Research Square

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Patterns of Risky Drinking Behaviours and Simultaneous Substance Use: A Cross-Sectional Survey of Australian Adults

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Abstract

Background. Alcohol and other drug use are major contributors to preventable health and social harms, with additional pharmacological and behavioural risks arising when substances are used simultaneously (i.e., in the same occasion). However, evidence on the frequency of simultaneous use and its relationship with risky drinking remains limited. This study examined patterns of illicit drug use, the frequency of simultaneous alcohol and illicit drug use, and its association with risky and heavy episodic drinking among a large sample of Australian adults.

Method. Participants (N = 899; 56.2% women; *Mdn* age = 33; IQR = 26–44) were recruited through paid social media advertising and snowballing, and completed a cross-sectional online survey. The survey included demographic questions, measures of alcohol use (AUDIT-10), illicit drug use, and simultaneous use.

Results. Risky/hazardous drinking (AUDIT ≥ 8) and frequent (weekly or more) heavy episodic drinking were reported by 40.1% and 18.3% of participants, respectively. In total, 52.3% of participants reported lifetime illicit drug use and 28.3% reported past four-week use. Cocaine had the highest rate of co-use with alcohol, with 49.7% of participants reporting that they often or always used the substances together, followed by ketamine (35.6%) and MDMA (33.2%). For each alcohol–drug combination examined, participants who frequently used the two substances together (often/always) had higher AUDIT scores than those who did so less frequently (never/rarely/sometimes; $p < .05$). Frequent heavy episodic drinking was also more common among frequent co-consumers for every combination except alcohol and heroin.

Conclusions. The findings have important implications for policy and practice, including the need for drug literacy education and screening to identify individuals at greater risk of harm.

Coordinated alcohol and drug policies should be developed to address the risks of co-use, particularly among individuals who combine alcohol and other drugs during episodes of heavy drinking.

Background

Alcohol is the most widely used substance in Australia and continues to contribute significantly to preventable health and social harms (1). Despite steady declines in population-level consumption over the past decade (2), risky drinking remains prevalent, with approximately one in three Australians aged 14 years and older exceeding national consumption guidelines in 2022–2023 (1). Alcohol use also imposes a substantial economic and public health burden, with the social cost estimated at $72.9 billion in 2020–2021 (3). Alongside alcohol use, national household survey data suggests that illicit drug use has increased, with approximately 3.9 million Australians (17.9%) reporting recent illicit drug use in 2022–2023, compared with 3.4 million people in 2019 (4). Consistent with these trends, wastewater monitoring data indicated a 34% increase in the consumption of methylamphetamine, cocaine, heroin, and MDMA between August 2023 and August 2024, with the most pronounced increases observed for cocaine and MDMA (5). A further 21% combined increase in these particular substances was recorded in the most recent wastewater monitoring data collected between August 2024 and August 2025 (5).

Beyond their economic impact, alcohol and illicit drug use are major contributors to preventable morbidity and mortality in Australia and are associated with a broad range of adverse outcomes, including injury, overdose, chronic disease, mental illness, and premature death (4,6). Of particular concern are increases in drug-related hospitalisations and deaths involving stimulants such as amphetamine-type stimulants and cocaine over the past two decades (7,8). These harms may be further compounded by polysubstance use, particularly when multiple substances are consumed during the same occasion. Polysubstance use can be conceptualised as either concurrent or simultaneous substance use. Concurrent substance use refers to the use of multiple substances within a specified period (e.g., past year; (9), whereas simultaneous substance use typically refers to substances being consumed together during the same occasion or episode of use (10). Simultaneous substance use can elevate the risk of serious acute and long-term substance-related harms, including dehydration, seizures, heart strain, psychosis, depression and substance dependence (11–13). The substantial risks associated with simultaneous substance use are particularly evident in drug-related mortality, with 75% of overdose deaths in Australia involving the use of drugs from two or more classes (8).

Australian research on polysubstance use has primarily examined concurrent substance use across broad timeframes, such as whether individuals have used multiple substances within the past year (e.g., (10,14). Australian latent class analysis studies suggest that most adults who use alcohol and/or illicit drugs do not report extensive concurrent use (9,15). Instead, the largest groups identified in these studies were characterised by alcohol-only use (52.3%–87.5%) or combined alcohol and tobacco use (34.2%–36.6%; (9,15). Smaller subgroups included individuals who used alcohol, tobacco, cannabis, and ecstasy (10.2%; (9) or cannabis, ecstasy, and licit drugs (9.4%; (15). Factors associated with membership in polysubstance use groups include being male, not completing high school, and reporting psychological distress (9). However, a key limitation of concurrent substance use measures is that they do not distinguish whether substances were consumed together during the same episode or separately at different points across the specified timeframe.

In relation to simultaneous or same day/incident use, much of the existing Australian research has focused on individuals who inject drugs (e.g., 16,17). Although this research is important, findings from these samples may have limited applicability to broader populations who only use drugs recreationally. The available population-level evidence suggests that using alcohol and other drugs on the same occasion is relatively common among Australian adults who use illicit substances (18,19). For example, the 2022–23 National Drug Strategy Household Survey found that 95.9% of people who recently consumed cocaine, 88.6% who recently consumed ecstasy, and 70.6% who recently consumed methamphetamines/amphetamines reported using these substances with alcohol at least once in the same incident in the year prior (18). Cocaine was also commonly used on the same occasion as cannabis (25.5%) and ecstasy (21%; (18). It should be noted that although this data captured same-occasion use, it did not indicate frequency. Consequently, individuals who combined substances once in the past year were classified alongside those who did so regularly, limiting understanding of potentially higher-risk patterns of co-use and exposure to harm. Given the high proportions reporting simultaneous use with alcohol, drinking patterns also warrant consideration. Examining

both co-use frequency and co-use during episodes of heavy drinking may assist in better understanding the potential exposure to harm experienced by different consumers.

The Current Study

Although existing research highlights the prevalence of simultaneous alcohol and other drug use among Australian adults, there is currently a limited understanding of the frequency and patterns of such use. In particular, distinguishing between occasional and frequent simultaneous co-use, particularly in the context of HED may provide greater insights into potentially higher-risk patterns of substance use and exposure to harm. The current study addresses this knowledge gap, examining the prevalence of alcohol and illicit drug use, the frequency of simultaneous use, and whether frequency of simultaneous use is associated with risky or heavy episodic drinking (HED) behaviours. Specifically, the current study sought to answer the following research questions:

1. What are the patterns of alcohol and illicit drug use reported for lifetime, past-year, and past-four-week (recent) use?
2. How frequently are illicit drugs used simultaneously with alcohol and other illicit drugs?
3. Which illicit drugs are most commonly used simultaneously with: a) alcohol; or b) other illicit drugs?
4. Is frequency of simultaneous alcohol and illicit drug co-use associated with: a) risky alcohol use patterns (i.e. AUDIT score); or b) frequent HED (i.e. ≥ 6 drinks on one occasion weekly ore more often)?

Method

Procedure

Ethics approval was granted by the Griffith University Human Research Ethics Committee (2025/679). Participants were recruited via paid advertisements on Facebook and Instagram. Eligibility criteria specified that participants be aged 18 years or older and currently residing in Australia. Individuals who clicked on the advertisement were redirected to a Qualtrics survey platform, where they were asked to review a Plain Language Statement and provide informed consent before commencing the survey. Recruitment occurred between January and April 2026. Upon completion of the survey, participants were initially offered the opportunity to enter their email address on a separate webpage to receive a $20 gift card. However, following the identification of a substantial number of fraudulent responses (e.g., duplicate submissions), the reimbursement strategy was revised to a prize draw format, whereby participants could enter to win one of three $50 e-gift cards. This change was implemented to reduce the likelihood of fraudulent participation and improve data quality. Concurrently, the wording used in the social media advertisements was modified due to platform advertising restrictions. Specifically, the advertisement wording was changed from “survey on drug use and mental health” to “mental health and lifestyle behaviours.”

Participants

A total of 1,136 participants accessed the survey; however, 43 were removed due to suspected fraudulent or duplicate entries. Fraudulent responses were identified using Qualtrics fraud-detection indicators (e.g., duplicate submissions and suspicious response patterns. A further 194 participants were excluded due to incomplete responses (completed consent only, n = 96; Block 1 [demographics] only, n = 48; up to Block 2 [AUDIT], n = 24; dropout during Block 3 or substantial missing data, n = 26). Of those who completed the demographic questions in full and then dropped out, chi-square tests showed no significant differences in dropout by employment status, student status, or highest level of education (all $p > .05$), although dropout was slightly more common among women than men ($p < .05$). As such, the final sample consisted of 899 participants. The sample included 505 women (56.2%), 326 men (43.4%), 56 non-binary individuals (6.2%) and 12 people who preferred to self-describe their gender (1.3%). Participants’ ages ranged from 18 – 82 (*Mdn* = 33, IQR = 26, 44).

Materials

The measures used in the current study were drawn from a larger project examining mental health, alcohol use, and illicit drug use. The specific measures relevant to the current study are outlined below.

Demographics

Gender

Participants reported their gender as male, female, non-binary, or preferred to self-describe. Due to the relatively small number of participants in the non-binary and preferred to self-describe categories, these groups were combined for analysis.

Age

Age was measured as a continuous variable but categorised for relevant analyses into four groups: 18–25 years, 26–35 years, 36–45 years, and 46 years and older.

Education

Participants reported their highest level of educational attainment, which was categorised as (Year 12 or below = 0) or tertiary education (diploma or higher = 1).

Alcohol Use

Alcohol use was measured using the Alcohol Use Disorders Identification Test (AUDIT-10; (20). Participants responded to 10 items assessing drinking frequency, alcohol dependence symptoms, and alcohol-related harms. Items were scored on a 5-point Likert scale, with the exception of Items 9 and 10, which were scored on a 3-point scale. Item scores were summed to produce a total AUDIT score. This score was used in analyses as a continuous variable, with higher scores indicating greater risk associated with alcohol use.

Item 3 (e.g., "How often do you have six or more drinks on one occasion?") from the AUDIT was recoded as a binary measure of HED. The HED variable included "0" to represent monthly or less frequent HED; and "1" to represent weekly or more frequent HED.

Drug Use

Participants were first asked whether they had ever used illicit drugs (yes/no). Those who responded affirmatively were then asked to indicate which substances they had used from a list including: cannabis, cocaine, methamphetamine (ice), MDMA (ecstasy), ketamine, heroin, other opiates, benzodiazepines, and other drugs (with an option to specify additional substances). For each substance endorsed, participants were subsequently asked whether they had used the drug within the past 12 months and within the past 4 weeks. Participants were asked to identify which substance they considered to be their primary drug of choice. Participants were then asked how frequently they consumed each drug simultaneously with 1) alcohol and 2) other drugs, using a 5-point response scale (1 = never to 5 = always).

Results

The average audit score for the sample was 9.19 (SD = 9.7), with two fifths (40.1%) of participants reporting risky/hazardous alcohol use (i.e., AUDIT score ≥ 8). On average, men (M =13.1, SD = 10.6) had significant higher AUDIT scores than women (M =7.2, SD = 8.6), t = 8.7, p < .001). Approximately one fifth of the sample (18.3%) reported engaging in frequent heavy episodic drinking (i.e., 6+ standard drinks weekly or more). Men reported significantly higher rates (30.8%) of daily-weekly heavy episodic drinking compared to women (11.6%; χ^2 = 46.55, p < .001).

Table 1 presents the rates of reported illicit drug use within the sample, with 52.3% of participants reporting lifetime drug use, 33.6% reporting drug use within the past 12 months, and 28.3% reporting drug use within the past four weeks. Men reported significantly higher rates of drug use in their lifetime (χ^2 = 19.89, p < .001), the past 12 months (χ^2 = 10.40, p = .001) and the past 4 week (χ^2 = 54.76, p < .001) compared to women. Drug use also differed significantly across age groups for lifetime use (χ^2 = 16.01, p = .001), past 12-month use (χ^2 = 10.0, p = .01), and past 4-week use (χ^2 = 57.20, p < .001). Participants aged 36–45 reported the highest rates of lifetime and past 4-week drug use, whereas participants aged 26–35 reported the highest rates of drug use within the past 12 months

Table 1. Prevalence of Lifetime, Past 12-Month, and Past 4-Week Illicit Drug Use

	Ever Used	Past 12 Months	Past 4 Weeks
Total Sample (N = 899)	470 (52.3%)	302 (33.6%)	267 (29.7%)
Gender			
Men (n = 326)	202 (62%)	128 (39.3%)	146 (44.8%)
Women (n = 505)	233 (46.1%)	145 (28.7%)	102 (20.2%)
Non-binary/other (n = 68)	35 (51.5%)	29 (42.6%)	19 (27.9%)
Age			
18-25 (n = 206)	88 (42.7%)	70 (34%)	51 (24.8%)
26-35 (n = 295)	171 (58%)	116 (39.3%)	105 (35.6%)
36-45 (n = 195)	114 (58.5%)	65 (33.3%)	72 (36.9%)
46+ (n = 203)	97 (47.8%)	51 (25.1%)	39 (19.2%)

Data is presented as n = yes (%)

Table 2 shows the prevalence of self-reported use for each drug type. Across lifetime use, cannabis was the most commonly reported drug (41.8%), followed by MDMA (22.0%) and cocaine (20.1%). Chi-square analyses were conducted to examine gender differences in drug use. Only men and women were compared due to the small cell sizes in the nonbinary/other group. A significantly higher proportion of men reported lifetime use of cocaine, methamphetamine, MDMA, ketamine, and heroin compared with women (p < .05). Men also reported significantly higher rates of cocaine, methamphetamine, and ketamine use within the past 12 months. For use within the past 4 weeks, significantly higher proportions of men reported cannabis, cocaine, methamphetamine, MDMA, and ketamine use.

Table 2. Prevalence of Illicit Drug Use by Substance Type

	Total sample	Men	Women	Chi-Square
Ever Used	N = 899	n = 326	n = 505	
Cannabis	376 (41.8%)	132 (40.5%)	210 (41.6%)	.10
Cocaine	181 (20.1%)	87 (26.7%)	84 (16.6%)	**12.25*** **
Methamphetamines	125 (13.9%)	65 (19.9%)	54 (10.7%)	**13.80*** **
MDMA	198 (22%)	85 (26.1%)	100 (19.8%)	**4.50***
Ketamine	101 (11.2%)	52 (16%)	41 (8.1%)	**12.23*** **
Heroin	50 (5.6%)	27 (8.3%)	22 (4.4%)	**5.50***
Other opiates	48 (5.3%)	19 (5.8%)	24 (4.8%)	.47
Benzodiazepines	110 (12.2%)	35 (10.7%)	66 (13.1%)	1.01
Other	84 (9.3%)	32 (9.8%)	41 (8.1%)	.71
Past 12 Month Use				
Cannabis	207 (23%)	76 (23.3%)	106 (21.0%)	.63
Cocaine	92 (10.2%)	47 (14.4%)	43 (8.5%)	**7.15** *
Methamphetamines	70 (7.8%)	40 (12.3%)	28 (5.5%)	**11.93*** **
MDMA	80 (8.9%)	36 (11.0%)	40 (7.9%)	2.32
Ketamine	61 (6.8%)	33 (10.1%)	24 (4.8%)	**8.94** *
Heroin	29 (3.2%)	16 (4.9%)	13 (2.6%)	3.20
Other opiates	18 (2%)	6 (1.8%)	11 (2.2%)	.11
Benzodiazepines	54 (6%)	17 (5.2%)	34 (6.7%)	.79
Other	41 (4.6%)	16 (4.9%)	7 (1.4%)	.20
Past 4-week use				
Cannabis	143 (15.9%)	62 (19%)	67 (13.3%)	**5.0***
Cocaine	69 (7.7%)	47 (14.4%)	22 (4.5%)	**26.34*** **
Methamphetamines	61 (6.8%)	40 (12.3%)	21 (4.2%)	**19.16*** **
MDMA	45 (5%)	29 (8.9%)	16 (3.2%)	**12.69*** **
Ketamine	37 (4.1%)	29 (8.9%)	7 (1.4%)	**26.96*** **
Heroin	25 (2.8%)	14 (4.3%)	11 (2.2%)	3.04
Other opiates	9 (1%)	0	8 (1.6%)	•
Benzodiazepines	44 (4.9%)	15 (4.6%)	26 (5.1%)	.13
Other	45 (5%)	20 (6.1%)	18 (3.6%)	3.0

Note: Due to low cell sizes, proportions of gender-diverse individuals were not presented in the table but were included in the total. Other responses: For ever use – the most common forms of *other* drugs were Magic Mushrooms (n = 13), LSD (n = 13), Amphetamines/speed (n =6) and DMT (n = 6).

Table 3 presents the frequency with which participants reported using specific drugs together with alcohol and other illicit drugs. Cocaine had the highest rate of co-use with alcohol, with 49.7% of participants reporting that they often or always used the substances together. This was followed by ketamine (35.6%) and MDMA (33.2%). The highest rates of co-use (i.e., often/always) with other illicit drugs were reported for heroin (38.8%), ketamine (25.5%) and methamphetamine (24.6%). In contrast, benzodiazepines and other opiates had the lowest rates of concurrent substance use, with approximately half of participants who used benzodiazepines reported never using them with other drugs, while 40.9% reported never using them with alcohol.

Table 3. Frequency of Concurrent Alcohol and Illicit Drug Use by Substance Type

Note: data is presented as n yes (%)

Table 4 presents bivariate analyses examining whether frequent simultaneous alcohol and drug co-use was associated with greater alcohol-related risk and heavy episodic drinking. Frequent co-consumers (often/always) had significantly higher AUDIT scores across all drug types compared to low frequency co-

Drug	Cannabis		Cocaine		Meth-amphetamines		MDMA		Ketamine		Heroin		Other opiates	
	Alcohol	Other drugs	Alcohol	Other drugs	Alcohol	Other drugs	Alcohol	Other drugs	Alcohol	Other drugs	Alcohol	Other drugs	Alcohol	Other drugs
Frequency of poly-substance use														
Never	115 (31.1)	226 (62.4)	37 (20.7)	74 (41.8)	35 (28.7)	45 (36.9)	58 (29.6)	80 (41.5)	35 (34.7)	37 (37.8)	16 (32)	13 (26.5)	26 (54.2)	20 (41.7)
Rarely /sometimes	177 (47.8)	97 (26.8)	53 (29.6)	67 (37.9)	52 (42.6)	47 (38.5)	73 (37.2)	76 (39.4)	30 (29.7)	36 (36.7)	11 (22)	17 (34.7)	17 (35.4)	20 (41.7)
Often/always	78 (21.1)	39 (10.8)	89 (49.7)	36 (20.3)	35 (28.7)	30 (24.6)	65 (33.2)	37 (19.2)	36 (35.6)	25 (25.5)	23 (46)	19 (38.8)	5 (10.4)	8 (16.7)

consumers (never/rarely/sometimes; $p < .05$). Heavy episodic drinking occurring weekly or more often was significantly more common among frequent co-consumers than low co-consumers for all substances except heroin.

Table 4. AUDIT Score and Heavy Episodic Drinking by Frequency of Simultaneous Alcohol and Illicit Drug Co-Use across Drugs

Substance	Cannabis	Cocaine	Methamphetamines	MDMA	Ketamine	Heroin	Benzodiazepines
Risky Alcohol Use							
AUDIT total score							
Low co-use, M (SD)	9.1 (8.5)	12.8 (10.0)	12.8 (9.7)	11.2 (9.3)	14.5 (10.3)	15.1 (11.2)	10.6 (7.8)
Frequent co-use, M (SD)	18.9 (10.9)	16.8 (11.8)	22.4 (12.4)	16.6 (11.3)	19.2 (12.5)	28.1 (10.4)	29.5 (8.5)
t	-7.4	-2.4	-3.9	-3.4	-1.9	-4.2	-8.8
p	**< .001**	**.008**	**<.001**	**< .001**	**.03**	**<.001**	**<.001**
Cohen's d	-1.1	-.4	-.9	-.5	-.4	-1.2	-2.4
6+ drinks on one occasion weekly or more often							
Low co-use, n (%)	46 (15.9%)	24 (27.3%)	26 (29.9%)	27 (20.8%)	21 (32.3%)	13 (48.1%)	16 (17%)
Frequent co-use, n (%)	41 (52.6%)	44 (49.4%)	22 (62.9%)	30 (46.2%)	20 (55.6%)	16 (69.6%)	13 (81.3%)
χ^2	45.6	9.2	11.4	13.5	5.2	2.3	29.1
p	**<.001**	**.002**	**<.001**	**<.001**	**.02**	.13	**<.001**
Cramer's V	.4	.2	.3	.3	.2	.2	.5

Note: Low co-use = never/rarely/sometimes simultaneous use with alcohol; frequent co-use = often/always simultaneous use with alcohol. Independent-samples *t*-tests were used to compare AUDIT total scores between co-use groups. Where Levene's test for equality of variances was significant ($p < .05$), the Welch-adjusted *t*-test (equal variances not assumed) was reported.

Discussion

The current study examined patterns of alcohol and illicit drug use among Australian adults, including how often these substances were used on the same occasion and whether frequent co-use was associated with risky/heavy episodic drinking. Overall, risky alcohol use and illicit drug use were common among this sample of Australian adults. Simultaneous substance use was also frequently reported, although the rate and composition of co-use with alcohol and other drugs varied across substances. Notably, participants who more frequently used alcohol and drugs together in the same incident reported higher overall AUDIT scores and more frequent heavy episodic drinking, suggesting that participants that frequently co-use may be a high-risk group with greater vulnerability to substance-related harm.

The sample showed relatively high levels of risky drinking, with more than 40% of participants classified as engaging in hazardous or risky alcohol use (AUDIT ≥ 8), a proportion similar to that reported in other Australian community samples (21), although the mean AUDIT score was higher in the present study. Almost one fifth of the sample also reporting frequent heavy episodic drinking. While lifetime illicit drug use was fairly consistent between the current study (52%) and national survey reports (47%), past 12-month use was considerably higher in the current study (33.6% vs. 18% national survey data; (4). This may be due to the wider age group used in the national data (aged 14 and over), or the self-selecting nature of the current study, whereby individuals may have been more likely to engage in our survey due to advertisement materials around substance use (in round 1 of recruitment). Men reported higher rates of heavy episodic drinking and drug use than women overall and across several individual substances, with marked gender differences observed for cocaine, methamphetamine, and ketamine. This may reflect gendered social norms, including greater acceptance of substance use and risk-taking among men (22).

Also consistent with national data (AIHW, 2026b), cannabis, MDMA and cocaine were the drugs most commonly reported by participants in the current study. The high rates of cannabis use may be partly explained by its availability and increasingly permissive attitudes towards its use, including growing support for legalisation (23). The prominence of MDMA and cocaine use in the sample is concerning given recent reports of drug lacing (24) and increases in psychostimulant related deaths (4). Given that these substances are often consumed in drinking contexts, the extent to which they were used alongside alcohol and other drugs warrants closer attention.

Heroin, ketamine and methamphetamines had the highest rates of being used often or always on the same occasion as another illicit drug. Overall, participants were more likely to report frequent co-use with alcohol than with other illicit drugs. The highest rates of frequent co-use with alcohol were observed for cocaine, reported by approximately half of those who used the drug, followed by MDMA and ketamine, for which around one-third reported frequent co-use. These findings are important given that simultaneous use can produce risks beyond those associated with either substance alone (25–27). For example, certain pharmacological interactions can place the body at increased risk, such as combining alcohol and cocaine, which produces the metabolite cocaethylene, which is substantially more cardiotoxic than cocaine alone (27, 28). Additionally, stimulants can reduce perceived alcohol-induced sedation (29), potentially delaying the perceived fatigue that would otherwise limit drinking and contributing to greater alcohol consumption.

Further, participants who frequently used illicit drugs and alcohol together had higher overall AUDIT scores than those who did so less frequently. Weekly or more frequent heavy episodic drinking was also more prevalent among frequent co-users across most substances. This is consistent with previous research showing a graded relationship between binge-drinking frequency and other substance use, whereby the prevalence of substance use increased as binge-drinking frequency increased (30). Individuals who engage in heavy drinking may also consume certain drugs to produce a more intense high and extend drinking sessions (31). Although further research is needed, social factors may also contribute to this association. People who frequently attend nightclubs, festivals or other party settings may have greater opportunities to access substances and encounter social norms that support both heavy drinking and drug use.

Implications for Policy and Practice

The findings of this study suggest that frequent co-consumers of alcohol and other drugs may represent a distinct subgroup characterised by higher levels of risky drinking, and targeted interventions are therefore warranted. These could include the following. Firstly, education and harm minimisation efforts should address the combinations people are reporting, particularly alcohol with cocaine, MDMA and ketamine; and explain the distinct risks of each (e.g., cocaethylene formation when alcohol and cocaine are combined; (28). Secondly, screening for alcohol use in health services interacting with people who use illicit drugs could help identify co-consumers who would otherwise be missed, with brief interventions addressing both substances together rather than in isolation. Thirdly, men reported higher rates of heavy episodic drinking and drug use in this sample, which may warrant particular attention, given their propensity for suicidality, when developing and evaluating these approaches (32). Fourth, improving drug literacy, including awareness that stimulants can reduce the perceived effects of alcohol and may discourage heavier drinking (33). Finally, settings outside of the home where the co-use of alcohol and other drugs is likely to occur (e.g. nightlife and music festivals) should be equipped to recognise and respond to high-risk co-use situations, including overdose and cardiac arrest. Appropriate measures could involve venue readiness (e.g. naloxone as part of first aid equipment), staff training and emergency response protocols.

There is also a need for alcohol and drug policy to acknowledge and consider the continued changes in how Australia adults use (and co-use) alcohol and other drugs. Moreover, policy responses should address the specific risks associated with co-use, rather than treating alcohol and illicit drugs as separate issues governed by competing frameworks. This requires consideration across regulation, national data collection, treatment, and harm reduction approaches.

Limitations

The current study has a number of limitations that should be considered when interpreting the findings. This study used a cross-sectional design and a convenience sample, as such the proportions of participants reporting simultaneous substance use may not represent those in the broader Australian adult population. The co-use measure also provided limited detail about individual occasions, including the quantities of substances consumed and the order and timing of substance use. Consequently, we could not determine whether heavy episodic drinking occurred on co-use occasions. To address this limitation, we specifically chose conservative measures of our key variables to increase the likelihood that our findings are a genuine reflection of co-use risk (e.g. heavy episodic drinking at least weekly and co-use of illicit drugs often or always when drinking). Future research should measure how often specific substances are combined, alongside the amount of alcohol consumed on those occasions. Event-level or longitudinal data would help determine whether co-use contributes to heavier drinking, or whether both behaviours are features of an established pattern of risky substance use. Finally, while we specifically requested participants to respond to survey questions regarding the use of “illicit” drugs, it is possible that some responses refer to the participant’s use of prescribed drugs such as benzodiazepines and medicinal cannabis. Nevertheless, findings on the simultaneous use of these drugs with alcohol and other drugs provides valuable information on patterns of risky use and potential for harm.

Conclusion

In this study, we found that frequent simultaneous use of alcohol and other drugs was associated with risky drinking, identifying frequent co-consumers as a priority group for health interventions. The findings suggest that these interventions should address heavy drinking alongside the risks of specific co-use combinations, particularly alcohol with cocaine, MDMA and ketamine. Education and practical strategies tailored to these patterns of use may help reduce substance-related harm for people who use drugs in Australia. Policy responses should take a coordinated approach to address alcohol and drug-related harm, moving beyond siloed frameworks to recognise the high prevalence of co-use among Australian adults and the risks associated with different patterns of use.

Declarations

Ethics approval and consent to participate

Ethics approval was granted by the Griffith University Human Research Ethics Committee (2025/679). Participants were required to read a Plain Language Statement and provide consent before commencing the survey.

Consent for publication

Participants were informed through the Plain Language Statement that the study findings may be published in academic journals and provided consent for this use of their data.

Availability of data and materials

The datasets generated and/or analysed during the current study are not publicly available due to restrictions imposed by the study's ethics approval but may be made available from the corresponding author upon reasonable request, subject to ethical requirements.

Competing interests

The authors have no competing interests to declare.

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Authors' contributions

DDA was responsible for project conceptualisation. KB managed data collection and conducted data analysis. KB and DDA prepared the initial manuscript draft. TP contributed to manuscript writing and critical revisions. All authors reviewed and approved the final manuscript.

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