxiety disorders) that they had been diagnosed with by a doctor, psychologist, psychiatrist or other medical professional. This assessment included a self-report question about whether participants had been diagnosed with substance use disorder, with participants responding indicating if they have been 'ever diagnosed' or were 'currently diagnosed'. Participants who indicated either of these options were classified as having received a substance use disorder during their lifetime.

2.1.3 | Correlates of substance use

Participants were asked whether they had experienced 18 different types of psychosocial, interpersonal experiences. These items were 'feeling rejected by peers'; 'school, TAFE or university issues' (issues with school); 'a lack of stable accommodation' (issues with accommodation); 'employment or unemployment issues' (issues with employment); 'body dysphoria'; 'feeling isolated and alone because of not knowing other trans people'; 'feeling distressed or overwhelmed when trying to help friends or others with their mental health issues or problems'; 'feeling isolated and alone because of unavailability of services'; 'a significant loss'; 'discrimination'; 'a lack of family support'; 'bullying, harassment, or verbal abuse (either in person or online)'; 'sexual abuse within your family', 'physical abuse within your family', 'other abuse within your family (verbal, neglect, emotional)'; 'sexual abuse outside of the family'; 'physical abuse outside of the family'; and 'abuse within an intimate relationship'. For the purposes of analyses, each variable was dichotomised into a binary categorical variable (1 = 'Yes', 0 = 'No'). Those responding 'prefer not to say' were excluded from the present analyses. These 18 psycho-social interpersonal experiences have been previously examined in relation to mental distress, self-harming, suicidal thoughts and suicide attempts among trans young people in Australia [20].

2.1.4 | Reasons for substance use

For participants who indicated past 6-month use of any substances listed, a free-text question appeared asking the main reasons why alcohol and/or other drugs had been used.

2.2 | Analysis

For the descriptive analysis, continuous variables were summarised using means and standard deviations; for categorical variables, counts and proportions were used. Chi-square tests were used to detect statistically significant differences in substance use outcomes among gender and age groups. Alongside prevalence estimates of substance use, confidence intervals on the binomial probability were calculated for each substance use item using the (binom) package in R [22]. Given the significant lack of research on substance use patterns among trans young people in Australia available to corroborate our findings, confidence intervals generated via the Pearson-Klopper method were selected for reported which are known to be conservative, producing relatively wider confidence intervals compared to other methods [23]. Adjusted odds ratios, accounting for participants' gender and age were used to assess associations between correlates (e.g., bullying, discrimination) and substance use outcomes. Adjusted odds ratios accounting for participants' gender and age were also used to analyse associations between substance use variables and gender-affirming care access outcomes. All statistical analyses were conducted in R Studio Version 4.2.2.

Open-ended responses relating to participants' purported reasons for substance use were imported into qualitative analysis software NVivo, version 11, in preparation for qualitative content analysis. In accordance with widely adopted guidance regarding steps to completing thematic analysis [24], the first author (Sasha Bailey) read and re-read the data to code the data and proceeded to generate summative themes to describe and summarise the content of the data. The senior author (Penelope Strauss) checked these resultant themes and codes for validity. This summative approach was used given the brief nature of participants' survey responses and the overarching goal of evaluating the presence of recurring themes and interpreting the underlying context of these [25]. Additionally, interpretative phenomenological analytic approach was adopted to permit the researchers flexibility in describing and understanding participants' responses, particularly with the view to exercising

interpretative empathy towards each individual participant's response [26]. This was chosen also to centre a high level of self-reflexivity by the first author, acknowledging the role of their lived experience of gender diversity and trans communities in the sense-making and theme generation process. Interpretative phenomenological approaches have proven useful for understanding 'complex, ambiguous, and emotionally laden' lived experiences of participants [27].

3 | RESULTS

In total, 859 trans young people responded to the survey, of which 615 (71.6%) were aged 18 years or older and 244 (28.4%) were under 18 years of age. Within this sample, 806 participants provided data regarding their gender, of whom 422 (49.1%) participants were non-binary, 255 (29.7%) participants were trans men and 129 (15.0%) participants were trans women.

3.1 | Prevalence of substance use

As shown in Table 1, the observed prevalence of lifetime substance use disorder diagnosis in this sample was 13.5% (95% confidence interval [CI] 11.1, 16.1). Alcohol was the most commonly reported substance (72.4%; 95% CI 68.9, 75.6) followed by other drug use (42.0%; 95% CI 38.3, 45.8), tobacco use (31.1%; 95% CI 27.7, 34.6) and cannabis use (30.6%; 95% CI 27.2, 34.2). A small proportion (2.5%; 95% CI 1.5, 3.9) of participants reported ever injecting drugs recreationally. Over half of the sample (56.8%; 95% CI 53.1, 60.5) reported recently using alcohol or other drugs (not including tobacco/cigarettes) while alone within the past 6 months.

Lifetime substance use disorder diagnoses were highest among trans woman (18.0%) and trans men (17.5%) relative to non-binary young people (9.7%). Trans woman reported highest prevalence rates of recent alcohol use (84.2%), cannabis use (32.7%) and lifetime injecting drug use (4.5%). Trans men and trans woman reported highest rates of recent smoking (34.8% and 34.7%, respectively) compared with non-binary young people (28.8%). Trans men reported highest rates of recent other drug use (excluding alcohol and tobacco; 56.5%) and recent alcohol or other drug use alone (59.9%). Rates of recent smoking, alcohol use, cannabis use and other drug use, were higher among those aged 18 or older compared with those aged less than 18. However, those aged less than 18 reported higher rates of recent alcohol or other drug use alone compared with their older counterparts (72.0% vs. 51.3%).

TABLE 1 Substance use among trans young people by gender and age.

	Overall sample N (%)	Gender			Age		
		95% CI	Trans		χ ² , <i>p</i> ^a	Aged <18 years, N (%)	
			men, N (%)	women, N (%)		N (%)	χ ² , <i>p</i> ^a
Lifetime substance use disorder diagnosis	103 (13.5)	11.1, 16.1	40 (17.5)	21 (18.0)	9.81, 0.007	29.8 (3.8)	74 (9.7)
Past 6-month smoking	218 (31.1)	27.7, 34.6	72 (34.8)	35 (34.7)	2.7, 0.36	41 (22.2)	177 (34.2)
Past 6-month alcohol use	508 (72.4)	68.9, 75.6	146 (70.5)	85 (84.2)	7.1, 0.02	85 (46.0)	423 (81.8)
Past 6-month cannabis use	215 (30.6)	27.2, 34.2	64 (30.9)	33 (32.7)	0.1, 0.9	38 (20.5)	177 (34.2)
Past 6-month any other drug use (excluding alcohol and tobacco)	295 (42.0)	38.3, 45.8	117 (56.5)	43 (42.6)	0.2, 0.9	60 (32.4)	235 (45.5)
Past 6-month alcohol or other drug use, alone	412 (56.8)	53.1, 60.5	130 (59.9)	53 (47.8)	4.4, 0.1	139 (72.0)	273 (51.3)
Ever recreationally injected drugs	18 (2.5)	1.5, 3.9	8 (3.7)	5 (4.5)	7.3, 0.03	5 (2.6)	13 (2.5)

Abbreviation: CI, confidence interval.

^aBased on chi-square analysis.

3.2 | Correlates of substance use

Lifetime substance use disorder diagnosis was significantly associated with experiencing issues with accommodation, discrimination, family sexual abuse, family physical abuse, sexual abuse (outside family) and intimate partner violence, regardless of age and gender.

Recent smoking was associated with a majority of the correlates assessed in this study, the highest associations being for issues with accommodation, intimate partner violence and experiencing discrimination, after controlling for age and gender. Full results are available in Table 2.

Recent alcohol consumption was associated with issues with school, experiencing discrimination, issues with employment and abuse within an intimate relationship, regardless of age and gender.

Recent other drug use was associated with 10 of the 18 correlates examined in this study, the highest associations being for those reporting issues with accommodation, issues with school, and physical abuse outside family, irrespective of age and gender differences. Full results are detailed in Table 2.

3.3 | Motivations for substance use

In total, 489 participants responded to the open-text question regarding their reasons for substance use. These responses varied in length (minimum of 1 word, maximum of 205 words) but were generally brief in nature. These responses were imported into NVivo (Version 11) software for thematic analyses using a summative content analysis approach. Four multi-levelled themes arose providing thick, rich accounts of why participants engaged in their substances of choice. These themes are detailed below in Table 3.

3.3.1 | Theme 1: Presence of circumstances conducive to use

Most commonly, participants reported that their substance use was by virtue of 'socialising' or 'having fun', and often occurred with 'friends'. Many participants described their substance use, particularly alcohol use, as 'social lubricant', and often on special occasions such as birthdays or family gatherings. As one participant responded: 'I used them recreationally in a social group'. A common instance of substance use was also in the spirit of experimentalism and 'curiosity' and explicitly referenced a range of substances such as cigarettes, wine, cannabis, inhalants, mushrooms, salvia

TABLE 2 Correlates of substance use among trans young people.

	Type of substance			
	Lifetime substance use disorder diagnosis aOR ^a (95% CI; <i>p</i>)	Smoking aOR (95% CI; <i>p</i>)	Alcohol consumption aOR (95% CI; <i>p</i>)	Other drug use aOR (95% CI; <i>p</i>)
Peer rejection	0.8	1.5	1.4	1.4
	0.4–1.7	0.9–2.8	0.8–2.4	0.8–2.4
	0.57	0.15	0.27	0.21
Issues with school	0.9	1.8	1.9	2.2
	0.5–1.5	1.2–3.0	1.2–3.0	1.4–3.4
	0.61	0.01*	<0.001	<0.001
Issues with accommodation	1.7	3.1	1.0	2.5
	1.0–2.9	2.1–4.7	0.6–1.6	1.6–3.6
	0.05	<0.001	0.96	<0.001
Issues with employment	1.5	1.7	1.6	1.8
	0.9–2.5	1.2–2.5	1.0–2.5	1.3–2.6
	0.11	<0.001	0.04	<0.001
Body dysphoria	0.8	1.5	1.1	1.4
	0.3–2.5	0.7–3.4	0.5–2.3	0.7–2.8
	0.68	0.33	0.87	0.34
Isolated and alone due to not knowing other trans people	1.1	1.4	0.9	1.1
	0.7–1.7	1.0–2.0	0.6–1.3	0.8–1.6
	0.84	0.07	0.62	0.52
Overwhelmed from helping others	0.8	1.3	0.8	1.6
	0.5–1.3	0.9–1.9	0.5–1.3	1.1–2.3
	0.37	0.21	0.39	0.02
Isolated from services	0.8	1.4	0.7	1.2
	0.5–1.4	1.0–2.0	0.5–1.1	0.9–1.7
	0.48	0.07	0.10	0.20
Significant loss	1.5	2.3	1.3	2.1
	0.9–2.4	1.6–3.3	0.9–1.9	1.5–2.9
	0.10	<0.001	0.20	<0.001
Lack of family support	1.2	1.5	0.9	1.3
	0.7–2.0	1.0–2.2	0.6–1.4	0.9–1.9
	0.49	0.04	0.67	0.14
Discrimination	1.8	2.1	1.8	1.9
	1.0–3.2	1.4–3.2	1.2–2.7	1.3–2.8
	0.04	<0.001	0.01	<0.001
Bullying	1.3	1.4	1.2	1.3
	0.8–2.4	0.9–2.2	0.8–1.8	0.9–1.9
	0.30	0.09	0.45	0.17
Family sexual abuse	2.7	1.5	0.6	0.9
	1.3–5.3	0.8–2.8	0.3–1.2	0.5–1.7
	0.01	0.16	0.13	0.86

(Continues)

TABLE 2 (Continued)

	Type of substance			
	Lifetime substance use disorder diagnosis aOR ^a (95% CI; <i>p</i>)	Smoking aOR (95% CI; <i>p</i>)	Alcohol consumption aOR (95% CI; <i>p</i>)	Other drug use aOR (95% CI; <i>p</i>)
Family physical abuse	2.4	2.0	1.1	1.6
	1.5–3.9	1.4–3.0	0.7–1.8	1.1–2.4
	<0.001	<0.001	0.59	0.01
Family other abuse	1.5	1.7	1.2	1.5
	0.9–2.5	1.2–2.5	0.8–1.7	1.1–2.2
	0.11	<0.001	0.44	0.01
Sexual abuse (outside family)	2.7	1.5	0.6	0.9
	1.3–5.3	0.8–2.8	0.3–1.2	0.5–1.7
	0.01	0.16	0.13	0.86
Physical abuse (outside family)	1.3	2.2	0.8	2.2
	0.7–2.3	1.4–3.4	0.5–1.4	1.4–3.4
	0.41	<0.001	0.40	<0.001
Abuse within an intimate relationship	1.9	3.0	1.6	2.0
	1.1–3.0	2.1–4.4	1.0–2.5	1.4–2.9
	0.02	<0.001	0.05	<0.001

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval.

^aAll odds ratios adjusted for age and gender.

and hallucinogens. As one participant recounted: ‘Seems like a cool thing to do, heard good thing about it from friends’. A few participants also noted that their substance use was under circumstances where there was ‘peer pressure’ or ‘social pressure’.

3.3.2 | Theme 2: Achieving desired somatic states of being

Substance use was also a means of achieving a specific experiential disposition or desirable somatic state of being. For many participants, substance use was a means of getting to sleep and/or staying asleep and included use of sleeping pills, codeine, Valium (diazepam), temazepam, oxycodone and alcohol. Some of these substances were prescribed to help with sleep, although many respondents indicated that they did not explicitly receive them through a formal prescription. Two participants reported that they received these sleep-inducing substances through ‘parental permission’ or ‘a friend [who] doesn’t take their sleeping pills every night’. The source of sleep disturbance or cause of anxiety preventing participants from falling asleep was not explicitly mentioned in many cases, although two participants mentioned that their substance use for

sleep was to prevent ‘nightmares’ and ‘flashbacks’ relating to their ‘abuse’ and ‘rape’.

For other participants who used substances to achieve a desired somatic state of being, this related to ‘feeling numb’ or ‘to dull the sense[s]’. The use of the word ‘numb’ by many of these participants was taken to mean a lack of somatic feeling, or physical feeling; however, this desired state was sometimes an attempt to manage undesirable states of mental being. For example, one participant describes their substance use as a way ‘to numb the pain of gender dysphoria’.

Some participants used substances to achieve a state of relaxation. Many participants described their use of substances to ‘space out’, ‘chill’, ‘relax’ and ‘let loose’. Conversely, several participants reported substance use took ‘the edge off’ and provided ‘stress relief’. On the farther end of this spectrum of relaxation, some participants reported using substances to get ‘tipsy’, ‘drunk’, ‘high’—a ‘general buzz’.

The final somatic experience which arose as a theme among participants responses was using substances for the ‘taste’. Responses which explicitly mentioned which substance type participants were referring to mentioned alcohol, including gin, vodka, cider and beer.

TABLE 3 Themes, sub-themes and illustrative quotes relating to trans young peoples' disclosed reasons for using alcohol and/or other drugs.

Theme	Sub-theme	Illustrative quotes
Presence of circumstances conducive of use	Social, recreational activity with friends, including celebrations	• 'Most often use substances in social situations.' • 'Socially with a friend' • 'For enjoyment in social situations'
	Experimentalism and curiosity	• 'Cannabis was one time out of curiosity' • 'I was having some fun at a friend's 18th' • 'First time'
	Peer pressure	• '... unable to get out of it due to peer pressure' • 'Peer pressure at uni' • 'For my best mate's birthday and he asked me to take it so I did ...'
Pursuing somatic experiences	Sleep-related issues	• 'I just can't sleep' • '... have a little alcohol with parental permission to help me settle and fall asleep' • '... and to assist with limited sleep routine'
	Feeling numb, detached, dissociated	• 'I like to feel numb' • 'To stop myself from feeling'
	Getting a 'buzz', relieving stress, relaxing	• 'To let go and feel free' • '... my way of dealing with stress is to smoke' • 'I like getting a little tipsy'
	Taste	• 'I like the taste of the things I drink' • '... however mostly to enjoy the taste' • 'It tastes good'
Coping with difficult or unpleasant periods, situations or states of mind	Coping with depression, anxiety, abuse; calming	• '... and to lessen the feeling of worry' • '... or wanting to stop feeling sad' • 'As a coping mechanism for depression/anxiety'
	Forgetting and escaping thoughts, life, reality	• 'To quieten my thoughts' • 'To get out of my own head and escape the constant noise and self-hating thoughts' • 'An escape from the near constant depression and anxiety'
	Assuaging gender dysphoria and coping with cishnormativity	• 'They make me feel less dysphoric' • 'It helps to forget who I am and be who I want to be' • 'Extreme stress from not realising I could actually get help with my gender dysphoria' • 'I drank the most when I was being forced to wait for hormones'
Rejuvenation and preservation	Alternative to self-harm	• '... replacing self-harm' • 'To stop myself from self-harming in other ways' • 'Tobacco – alternative to cutting for self-harm'
	Vehicle for self-reflection or distraction	• 'I rarely but still use MDMA only when I really need to force my body into a self reflective, appreciative of my life, introspective sort of state' • '... for self-exploration, self-healing, and spiritual experiences'
	Part of the 'toolkit for mental health' ^a	• '... and makes me think of the reasons why I'm depressed a lot less' • 'I often see my use of psychedelics ... as an important toolset in tackling my anxiety and depression'

^aThis contrasts with descriptor 3.1, which is out of necessity rather than elective choice.

3.3.3 | Theme 3: Coping with difficult or unpleasant periods, situations or states of mind

Many participants reported using substances in order to feel better about some aspect of themselves and their

lives. Reasons for using substances were associated with 'wanting to stop feeling sad', seeking to 'alleviate mental health symptoms', or similar outcomes, such as 'as a coping mechanism for depression/anxiety'. Many participants were candid about their substance use being

motivated specifically to 'cope', reporting a variety of negative feelings such as 'worry', issues with 'self-esteem' and being 'anxious'.

Some participants reported using substances to 'forget about things', or 'to try to escape from life/my thoughts'. Often these participants referred to the high 'volume' or 'speed' of their thoughts and how substance use was sought 'to quieten my thoughts', 'to block thoughts', or as a 'way to switch off from mind going a million miles a minute'. Whereas Theme 2 related to participants pursuing somatic experiences in order to achieve these physical feelings and sensations in and of themselves, responses categorised within Theme 3 involved elicitation of such states to provide a sense of psychological self-control and relief. For many of these participants, thoughts were portrayed as hostile and painful with one participant commenting their substance use was 'to escape the emotion [al] pain I experience'. Substance use among these participants was interpreted as urgent and necessary, as exemplified in one response: '[I use substances] to get out of my own head and escape the constant noise and self-hating thoughts'.

Several participants referred to using substances to 'feel less dysphoric' or 'forget' their 'gender dysphoria'. Substance use for one participant was tied to their dissatisfaction with their gender and self-image:

'Its a fun hobby, however I have noticed that my use of any substances is heavily impacted by my gender dysphoria or negative feelings associated with how I'm perceived in terms of my gender~self image ...'

Possibly due to the brief nature of the survey item, most participants did not go into which specific aspects of their gender dysphoria these substance use addressed. However, two participants reported drinking 'to forget I was trans' or, similarly, using substances because 'I didn't want to know about myself being trans'.

Some participants spoke in past tense, referencing their past substance use during a period of 'mid gender confusion' or from 'extreme stress from not realising I could actually get help with my gender dysphoria', suggesting that later gender affirmation may have been a protective factor against substance use. One participant stated bluntly: 'I no longer drink often since I have come out as trans'. Conversely, barriers to gender-affirming care appeared to be a risk factor for substance use:

'I drank to forget I was trans~. I drank the most when I was being forced to wait for hormones, when I was told I couldn't transition until I was 21 because of brain studies

that have said the decision-making part of the brain doesn't mature until 21.'

3.3.4 | Theme 4: Rejuvenation and preservation

Whereas reasons for substance use within Theme 3 could be interpreted as using substances to cope with gender dysphoria, cisnormativity and mental ill-health symptoms, descriptions of substance use within Theme 4 were more elective and were about reducing harm and promoting positive mental health rather than self-medicating negative feelings. Several participants noted their use of substances was a way of 'replacing self-harm' or to 'prevent self-harm/suicide attempts/self harm or suicide activity/recreational use'. One participant stated their 'alternative to cutting for self-harm' was 'tobacco,' whereas another participant explained their substance use was 'to stop myself from self-harming in other ways'. These responses also encompassed an element of self-exploration and self-improvement, with three participants stating their substance use was for 'self-exploration', 'self-healing' and 'spiritual experiences'. One respondent stated:

'I rarely but still use MDMA only when I really need to force my body into a self-reflective, appreciative of my life, introspective sort of state'.

For other participants, the utility of substance use was specifically related to preventing mental ill-health symptoms. For these participants, substance use was an 'important toolset in tackling my anxiety and depression', stimulating helpful introspection: '... and makes me think of the reasons why I'm depressed a lot less.'

4 | DISCUSSION

The current study provides invaluable insights into the epidemiology and determinants of substance use among trans young people in Australia. This study also provides an in-depth qualitative synthesis of a large cohort of trans young people's self-reported motivations for and experiences of substance use.

Coupled with previous literature [5, 21], these findings underscore the magnitude of disparities in substance use disproportionately affecting trans young people in Australia. Among participants in this sample, tobacco smoking was reported by 31% of participants, compared with 20% of age-matched young people in the general

population [5]. Nearly three-quarters (72%) of trans young people in this sample reported recent alcohol use compared between 21% and 34% of young people in the general population. Nearly half (42%) of trans young people reported recently using other drugs compared to 9.7% to 31.2% of young people in the general population. This is also significantly higher than previous research which found that 27% of trans young people reported other drug use in the past 6 months [21].

The scale of this issue indicates the need for urgent public health attention to prevent and reduce the potential harms and costs associated with prevalent substance use among trans young people. However, it must be noted that the present findings derive from exposure-based measures of recent substance use. This precludes definitive conclusions on the intensity and frequency of substance use episodes among trans young people, or to infer the extent of substance use-related harms. For this reason, it was difficult to compare trans young people in this sample with those in previous studies which utilised measures of frequency and intensity [7, 28]. Future research is required to understand the intensity, frequency and broader context in which substance use arises among trans young people, including concurrent use of multiple substances, or polysubstance use, a relatively understudied phenomenon [15, 29].

We found that recent alcohol use, recent cannabis use and lifetime injecting drug use were highest among trans women. This aligns with previous Australia-specific literature which found that among gender and sexuality diverse (LGBTQA+) young people aged 18–21 years, recent drug use is highest among trans women [7]. It is important to note that there is significant variability in findings related to substance use risk patterns within trans young people [15]. Previous studies of the trans adult population also suggest adult trans women are most at-risk of substance use and substance use disorders although there is limited-specific research on substance use among trans adults in Australia [10, 30]. It is difficult to speculate on whether there is truly a greater burden of substance use among trans young women relative to trans young men and young non-binary people given many previous studies examine trans adults [30] or do not have sufficient sample size to enable within-group comparisons [3, 4]. Trans women are consistently underrepresented in LGBTQA+ community-based surveys in Australia and abroad [7]. Much of the available literature is based on the United States and this may also contribute to greater variability related to within-group differences in substance use among trans young people.

There is a growing number of studies in the United States suggesting that non-binary young people consume alcohol at comparable rates to their cisgender

peers [4, 15, 31, 32]. However, the rates of recent alcohol use among non-binary Australian young people in the current study are higher compared with their cisgender young peers in the general population [5]. It is important to note that there may be differences in substance use experiences between non-binary people presumed female at birth compared with non-binary people presumed male at birth, although this has been largely unexplored in the literature [15]. Among the 422 non-binary people included in this study, the majority ($n = 353$) were presumed female at birth thus precluding further sex-stratified analyses. Future research should consider the diversity of non-binary identities and related differences in experiences of trans youth substance use. Further Australia-specific research harnessing large sample sizes of trans young people (with particular attention to increasing representation of trans young women) is required [15] to guide the evidence-based, equitable allocation of public health resources for preventing substance use among trans young people. Such research should also capture information regarding cultural experiences of trans young people, including but not limited to race, ethnicity and experiences of cisnormativity, to elucidate substance use experiences across more diverse samples of trans young people in Australia.

Issues with school, accommodation and wider discrimination were observed to be most strongly associated with substance use among trans youth in this sample. Discrimination and minority stressors as correlates of substance use are well-established in the literature relating to trans young people [15]. Our novel findings of strong associations between school and home environments and substance use suggest there may be a need for safe, stable and successful school and home settings for trans youth in order to limit potential harms from problematic or excessive substance use. Schools in particular are an important site for adolescent development and, moreover, feeling a sense of safety and community in schools are strong predictors of long-term health and well-being outcomes [33, 34]. Despite this, negative perceptions of school contexts are commonly reported among trans youth [7, 35]. Strong evidence shows that school environments which affirm, include and support trans youth have been shown to reduce discrimination and abuse [35], prevent substance use [36] and promote mental health [37] among trans youth. Conversely, schools have proven to be an optimal site in terms of reach and scale for delivering brief preventative interventions for reducing substance use among young people [38, 39]. Evidence-based, school-based prevention programs tailored to the unique, affirmative, and inclusive prevention needs of trans young people could help to reduce the disproportionate burden

of substance use and related harms among trans young people.

Findings from the present study suggest that many trans young people may use substances to cope with varying levels of psychological distress. This is not surprising given the range of research and anecdotal evidence highlighting unprecedented high levels of depression, anxiety and suicidality currently experienced by trans young people globally [40, 41]. Similarly, participants' reports of their replacement of self-harm with substance use was another novel finding. This adds rich context to previous research that has shown the co-occurrence of self-harm and substance use is commonly reported among trans young people, often at significantly higher rates compared with their cisgender peers. These findings highlight the need for further research and public health activities to avoid siloing mental ill-health and substance use among trans young people and instead shifting to an integrated approach to prevention and treatment. A wealth of literature has shown that mental ill-health and substance use share common, interactive and compounding risk factors [42, 43]. Future research among trans youth must consider experiences of co-occurring substance use and mental ill-health and how these interact with one another.

Several participants attributed their substance use to negative feelings of gender dysphoria. Furthermore, three participants explained that their reasons for substance use related to being 'forced to wait' for gender-affirming hormones and 'not realising [they] could actually get help with [their] gender dysphoria'. This aligns with previous literature with shows that unmet needs for gender-affirming care [44], or barriers to accessing gender-affirming care [45], particularly the 'waitlist period', are strong determinants of mental health among trans young people. Moreover, emerging evidence highlights the beneficial role of gender-affirming care for the mental health of trans young people [44, 46, 47]. Given the interconnectedness and common co-occurrence of mental ill-health and substance use [42], further research is required to confirm and harness the preventative utility of gender-affirming care for substance use and related harms among trans young people.

Sleep-related issues were a commonly cited reason for using substances among trans young people. This extends previous work highlighting vast disparities in sleep disturbances, sleep duration and sleep quality among trans young people compared with their cisgender peers [48, 49]. Sleep disparities among trans young people may occur with the broader context of gender minority stress-induced mental ill-health [48, 49]. Interventions targeting mental ill-health symptoms or disorders among trans

young people should therefore consider sleep as a primary outcome or adjunct indicator of intervention effectiveness. It is well-recognised that abnormal sleep patterns are often associated with mental ill-health in young people more generally [50].

Lastly, we found that trans young people sometimes engage in substance use for positive reasons, including self-exploration, friendship and community-seeking. Having a trans identity is a positive strength and asset of trans people and it is the stigma assigned to these trans identities by societal norms around cisnormativity, on the other hand, which creates depression and anxiety internalised towards one's trans identity. Hence, relevant statements were interpreted to be less indicative of internalised transphobia but rather, cisnormativity and gender minority stress. This aligns with existing research that posits substance use among LGBTQA+ people is not just a response to stigma, marginalisation and discrimination, but rather, a transformative technology that enables the expression of gender and sexuality by facilitating transgression, creating pleasure and increasing endurance [2, 51]. Much of this important work has been conducted within the broader context of sexualised substance use among LGBTQA+ adults [12] hence further research is required to utilise a socio-ecological approach to understand the uniquely trans, queer and adolescent contexts in which substance use takes place among trans young people. This work will inform the effectiveness and ethics of future public health activities which will be tasked with balancing on the one hand, the positive reasons why some trans young people use substances, and on the other hand, risks associated with substance use during adolescent development, to ultimately prevent unwanted substance use related harms and costs across the lifespan.

There were some methodological limitations in this study. The cross-sectional design limited our analysis of causal inference. For participants with recent substance use, it was difficult to determine whether they had necessarily experienced harms from their substance use. However, previous literature shows any substance use before the age of 25 may impact brain development and cognitive function [13], and therefore the recent substance use indicators in this study may still highlight possible risk for this young population. Moreover, the data used was collected 7 years ago thus we do not know if these findings can be generalised to current cohorts of trans young people, and we know that there have been changes in substance use in the Australian adolescent general population over the last decade, including the rise in use of electronic cigarettes (vapes) [5, 52]. However, it is important to note that due to the severe paucity of Australia-specific research on

substance use among trans young people and necessity of this research to inform progressive public health policy and practice reform in this space, the analysis of this data irrespective of its age is imperative. Additionally, those 18 correlates examined in the present study focused on negative life experiences and this may have contributed to findings suggesting substance use may be a method for coping with negative feelings and experiences. Limited information on the ethnic or cultural diversity of respondents also represented a limitation given previous research from abroad suggests trans young people of diverse ethnic or cultural backgrounds are at relatively further risk of substance use harms [53]. Our study also drew on several strengths, including a very large sample of trans young people in Australia, the use of both quantitative and qualitative modes of inquiry, and the centring of trans lived experience in the interpretation and discussion of these findings.

5 | CONCLUSION

Substance use is highly prevalent among trans young people aged 14 to 25 years. Though substance use among trans young people may often be relatively circumstantial, hedonistic and an important social part of self-exploration, friendship and community, some trans young people may use substances to cope with sleep difficulties, mental ill-health and cisnormativity. Future substance use prevention programs should affirm the gender of trans young people. Schools could potentially provide a timely and expedient setting to deliver these programs.

AUTHOR CONTRIBUTIONS

SB: Methodology, formal analysis, data curation, writing – original draft. AL: Conceptualisation, methodology, writing – review and editing, supervision. AC, SW, VW, DWT, EB, NN, YP and LG: Writing – reviewing and editing, supervision. PS: Conceptualisation, methodology, data curation, validation, writing – reviewing and editing, supervision.

CONFLICT OF INTEREST STATEMENT

None to declare.

ORCID

Sasha Bailey  <https://orcid.org/0000-0001-5625-7970>

Nicola Newton  <https://orcid.org/0000-0001-6305-2623>

Lucinda Grummitt  <https://orcid.org/0000-0003-4466-7731>

REFERENCES

1. Freestone J, Bourne A, Layard E, Prestage G, Murray J, Siefried KJ. Playing at the edges, navigating sexual boundaries, and narrating sexual distress; practices and perspectives of sexuality and gender diverse people who use GHB. *Int J Drug Policy*. 2022;108:103811.
2. Freestone J, Prestage G, Bourne A, Ezard N, Race K, Nedanoski A, et al. Controlling for pleasure and risk: the experiences of sexuality and gender diverse people who use GHB. *Int J Drug Policy*. 2022;105:103747.
3. Day JK, Fish JN, Perez-Brumer A, Hatzenbuehler ML, Russell ST. Transgender youth substance use disparities: results from a population-based sample. *J Adolesc Health*. 2017;1:729–35.
4. Watson RJ, Fish JN, McKay T, Allen SH, Eaton L, Puhl RM. Substance use among a national sample of sexual and gender minority adolescents: intersections of sex assigned at birth and gender identity. *LGBT Health*. 2019;7:37–46.
5. Australian Institute of Health and Welfare. Alcohol, tobacco and other drugs. 2021. Available from: <https://www.aihw.gov.au/reports/children-youth/alcohol-tobacco-and-other-drugs>
6. Freestone J, Mooney-Somers J, Hudson S. The sector is ready, and the community needs Australian alcohol and other drug treatment services to ask about sexuality and gender identity. *Drug Alcohol Rev*. 2022;41:39–42.
7. Hill AO, Lyons A, Jones J, McGowan I, Carman M, Parsons M, et al. Writing themselves in 4: The health and well-being of LGBTQ+ young people in Australia. 2021. Available from: https://www.latrobe.edu.au/_data/assets/pdf_file/0010/1198945/Writing-Themselves-In-4-National-report.pdf
8. Coulter RWS, Bloosnick JR, Bukowski LA, Herrick AL, Siconolfi DE, Stall RD. Differences in alcohol use and alcohol-related problems between transgender- and nontransgender-identified young adults. *Drug Alcohol Depend*. 2015;154:251–9.
9. Connolly D, Gilchrist G. Prevalence and correlates of substance use among transgender adults: a systematic review. *Addict Behav*. 2020;111:106544.
10. Keuroghlian AS, Reisner SL, White JM, Weiss RD. Substance use and treatment of substance use disorders in a community sample of transgender adults. *Drug Alcohol Depend*. 2015;152:139–46.
11. Wilson EC, Chen YH, Arayasirikul S, Wenzel C, Raymond HF. Connecting the dots: examining transgender women's utilization of transition-related medical care and associations with mental health, substance use, and HIV. *J Urban Health*. 2015;92:182–92.
12. Pienaar K, Murphy DA, Race K, Lea T. Problematising LGBTIQ drug use, governing sexuality and gender: a critical analysis of LGBTIQ health policy in Australia. *Int J Drug Policy*. 2018;55:187–94.
13. Squeglia LM, Jacobus J, Tapert SF. The influence of substance use on adolescent brain development. *Clin EEG Neurosci*. 2009;40:31–8.
14. Winters KC, Arria A. Adolescent brain development and drugs. *Prev Res*. 2011;18:21–4.
15. Fahey KML, Kovacek K, Abramovich A, Dermody SS. Substance use prevalence, patterns, and correlates in transgender

- and gender diverse youth: a scoping review. *Drug Alcohol Depend.* 2023;250:110880.
16. Rowe C, Santos G-M, McFarland W, Wilson EC. Prevalence and correlates of substance use among trans*female youth ages 16–24 years in the San Francisco Bay Area. *Drug Alcohol Depend.* 2015;147:160–6.
 17. Watson RJ, Veale JF, Gordon AR, Clark BA, Saewyc EM. Risk and protective factors for transgender youths' substance use. *Prev Med Rep.* 2019;15:100905.
 18. Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychol Bull.* 2003;129:674–97.
 19. Testa RJ, Habarth J, Peta J, Balsam K, Bockting W. Development of the gender minority stress and resilience measure [educational publishing foundation doi: 10.1037/sgd0000081]. 2015.
 20. Strauss P, Cook A, Winter S, Watson V, Wright Toussaint D, Lin A. Associations between negative life experiences and the mental health of trans and gender diverse young people in Australia: findings from trans pathways. *Psychol Med.* 2020;50:808–17.
 21. Hill AO, Amos N, Lyons A, Jones J, McGowan I, Carman M, et al. Illicit drug use among lesbian, gay, bisexual, pansexual, trans and gender diverse, queer and asexual young people in Australia: intersections and associated outcomes. *Drug Alcohol Rev.* 2023;42:714–28.
 22. Dorai-Raj S. Package 'binom': binomial confidence intervals for several parameterizations. 2014. Available from: <https://cran.r-project.org/web/packages/binom/binom.pdf>
 23. Henderson M, Meyer MC. Exploring the confidence interval for a binomial parameter in a first course in statistical computing. *Am Stat.* 2001;55:337–44.
 24. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3:77–101.
 25. Hsieh H-F, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res.* 2005;15:1277–88.
 26. Alhazmi AA, Kaufmann A. Phenomenological qualitative methods applied to the analysis of cross-cultural experience in novel educational social contexts. *Front Psychol.* 2022;13:785134.
 27. Smith JA, Osborn M. Interpretative phenomenological analysis as a useful methodology for research on the lived experience of pain. *Br J Pain.* 2015;9:41–2.
 28. Hillier L, Jones T, Monagle M, Overton N, Gahan L, Blackman J, et al. Writing themselves in 3. 2010. Available from: <https://www.latrobe.edu.au/arcs/shs/documents/arcs/shs-research-publications/WTi3.pdf>
 29. Crummy EA, O'Neal TJ, Baskin BM, Ferguson SM. One is not enough: understanding and modeling polysubstance use. *Front Neurosci.* 2020;14:569.
 30. Hills A, Bourne A, McNair R, Carman M, Lyons A. Private lives 3: the health and wellbeing of LGBTQ people in Victoria: Victoria summary report. 2021. Melbourne, Australia.
 31. Dermody SS, Lamb KM, Kerr DCR. Heavy drinking and drinking harms for cisgender and transgender college students. *Psychol Addict Behav.* 2022;36:466–76.
 32. Puhl RM, Himmelstein MS, Watson RJ. Weight-based victimization among sexual and gender minority adolescents: implications for substance use and mental health. *Health Psychol.* 2019;38:727–37.
 33. László KD, Andersson F, Galanti MR. School climate and mental health among Swedish adolescents: a multilevel longitudinal study. *BMC Public Health.* 2019;19:1695.
 34. Verhoeven M, Poorthuis AMG, Volman M. The role of school in adolescents' identity development. A literature review. *Educ Psychol Rev.* 2019;31:35–63.
 35. Ullman J. Free2Be... Yet?: The second national study of Australian high school students who identify as gender and sexuality diverse: Western Sydney University. 2021.
 36. Poteat VP, Sinclair KO, DiGiovanni CD, Koenig BW, Russell ST. Gay-straight alliances are associated with student health: a multischool comparison of LGBTQ and heterosexual youth. *J Res Adolesc.* 2013;23:319–30.
 37. Leung E, Kassel-Gomez G, Sullivan S, Murahara F, Flanagan T. Social support in schools and related outcomes for LGBTQ youth: a scoping review. *Discov Educ.* 2022;1:18.
 38. Newton NC, Stapinski LA, Slade T, Sunderland M, Barrett EL, Champion KE, et al. The 7-year effectiveness of school-based alcohol use prevention from adolescence to early adulthood: a randomized controlled trial of universal, selective, and combined interventions. *J Am Acad Child Adolesc Psychiatry.* 2022;61:520–32.
 39. Teesson M, Newton NC, Slade T, Chapman C, Birrell L, Mewton L, et al. Combined prevention for substance use, depression, and anxiety in adolescence: a cluster-randomised controlled trial of a digital online intervention. *Lancet Digital Health.* 2020;2:e74–84.
 40. Kia H, Rutherford L, Jackson R, Grigorovich A, Ricote CL, Scheim AI, et al. Impacts of COVID-19 on trans and non-binary people in Canada: a qualitative analysis of responses to a national survey. *BMC Public Health.* 2022;22:1284.
 41. Russell DH, Hoq M, Coghill D, Pang KC. Prevalence of mental health problems in transgender children aged 9 to 10 years in the US, 2018. *JAMA Netw Open.* 2022;5:e2223389.
 42. Baker STE, Deady M, Birrell L, Ross K, Fitzpatrick S, Newton N, et al. Prevention of mental and substance use disorders: shaping priorities for research and implementation. *Mental Health Prev.* 2021;24:200211.
 43. Rees S, Watkins A, Keauffling J, John A. Incidence, mortality and survival in young people with co-occurring mental disorders and substance use: a retrospective linked routine data study in Wales. *Clin Epidemiol.* 2022;14:21–38.
 44. Tan KKH, Byrne JL, Treharne GJ, Veale JF. Unmet need for gender-affirming care as a social determinant of mental health inequities for transgender youth in Aotearoa/New Zealand. *J Public Health (Oxf).* 2023;45:e225–33.
 45. Strauss P, Winter S, Waters Z, Wright Toussaint D, Watson V, Lin A. Perspectives of trans and gender diverse young people accessing primary care and gender-affirming medical services: findings from trans pathways. *Int J Transgender Health.* 2022;23:295–307.
 46. Turban JL, King D, Carswell JM, Keuroghlian AS. Pubertal suppression for transgender youth and risk of suicidal ideation. *Pediatrics.* 2020;145:e20191725.
 47. Turban JL, King D, Kobe J, Reisner SL, Keuroghlian AS. Access to gender-affirming hormones during adolescence and

- mental health outcomes among transgender adults. *PLoS One*. 2022;17:e0261039.
48. Dolsen EA, Byers AL, Flentje A, Goulet JL, Jasuja GK, Lynch KE, et al. Sleep disturbance and suicide risk among sexual and gender minority people. *Neurobiol Stress*. 2022; 21:100488.
 49. Levenson JC, Thoma BC, Hamilton JL, Choukas-Bradley S, Salk RH. Sleep among gender minority adolescents. *Sleep*. 2021;44:zsaa185.
 50. Scott AJ, Webb TL, Martyn-St James M, Rowse G, Weich S. Improving sleep quality leads to better mental health: a meta-analysis of randomised controlled trials. *Sleep Med Rev*. 2021; 60:101556.
 51. Pienaar K, Murphy DA, Race K, Lea T. Drugs as technologies of the self: enhancement and transformation in LGBTQ cultures. *Int J Drug Policy*. 2020;78:102673.
 52. Gardner LA, O'Dean S, Champion KE, Stockings E, Rowe AL, Teesson M, et al. Prevalence, patterns of use, and socio-demographic features of e-cigarette use by Australian adolescents: a survey. *Med J Aust*. 2023;219: 332–4.
 53. Garofalo R, Deleon J, Osmer E, Doll M, Harper GW. Overlooked, misunderstood and at-risk: exploring the lives and HIV risk of ethnic minority male-to-female transgender youth. *J Adolesc Health*. 2006;38:230–6.

How to cite this article: Bailey S, Lin A, Cook A, Winter S, Watson V, Wright-Toussaint D, et al. Substance use among trans and gender diverse young people in Australia: Patterns, correlates and motivations. *Drug Alcohol Rev*. 2024;43(7): 1940–53. <https://doi.org/10.1111/dar.13915>