



Consequences of concurrent and simultaneous stimulant and alcohol use among young adults:

Hazardous drinking, antisocial behaviour,
and contact with police



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“I think a big thing, well, particularly for me, anyway, is that it is very social to have a drink as well ... So, yeah, that sort of comes part and parcel with the experience [of using amphetamine-type stimulants] ... Because it’s always in a social setting. So, you know, everyone enjoys having a drink as well”

(23-year old male ATS user)

Combining alcohol and amphetamine-type stimulants

- An emerging area of concern for law enforcement and public health
- Amphetamine-type stimulants (ATS; ecstasy [MDMA] and methamphetamine)
- Research suggests combined use = greater harms:
 - Increased neurotoxicity^(1,2)
 - Extreme levels of binge drinking⁽³⁾
 - Aggression⁽⁴⁾



The Natural History Study of Drug Use

- A prospective study of drug use in a population-based sample of young adult ATS users and non-users in South-East Queensland, Australia
- Recruitment: 1 page screening questionnaire mailed to 12,079 young adults (aged 18-23 years) randomly selected from Brisbane and Gold Coast electoral roll (response rate: 49.9%)

Sample

- ATS users (used ecstasy or methamphetamine ≥ 3 times in last 12 months; n=352)
- Non-users (random selection of young adults who had never used ATS; n=204)

Drinking patterns among amphetamine-type stimulant users

- Research shows that hazardous drinking patterns are common among ATS users^[5-7]

BUT -

- ATS use is most common among young adults^[8] *and*
- Young adults are the group most likely to drink at harmful levels on a single occasion^[8]
- Do young adult ATS users engage in heavier drinking patterns than non-using young adults?



	Females			Males		
	ATS users (n=154) %	Non-users (n=114) %	χ^2 (ATS users vs. non-users)	ATS users (n=149) %	Non-users (n=75) %	χ^2 (ATS users vs. non-users)
	Baseline					
Days alcohol use in last month			34.65***			36.72***
No alcohol use in last month	3.3	21.9		3.4	17.3	
1-2 days	18.8	25.4		5.4	25.3	
3-11 days	51.3	44.7		49.0	36.0	
≥12 days	26.6	7.9		42.2	21.3	
Usual number of standard drinks			28.03***			22.65***
0-4 drinks	43.5	69.3		22.2	53.3	
5-10 drinks	37.7	29.8		45.0	30.7	
≥11 drinks	18.8	0.9		32.9	16.0	
	30 months					
Days alcohol use in last month			27.27***			20.47***
No alcohol use in last month	9.7	24.6		5.4	12.0	
1-2 days	8.4	16.7		6.7	21.3	
3-11 days	51.3	50.0		51.0	52.0	
≥12 days	30.5	8.8		36.9	14.7	
Usual number of standard drinks			23.20***			16.60***
0-4 drinks	49.4	78.1		26.9	52.0	
5-10 drinks	37.0	17.5		40.3	34.7	
≥11 drinks	13.6	4.4		32.9	13.3	

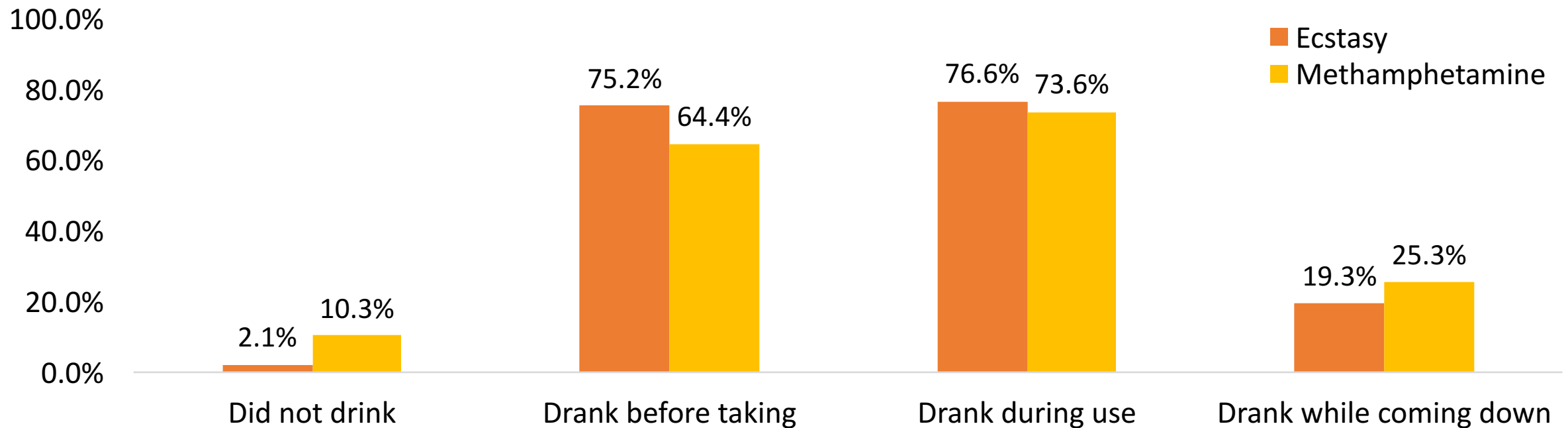
Drinking patterns and ATS use: What's the relationship?

- Number of potential explanations/mechanisms for the relationship between ATS use and drinking patterns
- ATS use may facilitate risky drinking patterns
 - Individuals under the influence of ATS may be able to consume alcohol without experiencing its usual sedative effects⁽⁹⁾
- McKetin and colleagues observed that those who consumed stimulants on a night out drank at excessive levels - median of 20 standard drinks⁽³⁾

Drinking during ATS use: Prevalence and timing

At the 30 month follow-up, **97.9%** of recent ecstasy users (used in last 12 months) and **89.7%** of recent methamphetamine users drank during last episode of use

Figure 1. Timing of drinking during most recent occasion of ecstasy (n=145) and methamphetamine (n=87) use in the last 12 months, measured at the 30-month follow-up



Drinking during ATS use: Increasing pleasure and reducing discomfort

- Individuals may combine substances to produce pleasurable effects, extend, prolong, enhance, or intensify the effects of substances, or to mitigate negative effects⁽¹⁰⁾
- Combined alcohol and ATS -
 - May produce longer-lasting euphoria⁽⁹⁾
 - May mitigate some of the unwanted effects of ATS use (e.g., anxiety, agitation, restlessness)⁽¹¹⁾



Drinking during ATS use: Increasing pleasure and reducing discomfort

“I think basically there is a different feeling that comes with just taking ecstasy and getting drunk and taking ecstasy. I think if you do have alcohol in your system as well the two can, can probably react and, and make the experience probably more powerful than it otherwise would have been”

(23-year old male ATS user)

Drinking during ATS use: Increasing pleasure and reducing discomfort

“The onset of ecstasy I don’t really like because it’s ... your brain gets really scattered and it’s like this sort of rush of speed or whatever’s coming on and, yeah, just sort of doesn’t make me feel comfortable ... I think the drinking really just helps you ease into that state”

(22-year-old male ATS user)

“I always like to drink if I’m using ecstasy - mainly prior to taking the ecstasy as a method of sort of taking my mind off the fact that I’ve taken this thing so I’m not sitting there sort of waiting for it to come on or whatever like that. So just sort of as a distraction but then also just because I like to drink and just have a good time” (19-year old male ATS user)

Combining alcohol and ATS: Increasing drinking capacity

“It’s more of, like, um, I take it to drink more ... So you don’t end up asleep in the corner. ... Not so much for the exactly emotional and physical feelings of it, it’s just to ... Basically keep, keep you going” (22-year old male ATS user)

**“And you’re able to drink more without feeling sick. Um, that’s how pills usually affect me. I could have heaps of shots and not feel sick. So, yeah, can last longer”
(22-year-old female ATS user)**

Combining alcohol and ATS: Increasing drinking capacity

“When I would be on ice [crystal methamphetamine] you can just drink nonstop. If you’re on gooey [speed], drink nonstop. And it’s ... you can, you know, you’re just drunk beyond belief but you’re not going to throw up so you just keep drinking and ... So I think with ecstasy I kind of get the same ... because I have put myself in this mindset where it’s the same thing, where I can drink nonstop or go through, you know, I think that night went through about 15, 15 drinks in a period of like three, three hours or so”

(19-year old male ATS user)

Drinking, ATS, and a 'big night out'

- Combined use often occurs in nightlife entertainment districts in the context of a '**big night out**'⁽¹²⁾
- Large proportion of aggressive behaviour among young adults occurs in and around licensed venues^(13,14)
- Mixed evidence regarding association between ecstasy and aggression⁽¹⁵⁻²⁰⁾
- Alcohol and methamphetamine both linked with aggressive behaviour under certain circumstances⁽²⁰⁻²⁴⁾
- Recent Australian study of methamphetamine treatment clients suggests alcohol consumption may account for part of the association between methamphetamine use and violence⁽⁴⁾

Table 2. Prediction model of ecstasy-related aggression or hostility (n=242)

	n	Unadjusted ORs (95% CI)	Adjusted ORs (95% CI)
Risky simultaneous ecstasy and alcohol use			
Risky simultaneous use at 1 time point	76	1.47 (0.80-2.70)	1.33 (0.68-2.58)
Risky simultaneous use at 2-3 time points	69	1.60 (0.86-2.98)	1.37 (0.68-2.75)
Ecstasy use trajectory			
Persistent use	138	1.14 (0.66-1.98)	1.06 (0.58-1.95)
Persistent high use	20	2.60 (0.94-7.18) [†]	2.15 (0.72-6.40)
Risky alcohol use (≥5 standard drinks)			
Risky use at 1-2 waves	94	1.77 (0.67-4.70)	1.31 (0.45-3.78)
Risky use at 3-4 waves	125	2.25 (0.86-5.84)	1.31 (0.45-3.80)
Trait aggression			
Moderate	65	2.83 (1.51-5.30)**	2.81 (1.47-5.40)**
High	57	5.71 (2.86-11.40)***	5.26 (2.51-11.01)***
Psychosis	12	2.51 (0.73-8.57)	1.73 (0.46-6.53)
Sex (male)	111	1.55 (0.93-2.59)	0.94 (0.52-1.70)

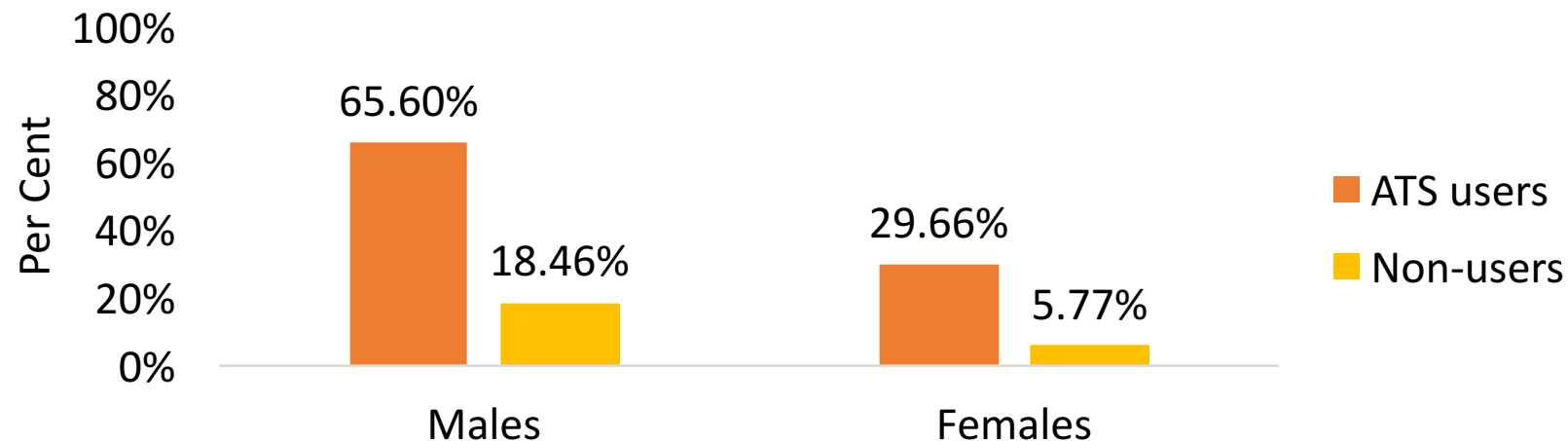
Table 3. Prediction model of methamphetamine-related aggression or hostility (n=223)

	n	Unadjusted ORs (95% CI)	Adjusted ORs (95% CI)
Risky simultaneous methamphetamine and alcohol use			
Risky simultaneous use at 1 time point	69	1.46 (0.78-2.74)	1.40 (0.68-2.87)
Risky simultaneous use at 2-3 time points	44	4.59 (2.17-9.73)***	2.72 (1.09-6.75)*
Methamphetamine use trajectory			
Persistent use	54	2.62 (1.39-4.93)**	2.28 (1.08-4.85)*
Persistent high use	10	7.78 (1.60-37.91)*	6.68 (1.20-37.09)*
Risky alcohol use (≥5 standard drinks)			
Risky use at 1-2 waves	87	1.00 (0.36-2.75)	0.50 (0.16-1.57)
Risky use at 3-4 waves	115	1.97 (0.74-5.23)	0.86 (0.28-2.62)
Trait aggression			
Moderate	63	1.93 (1.00-3.75)	1.48 (0.71-3.08)
High	55	6.70 (3.25-13.83)***	6.25 (2.77-14.12)***
Psychosis	12	1.00 (0.31-3.25)	0.63 (0.15-2.62)
Sex (male)	103	2.47 (1.43-4.27)**	1.50 (0.77-2.92)

Drinking, ATS, a 'big night out', and the police

- Combined alcohol and ATS use in public spaces (e.g., nightlife entertainment districts) may increase ATS-using young adults' likelihood of police contact
- Young adults are more likely to encounter police compared to other age groups⁽²⁵⁾ and engagement in illegal behaviour increases this likelihood⁽²⁶⁾

Figure 2. Substance-related police contact among amphetamine-type stimulant users ($n=270$) and non-users ($n=169$), by sex - measured at the 4.5-year follow-up



Key findings and implications

- **Key findings:**
 - Greater rates of hazardous drinking among ATS-using young adults compared to non-users
 - High prevalence of drinking during episodes of ATS use
 - Drinking during episodes of ATS use has a number of potential concerning outcomes, including aggression and hostility among methamphetamine users, and potentially increased likelihood of police contact
- **The policy challenges of ATS and alcohol use cannot be considered separately for Australian young adults**
- **ATS-using young adults are an important target group for alcohol interventions**
- **There may be greater scope for police involvement in providing harm reduction materials and relevant referrals**

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