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Consequences of concurrent amphetamine-type stimulant (ATS) and alcohol use by young adults: Offending behaviour, victimisation and other harms

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Introduction

This project examined community patterns of stimulant and alcohol use among young adults residing in Brisbane and on the Gold Coast, Queensland, with a particular focus on behaviours relevant to law enforcement and harm-reduction responses. The project comprised part of a broader study, the Natural History Study of Drug Use, which followed a population-based cohort of young adult users and non-users of amphetamine-type stimulants (ATS) such as ecstasy (MDMA) and methamphetamine for 4½ years. Because the sample of young adults was obtained from a randomised recruitment process, the study was able to provide some estimates of community or population-level patterns of behaviour. At the 4½-year follow-up, face-to-face interviews were conducted with the young adults examining a range of issues related to the concurrent use of alcohol and stimulants including involvement in drug markets, contact with police, engagement in and exposure to antisocial behaviour, and some of the personal outcomes of drug use. In-depth, semi-structured interviews were conducted regarding young adults' personal experiences and perceptions of law enforcement related to alcohol and other drug use.

Specifically, the project aimed to examine:

- the extent to which the concurrent use of illicit stimulants and alcohol is associated with offending behaviour (including traffic offences), being a victim of crime, and having contact with police;
- population-level patterns of ATS market involvement among young adults;
- the antecedents and circumstances of ATS users' and non-users' contact with police; and
- the consequences of police contact with regard to cooperation with police, and individual-level and criminal justice outcomes.

Findings

ATS use and drug market involvement

During the 4½ years of this study, rates of drug use and drug market involvement in this cohort declined considerably, but a large proportion maintained some drug-use involvement. At the 4½-year follow-up, nearly half of the ATS-using cohort (males and females) had recently used ecstasy—that is, within the last 12 months—and just over a quarter had recently used methamphetamine. There was no gender difference within the proportion of the cohort who had used these drugs recently. In addition, both male and female ATS users tended to consume more alcohol when using ATS than on other drinking occasions; however, males were more intensely involved than females in ATS and alcohol use, including concurrent use of these drugs. Extreme levels of alcohol consumption concurrent with ATS use were observed, with one in five male ATS users consuming 20 or more standard drinks on their last occasion of ecstasy or methamphetamine use. The relative intensity of males' drug-use patterns is reflected in their levels of drug market involvement and associated risk-taking behaviour. Male ATS users were more likely than their female counterparts to acquire ATS through dealers or acquaintances, and had more recurrent contact with dealers over the course of the study.

Differences in market structure were evident for ecstasy supply compared with methamphetamine supply, with a greater overall tendency to acquire methamphetamine from dealers. Overall, there were lower rates of recurrent contact with methamphetamine dealers over the course of the study, but this reflects the lower incidence of methamphetamine use for this cohort compared with ecstasy use. Those who

had a greater tendency toward dependent patterns of methamphetamine use were more engaged with methamphetamine dealers.

Most selling of ATS was via social supply, with users selling to friends without profit. There appeared to be different pathways into ATS dealing, with some users appearing to transition from social supply into selling for profit. For other ATS users, involvement in dealing was associated with a history of conduct disorder. Further, higher levels of contact with ATS dealers and the selling of ATS were both associated with greater risks, including drug-related police contact, being charged with a drug-related offence, using higher cumulative quantities of ATS over the course of the study and using a larger range of illicit drugs. ATS dealers who sold ATS for profit were more likely to experience these outcomes than those who either sold to friends without profit or did not sell at all.

ATS users may be dissuaded from selling ATS for profit if they become aware of the high likelihood of adverse outcomes, especially with regard to the risk of being caught and facing penalties. However, the link between the early onset of conduct disorder and later involvement in ATS dealing suggests that early interventions are important. School and community-based programs that engage with at-risk families and children may be critical for reducing levels of involvement in the most problematic forms of drug-related behaviour. It is also imperative that resources are available for the proper monitoring and evaluation of these programs.

Offending behaviour

This young adult cohort of ATS users had relatively high levels of aggressive traits compared with non-users, but the extent of these differences was not greater than differences relating to gender. Males had higher levels of trait aggression than females, regardless of whether they used ATS. At a population level, aggressive and violent behaviour appears to be a relatively uncommon outcome of the use of ATS, including methamphetamine. However some key factors were identified which may increase the likelihood of aggression in methamphetamine users, including high-dosage methamphetamine use and the concurrent consumption of large volumes of alcohol. High doses of methamphetamine or alcohol were more likely to elicit aggressive and hostile behaviour among methamphetamine users with high-level aggressive traits. Around one quarter of methamphetamine users with high-level trait aggression reported anger and hostility when they took intermediate to high doses of methamphetamine. These subjective drug effects were relatively uncommon among ecstasy users. Further, delusional and paranoid feelings were often reported as a consequence of methamphetamine use, but not of ecstasy. In light of previous research, it is likely that impulsivity and the miscomprehension of others' behaviour may contribute to violent acts committed by methamphetamine users.

Overall, alcohol appeared to play a greater role than ATS or other illicit drugs with regard to the violent and antisocial behaviour reported by ATS users, in instances of both perpetration and victimisation. Antisocial behaviour was evident in public settings, including licensed venues. A majority of ATS users had experienced victimisation by an intoxicated person. This predominantly took the form of verbal abuse perpetrated by alcohol-intoxicated strangers in public settings. However, nearly a third of male ATS users had experienced physical victimisation by an alcohol-intoxicated person in a public setting during a 12-month period. Alcohol and drug-related violence was also apparent for young adult ATS users in private settings. About one in 10 female ATS users reported they had been the victim of intimate partner violence at some stage. At a population level, the link between ATS use and property crime appeared to be fairly weak. Damage to property, including vandalism, was the most common form of property crime in this group.

These findings show there is a need for the ongoing development of treatment options and referral pathways for methamphetamine use, including low-threshold responses that may engage a greater number of users. Reduced use of methamphetamine, especially in tandem with more moderate alcohol use, will reduce levels of drug-related violence. Given the considerable levels of contact police have with ATS users, police could serve as a useful conduit for treatment—with regard to formal diversion schemes as well as informal mechanisms. This report also provides support for a higher prioritisation of alcohol-related violence as an area for policy development and research, with regard to problems occurring in private and public settings. The study provides population-level evidence that methamphetamine use may be involved in some cases of alcohol-related violence

among young adults. Frontline workers responding to alcohol-related violence require appropriate training and resources to deal with methamphetamine-intoxicated individuals. Given that many ATS users will engage in antisocial behaviour or become victims of such behaviour, broad-based educational initiatives for young adults could have a dual focus on safety and responsible behaviour in recreational settings.

Driving behaviour and traffic offences

The study findings indicate that young-adult ATS users are a high-risk group with regard to dangerous driving behaviour and crashes. ATS users were more likely than non-users to engage in drink-driving and speeding, and both of these behaviours were factors contributing to crashes for this group. There is evidence of a direct relationship between ATS use and drink-driving, with higher levels of ATS use contributing to hazardous levels of alcohol consumption and also increasing the likelihood of driving when intoxicated. ATS use may negatively impact decisions about whether to drive, as ATS can mask the effects of alcohol. However, ATS users who consume alcohol at hazardous levels on a typical day of alcohol consumption are at the greatest risk of drink-driving.

The relationship between speeding and ATS use is less direct. Among males in particular, ATS users are more prone to aggression than non-users. Individual traits such as aggression probably contribute to both drug use and dangerous driving, including speeding. The acute effects of ATS intoxication may also contribute to some instances of speeding, but there was no significant association between frequency of ATS use and speeding offences.

No drug driving offences were recorded for this group of ATS users, and drug use was not recorded as a contributing factor in any crashes. However, there were high rates of self-reported drug driving. On the basis of these data, it is not clear to what extent the absence of offences and adverse outcomes was a consequence of under-detection, as opposed to the relative level of risk associated with ATS compared with alcohol consumption.

In light of the contribution of ATS use to dangerous driving, and drink-driving in particular, there may be some merit in reviewing law enforcement procedures to increase testing for ATS in cases where the driver exceeds the legal blood alcohol content. This may be especially worthwhile where a crash has occurred, so that the contribution of drug driving to crashes may be better understood. Future survey research could also gather more nuanced information regarding the quantity of alcohol and other drugs consumed prior to driving. These different measures may help to improve our understanding of the contribution of drug driving to adverse outcomes.

Targeted education for young adult, ATS-using drivers (and passengers) may also be worthwhile, with regard to both the masking effects of ATS on the subjective experience of alcohol intoxication and the likely level of impairment resulting from the combined use of alcohol and stimulants.

Contact with police

Contact with police was common among ATS users and non-users. Approximately half of ATS users (51%) and non-users (47%) had ever made contact with police themselves. In contrast, substance (ie alcohol or other drugs) related police contact initiated by the police or a third party was more common among ATS users, with significantly higher proportions of ATS users having ever had intensive substance-related contact such as being detained by police (ATS users: 46%; non-users: 11%) and non-intensive substance-related contact such as random breath tests (ATS users: 72%; non-users: 62%).

Participants' most recent substance-related contact generally occurred in public settings for both ATS users (75%) and non-users (62%). While perceptions of self-initiated police contact did not differ significantly between ATS users and non-users, ATS users reported significantly lower perceptions of police respect and trustworthiness in their most recent substance-related contact, and were significantly less satisfied with the contact compared with non-users. This may be linked to the types of police contact experienced by ATS users: compared with non-users, ATS users were more likely to have had both non-intensive and intensive substance-related police contact. However, there was no significant association between intensive patterns of ATS use—that is, at least weekly ecstasy or methamphetamine use in the last 12 months at baseline,

12 months, and 4½ years—and greater intensive substance-related police contact. This suggests that ATS users' less favourable views of substance-related police contact may be linked to both the types of police contact experienced by ATS users and engagement with drug-use subcultures, rather than particular patterns of ATS use. Young adults who use ATS may develop less favourable attitudes toward police through both their own substance-related contact with police and that of their drug-using peers, which is likely to be inherently negative due to the circumstances leading to the contact.

Perceptions of police and policing

Clear differences between ATS users' and non-users' perceptions of police and policing were evident. Compared with non-users, ATS users had lower levels of belief in procedural justice, police legitimacy and law legitimacy; were less committed (as a motivational posture) to police; evidenced lower levels support for drug-law enforcement; and were less willing to cooperate with police. However, it is important to note that ATS users were still generally supportive of police and the enforcement of drug laws. ATS users' less favourable views of police and policing, compared with those of non-users, may reflect the types of police contact experienced. Research suggests that individuals who experience police-initiated contact are generally less satisfied with their encounter than those who contact police themselves. Many of the encounters ATS users have with police would be inherently negative due to the circumstances leading to the encounter. It has been proposed that negative encounters with police may have a greater impact than positive encounters do. Significantly higher proportions of ATS users had experienced intensive (ATS users: 46%; non-users: 11%) and non-intensive (ATS users: 72%; non-users: 62%) substance-related contact with police, compared with non-users.

The study's findings provide some support for the use of procedural justice in promoting police legitimacy and increasing willingness to cooperate with police among ATS users. A strong belief in both procedural justice and police legitimacy was associated with a greater willingness to cooperate with police and greater support for drug-law enforcement among both ATS users and non-users. For ATS users, a strong belief in police legitimacy was also associated with more favourable perceptions of police fairness, respect and trustworthiness, as well as increased compliance with police during the most recent substance-related police contact and greater satisfaction with the encounter.

Behavioural change

Semi-structured interviews with 95 ATS users showed that, for a number of ATS users, substance-related contact with police was seen as a wake-up call and was often coupled with reduced drug use. Of the 59 ATS users who had substance-related police contact, 41 percent associated this contact with changes in their patterns of drug use. Among these ATS users, 42 percent reported that substance-related police contact led to reduced drug use or desistance from use, while 58 percent associated police contact with the adoption of more cautious drug-use behaviours to avoid detection and further contact with police. Quantitative data were analysed to assess whether police contact was associated with actual changes in ATS use. The proportion of users who desisted from ecstasy or methamphetamine use did not differ according to the level of contact with police. These patterns should be considered in the context of the overall trend toward decreased drug use as these young adults mature. Overall, the data suggest that different ATS users respond to police contact in different ways. The reasons for these differences merit further investigation; nonetheless, police contact may be an important catalyst in reducing drug use for some ATS users.

Study implications

- The study provides some unique information on the likelihood of certain undesirable consequences of ATS use including exposure to antisocial behaviour, intensive contact with police and being charged with a drug offence. This information could be incorporated into campaigns to discourage ATS use or encourage reduced and safer patterns of use among current users.

- This cohort of young adults generally consumed high volumes of alcohol during episodes of ATS use and levels of consumption, especially among young men, sometimes reached extreme levels (≥20 standard drinks). The volume of alcohol consumed on occasions of ATS use tended to greatly exceed the amount consumed on typical drinking occasions when ATS were not used. Consequently, for this segment of the population, policy issues around alcohol and ATS use should be considered in tandem; for example, the management of alcohol-related behaviour in public places cannot be considered a separate issue from the management of drug-related behaviour. Similarly, targeted harm-reduction initiatives could adopt an integrated approach, focused on minimising the harmful outcomes of combined alcohol and ATS use.
- ATS use contributes to dangerous driving. In particular, there is a strong and multifaceted relationship between drink-driving and levels of ATS use. Higher rates of other behaviours such as speeding were found among ATS users than among non-users. However, speeding behaviour may be more closely linked to personal traits such as aggression than to levels of ATS use. There may be merit in reviewing law enforcement procedures and increasing testing for ATS in a number of situations such as where the driver exceeds the legal blood alcohol content, where a crash has occurred and in instances of dangerous driving.
- Young adult ATS users are less willing to cooperate with police and comply with police orders than non-users. However, it appears that users' perceptions of procedural justice in police encounters may account for most of the difference between users and non-users. It may be worthwhile, with regard to police education and community policing initiatives, to consider strategies that could improve young adults' perceptions of procedural justice.
- Around 40 percent of ATS users who had intensive police contact related to their substance use, such as being searched, charged or detained for questioning, were motivated to reduce their substance use or be more cautious about their use following the encounter. This suggests police can play an important role not only with regard to formal diversion schemes, but also in relation to more informal warning, referral and education mechanisms.
- At a population level, the link between ATS users and property crime appears to be fairly weak. However, methamphetamine users were more likely to commit property crime than ecstasy users, with one in five committing some form of theft during the 4½ years of the study. Dependent methamphetamine use may be a marker of risk for this form of crime.
- The propensity for antisocial and violent behaviour appears to be significantly greater among regular methamphetamine users than regular ecstasy users; however, hazardous alcohol consumption, including the simultaneous consumption of alcohol and ATS, also appears to play a key role in eliciting such behaviour. Increasing access to methamphetamine treatment, including low-threshold services, may be an important element of strategies to reduce the rates of these behaviours. However, policies that aim to reduce the hazardous consumption of alcohol—with regard to both on- and off-licence consumption—must continue to be developed and evaluated.
- To a great extent, the link between ATS use and the most extreme instances of antisocial behaviour were accounted for by a lifetime history of conduct disorder. Nearly a quarter of young adult ATS users fulfilled the diagnostic criteria for conduct disorder at some stage of their lives. There was also an association between ATS dealing and the early onset of conduct disorder. School and community-based programs which engage with at-risk families and children may be critical in reducing levels of involvement in the most problematic forms of drug-related behaviour.
- The study findings should be considered within the context of the natural progression of ATS use in early adulthood. For most of this population of young adults, ATS use declined considerably as they entered their mid- to late twenties, largely in the absence of formal interventions. Alongside this decline in drug use, levels of drug market activity and antisocial activity decreased considerably. Most of these young adults are functional and engaged in career, family and other community interests; consequently, it may be worthwhile prioritising policies that promote the safety and wellbeing of ATS users during the predominantly transient phase of regular ATS use.

Introduction

Project background

This project was funded by the National Drug Law Enforcement Research Fund (NDLERF) to examine patterns and consequences of alcohol and illicit stimulant use among Australian young adults. This report considers the harmful consequences that are directly attributable to the concurrent use of alcohol and illicit stimulants, as opposed to those arising from the separate use of either substance. A number of problem behaviours that may be linked with alcohol and/or illicit stimulant use are examined. These include participation in illicit drug markets; aggressive, violent and antisocial behaviour; and driving under the influence of alcohol or other drugs. These behaviours often lead to contact with police; the nature and outcomes of such contact are also examined.

The project emerged within a policy and operational context of increasing concern about both alcohol consumption and ATS use. Both alcohol and ATS are linked with harmful and hazardous behaviours—most visibly in public, but also in private settings. These behaviours present obvious challenges for frontline workers. Preliminary evidence suggests that alcohol consumption levels may be especially high among ATS users compared with other young adults, raising the possibility of commensurate increases in levels of harm. However, little is known about the full extent and scope of concurrent alcohol and illicit stimulant use within the young adult population.

The project utilises an existing population-based cohort of young adult ATS users and non-users. At the time of this study the young adult cohort had been followed for 4½ years. They were recruited in 2009 between the ages of 19 and 23 years, and at the most recent follow-up they were around 24 to 27 years of age. The collection of information from this group on a number of occasions, spanning several years, thus enables the assessment of important drug-related changes or transitions that occur during early adulthood.

In addition, this young cohort comprises a group of ATS users and one of non-users. The ATS user group had used ecstasy and/or methamphetamine repeatedly prior to recruitment and the non-user group had never used ATS. By comparing the behaviour of these two groups, it may be possible to identify the relative contributions of ATS and alcohol use to various health and social outcomes.

The study aimed to:

- determine the extent to which the concurrent use of illicit stimulants and alcohol is associated with traffic offences and other offending behaviour (eg violence), being a victim of crime, and having contact with police;
- understand population-level patterns of ATS market involvement among young adults, including structural aspects of market involvement (eg open versus closed markets) and the consequences of involvement—specifically, whether ATS market involvement is associated with access to other substances, levels of consumption of licit and illicit drugs, offending behaviour (including traffic offences and violence), being a victim of crime, and contact with police;
- examine the antecedents and circumstances of ATS users' and non-users' contact with police including the location of police contact, the reason for contact and how the interaction was perceived (eg professional, respectful, fair etc); and
- examine the consequences of police contact with regard to cooperation with police, including crime reporting and compliance with police requests, and the individual and criminal justice outcomes, including subsequent drug and alcohol consumption and other offending behaviour.

Report structure

The report consists of five main chapters addressing ATS use and illicit drug market involvement, offending behaviour, driving behaviour and traffic offences, contact with police and outcomes of police contact.

Chapter 1 is concerned with ATS use and drug market involvement. This chapter provides details of ATS users' and non-users' patterns of drug use at the study baseline and the 4½-year follow-up, as well as their typical patterns of alcohol consumption. The nature of ATS users' drug market involvement is examined, comprising their ecstasy and methamphetamine buying patterns—including their usual drug sources, the extent and possible outcomes of their contact with ATS dealers, and the extent of their selling ATS with or without profit—and factors that may be related to selling such as levels of drug use and police contact.

Chapter 2 looks at the offending behaviour of ATS users and non-users, comparing aggressive traits, public nuisance behaviour, intimate partner violence, property crime and drug-related offences. Because of recognised gender differences in aggression and associated behaviours, separate comparisons are conducted for male and female ATS users and non-users. Differences in ATS users' levels of ecstasy, methamphetamine and alcohol use are also examined.

Chapter 3, concerning driving and traffic offences, utilises two sources of data. Firstly, participants' self-reported driving risk behaviour is considered. Secondly, driving histories obtained from the Department of Transport and Main Roads are analysed, including driving offences—especially drug and drink-driving and speeding offences—crashes and contributing factors. A key objective is to examine the extent to which traffic offences and related harms are associated with different patterns of alcohol and/or illicit stimulant use. The extent to which illicit stimulant use is independently associated with the occurrence of dangerous driving, traffic accidents and related harms has not been previously explored. Data linkage was included as a data collection strategy in the current research because it may increase the veracity of findings that would otherwise be derived from self-reported survey data. Linkage with administrative data such as driving records is valuable because it provides reliable information about relevant behaviour and enables some assessment of the likely health and social burdens of this behaviour. The population-based sampling approach used in the Natural History Study of Drug Use (NHSDU) means that population parameter estimates based on the results of the data linkage can be developed. The use of a comparison group in this study also allows the behaviour of drug users and non-users to be compared.

Chapter 4 looks at different types of contact with police among young adult ATS users and non-users, and their perceptions of their interactions with police during recent encounters. Self-initiated contact—such as calls for assistance—is examined, as is substance-related police contact initiated by police or a third party, including random breath tests (RBTs) and being stopped by police patrolling a public area. Particular attention is given to intensive contact between ATS users and police which was in some way related to drug or alcohol use. Examples of intensive contact include being questioned or detained by police in relation to drug or alcohol use, being searched by police or checked by sniffer dogs, being charged or arrested for a drug- or alcohol-related offence, or being tested for drug or drink-driving in cases where the participant was over the legal alcohol limit or drugs were detected. Various aspects of recent police encounters are assessed including perceptions of police behaviour, the participant's own behaviour, the procedural fairness of the encounter and the participant's satisfaction with the encounter.

In chapter 5, ATS users' and non-users' views of police and policing are examined, focusing on perceptions of police and policing (ie belief in procedural justice, police legitimacy and law legitimacy) and how these views affect willingness to cooperate with police and support for drug-law enforcement. This chapter also considers the likely impact of general views of police and policing on how encounters with police are interpreted and, conversely, how encounters with police influence more general attitudes toward police and policing. Chapter 5 also examines the potential outcomes of substance-related police contact for ATS users, including contact with health services for drug-related issues and changes in patterns of drug use. Chapters 4 and 5 also draw on semi-structured interviews with participants pertaining to alcohol- or drug-related encounters with police.

Drug use and drug market involvement

One objective of this study was to examine young adults' levels of alcohol, ATS and other drug use, alongside their levels of involvement in the illicit drug market. The project differs from other research concerning ATS markets in that the sample is drawn from a probabilistic, or randomly derived, sampling frame. In other words, the sample is broadly representative of young adults who repeatedly use ATS (and young adults who have never used). Other Australian studies of drug markets predominantly use convenience or targeted samples of frequent or problematic drug users, including those who respond to study advertisements and people interviewed following their arrest. While these studies are principally concerned with market surveillance, including trends in drug prices, purity and availability, the present study is concerned with aspects of young adult ATS users' behaviour over time, including contact with dealers and the selling of ATS, and the outcomes of these activities. From these data it is possible to estimate how common different types of behaviours are.

The nature of drug users' contact with the drug market—buying, selling, and other drug transactions—varies according to drug types, geographic and social settings and periods of time (Hoffer, Bobashev & Morris 2009; May & Hough 2004). Motivations for drug dealing, and the business models used by dealers, can also differ across drug types and settings (May & Hough 2004; Sales & Murphy 2007). The nature of the social and physical harm arising from drug markets is partly determined by the structure of the market. For example, open street-based drug markets are often associated with a high degree of public disorder and violence (May & Hough 2004; Small et al. 2013). Closed markets, where the dealer primarily sells only to a known set of drug users, might conceivably be associated with lower risk and fewer harmful outcomes, but less is known about closed markets compared with more visible drug dealing. Ecstasy dealing may constitute a special form of closed market. Surveys of Australian ecstasy users suggest that most selling of ecstasy occurs peer to peer (Sindicich et al. 2009). Although many methamphetamine users may also source their drugs from friends, it is not clear how similar the market structure is to that for ecstasy. Drug-use patterns may influence the types of drug acquisition practices young adults are willing to engage in. In particular drug dependence, which is more often a feature of methamphetamine use than ecstasy use, may drive people to take greater risks and use a higher number of drug sources.

Alcohol and stimulant use

The central focus of this study is young adults' use of alcohol and illicit stimulants on a concurrent or separate basis. It has long been observed that high-volume alcohol consumption is more common during early adulthood than during other stages of life (Chen & Kandel, 1995). Early adulthood is also when the probability of using illicit drugs, including cannabis and stimulants, is at its highest. Despite some recent small decreases in the proportion of the population drinking at risky levels, young adults' rates of hazardous alcohol consumption remain very high, with young men drinking more than their female counterparts (Australian Institute of Health and Welfare, 2014). Further, it appears that, for women at least, the current generation of young adults may consume greater quantities of alcohol than their parents did at that age (Alati, Betts, Williams, Najman & Hall 2014).

There is some evidence that population levels of alcohol consumption among Australian young adults may be linked with involvement in illicit stimulant use, although the nature of this association is not well understood. Young adults' use of either alcohol or illicit stimulants, such as ecstasy, methamphetamine or cocaine, tends to occur in social situations. To a large extent this social use occurs in licensed venues, including bars and nightclubs; thus some of the same motivations and outcome expectancies (ie, beliefs about the consequences of substance use) may apply to both alcohol and stimulant use. However, rates of hazardous alcohol use are highest among those who consume alcohol both at licensed venues and off-license, in private settings (McKetin, Livingston, Chalmers & Bright 2014).

Antisocial behaviour

Apart from the long-term risks of heavy alcohol consumption, the volume of alcohol consumed during single episodes is linked with adverse health and social outcomes in the short term. Alcohol consumption is positively correlated with a number of adverse events including antisocial behaviour, aggression and violence such as domestic violence, and public assaults. Although alcohol-related assaults in community settings are often a focus of media and public attention, alcohol consumption is of concern in both public and private settings (Livingston 2013; MacLean & Callinan 2013). Methamphetamine use is similarly linked with aggression and violent behaviour. Both alcohol and methamphetamine can elicit aggressive behaviour, especially among those who have aggressive traits (ie a predisposition to aggression). Both drugs affect cognitive functioning in ways that increase the likelihood that environmental stimuli will be interpreted as hostile or threatening. In high-level methamphetamine use the perceptual disturbances can be particularly severe and may include symptoms of psychosis. Similarly, both alcohol and methamphetamine impact on the regulation of impulsivity and responses to perceived threats. However, while there has been substantial research concerning aggression and the use of alcohol or methamphetamine, respectively, relatively little is known about how the combined use of alcohol and methamphetamine affects aggressive behaviour. An Australian study of methamphetamine treatment clients indicated that some of the variance in the methamphetamine-related violence of this group was accounted for by levels of alcohol consumption (McKetin, Lubman et al. 2014). Thus, it is plausible that alcohol and methamphetamine may combine or interact in ways that result in a profile of aggressive behaviour that differs from the separate use of either drug. This may include the increased activation of aggressive impulses.

To compound the problematic outcomes for this age group, young adults may respond differently to the same volume of alcohol consumption compared with older age groups (Dietze, Room, Jolley, Matthews & Chikritzhs 2011). An Australian study found that rates of problematic behaviour were higher among young adults after drinking levels were controlled for (Livingston & Room 2009). This was the case for a range of outcomes including delinquent behaviours such as theft and verbal or physical abuse, and also for hazardous behaviours such as drink-driving or going to work intoxicated. A number of possible causes of these age-related differences have been proposed, including the lower body mass of younger drinkers and a lack of experience in consuming alcohol. Alternatively, high levels of alcohol consumption may also be a marker for a cluster of problem behaviours, including drug use and delinquency, which for many young adults may commence in adolescence (Degenhardt et al. 2013; Hemphill et al. 2014). Consequently, it is important to take into account factors such as a history of conduct disorder when examining the relationship between relevant behaviours and the use of alcohol and illicit stimulants.

Comparisons between young and older adults may also be affected by ceiling effects with regard to measurements of the volume of alcohol consumed. The volume of alcohol typically consumed by a considerable proportion of Australian young adults, especially young men, appears to be extreme by comparison with population norms. Notions of what is normal drinking behaviour may vary between different population groups, including different groups of young adults. It appears that a majority of adults are aware of the recommended thresholds for low-risk drinking but do not apply these thresholds to their own behaviour, especially with regard to the limits for reducing short-term risk (Bowring et al. 2012). Further, heavier drinkers may be more likely to overestimate the appropriate threshold number of drinks (Livingston 2012). Factors such as young adults' social norms and substance-use expectancies may outweigh any consideration of official guidelines. Variations in drinking behaviour and related norms raise the possibility that involvement in illicit drug use could contribute to extreme drinking behaviour, especially given that alcohol and stimulant consumption often occur in the same social settings (McKetin, Livingston et al. 2014). Expectancies around the combined use of stimulants and alcohol have not been adequately examined.

Dangerous driving

High-level alcohol consumption is a major contributor to motor vehicle crashes, with young adults disproportionately represented in these events (Lam 2003). Alcohol use is also linked with the severity of crashes. Experimental research provides mixed evidence for the effects of acute ATS intoxication on driving performance, including improvement in some performance tasks (Ramaekers, Kuypers & Samyn 2006; Silber et al. 2012). However, ATS effects do not compensate for alcohol-related impairment, and there may be additional deleterious effects of stimulant-alcohol combinations (Kuypers, Samyn & Ramaekers 2006; Veldstra et al. 2012). Experimental data also indicate that people overestimate their driving performance when under the influence of stimulants and alcohol, perhaps due to the masking effect of the stimulants and subjective feelings of confidence. Further, withdrawal from stimulants and stimulant-related sleep deprivation may significantly impair driving performance (Logan 1996). These findings indicate that stimulant use, especially in combination with alcohol, may contribute to dangerous driving and crashes.

The available epidemiological evidence is inconclusive with regard to the unique contribution of illicit stimulant use to dangerous driving and crashes (incidence or consequences). In Victorian roadside drug tests up to the end of 2009, drugs were detected at a ratio of 1:64 drivers (Chu et al. 2012). Methamphetamine was the most common drug detected. Of all oral fluid specimens sent for laboratory analysis, 77 percent were positive for methamphetamine, 42 percent for THC, and 17 percent for MDMA. Australian hospital and other administrative data on drivers injured—fatally or non-fatally—in crashes showed methamphetamine was present in three to four percent of cases and MDMA in less than one percent, compared with around 30 percent with blood alcohol content less than or equal to 0.05 (Ch'ng et al. 2007; Drummer et al. 2003; Drummer et al. 2012). The data suggest that in around one in ten cases there is a combination of alcohol and other drugs present. However, it is not clear what proportion of injured drivers who were under the influence of stimulants were also under the influence of alcohol. Australian studies surveying regular stimulant users (recruited through convenience sampling) and club patrons indicate that about half have driven under the influence of illicit drugs, including stimulants (Duff & Rowland 2006; Matthews et al. 2009). One of these studies indicated the risk of drug driving may be associated with the frequency of stimulant use. However, another survey of Australian club patrons indicated that 65 percent supported roadside drug testing and 40 percent said that it would change their behaviour (Degenhardt, Dillon, Duff & Ross 2006).

In addition, stimulants may impair decision-making regarding whether to drive after consuming alcohol, due to the stimulant's effect of increased confidence and its potential masking of the subjective effects of alcohol intoxication. However, there is a lack of information regarding the actual impact at a population level of stimulant use on driving behaviour and crashes. With regard to the possible scope of this problem, it is worth considering the possible effect of stimulant use on other common forms of dangerous driving behaviour, particularly speeding.

There are two possible mechanisms which suggest that stimulant users may commit speeding offences more often than other young adults. Firstly, the subjective effects of stimulants such as increased confidence and excitement could increase the likelihood that a person engages in this behaviour. Secondly, stimulant users may be more likely to have a risk-taking or sensation-seeking disposition, which means they are likely to speed (Bosanquet et al. 2013). These explanations are not mutually exclusive. It is possible that the effects of a drug may activate a disposition toward risky driving practices.

Police contact and perceptions

Effective policing is largely reliant on the support and voluntary cooperation of the public (Murphy 2009). Contact with police, and how an individual interprets their treatment by police during that contact, has a significant impact on attitudes towards police and influences an individual's willingness to cooperate with, and their support for, the police (Tyler 1990). Compared with older age groups, young adults are more likely to experience contact with police as either perpetrators or victims of crime (Skogan, 2006), and are also at the

peak age for harmful levels of alcohol and other drug use (Stone, Becker, Huber & Catalano 2012). Drug-using young adults may be even more likely than non-using young adults to encounter police due to their deviant behaviour (Sutherland & Shepherd 2001). Procedural justice, which is concerned with fairness of treatment and decision-making during encounters with police, has been shown to influence people's willingness to cooperate with the police and helps to enhance compliance with the laws police enforce (Jackson et al. 2012; Mazerolle, Bennett, Davis, Sargeant & Manning 2013; Tankebe 2013). However, little is known about perceptions of police and policing, and the effectiveness of procedural justice in influencing these perceptions, among groups who engage in deviant behaviour such as illicit drug use (Papachristos, Meares & Fagan 2012).

Engagement with and acceptance of deviant subcultures such as drug-use subcultures has been associated with less favourable views of police and policing (Jang, Joo & Zhao 2010; Schuck 2013). Procedurally just police encounters with drug-using young adults may be particularly beneficial for police if these encounters can effectively enhance drug-using young adults' perceptions of police, their willingness to cooperate and their compliance with the law. Available research from gun offenders (Papachristos et al. 2012), prison inmates (Liebling 2004; Liebling & Crewe 2010) and perpetrators of interpersonal violence (Paternoster, Brame & Sherman 1997) provide support for the proposition that in some offending populations procedural justice can play a role in influencing or altering perceptions of police and policing and also in individuals' behaviour.

Behavioural outcomes of police and treatment contact

The majority of ATS users engage in recreational ATS use; however, a sizable proportion of ATS users develop dependence and experience chronic health issues resulting from their use (Sara, Burgess, Mahli & Whiteford 2011). Tait and colleagues (2012) propose that, in order to reduce harms among ATS users, a two-pronged approach is required that focuses on developing effective management strategies for ATS use and improving treatment accessibility for ATS users. As ATS-using young adults may be more likely to experience contact with police compared with non-using young adults and older age groups, police contact may be an important context for directing problematic ATS users towards drug-treatment services. Psychological interventions such as cognitive behaviour therapy have been shown to be effective in reducing patterns of amphetamine use (Baker et al. 2005; Colfax et al. 2010).

In 2012–13, amphetamines and alcohol were the principal drugs of concern in 14 percent and 41 percent, respectively, of closed treatment episodes at public alcohol and other drug (AOD) treatment services in Australia (AIHW 2014). In contrast, ecstasy was the principal drug of concern in less than one percent of closed treatment episodes (AIHW 2014). This raises a number of questions regarding treatment services' engagement with different patterns of AOD use. Is there a lack of engagement with ATS users or appropriate treatment services for ATS use? Service needs are likely to differ between ATS users and individuals seeking treatment for other substance use such as alcohol. In addition, service needs may differ between methamphetamine users and ecstasy users. Alternatively, as ecstasy use is largely recreational, there may be less need or motivation for treatment among ecstasy users. There is a need to develop novel treatment services that are appropriate for and well accepted by ATS users, including services that are accessible outside of mainstream specialist treatment services (Tait et al. 2012). Low-threshold treatment services, which have the potential to increase accessibility to a larger range of individuals by lowering admission thresholds (UNODC 2008), may be an effective strategy for increasing treatment service access for ATS users.

Methodology

Background

This cohort was originally established as part of an ARC Linkage study administered by the University of Queensland and involving Queensland Health and the Crime and Misconduct Commission. The study was

initiated in response to growing concern about high levels of ATS use and a lack of knowledge about the patterns and consequences of long-term use. The study was designed to increase understanding of ATS use during early adulthood from a life course or 'natural history' perspective. Since the study commenced in 2008 there have been five waves of data collection, the last occurring in 2013–14.

Participants

The data for this study were collected from the NHSDU cohort. The NHSDU used a novel application of population screening to develop a probabilistic sampling frame of young adult users and non-users of amphetamine-type stimulants—that is, ecstasy (MDMA) and methamphetamine. In late 2008 a pilot study of the population screening method was conducted which supported the feasibility of screening using a mail-out questionnaire, supported by a $5 incentive and intensive telephone and postal follow-up to maximise the response rate. The main screening and recruitment phases of the study followed during 2009. A one-page screening questionnaire, including questions about lifetime use of alcohol, tobacco, cannabis, ecstasy and methamphetamine, was sent to 12,118 young adults living in Brisbane or on the Gold Coast, Queensland. The number selected comprised nearly 10 percent of the young adults residing in these areas at the time. This screening sample consisted of a random selection of young adults, aged 19 to 23 years in 2009, registered on the electoral roll for either of these areas. In June 2008 the Australian electoral roll comprised 92 percent of eligible voters (Australian citizens aged 18 years and older) and 82 percent of eligible 18 to 25 year olds (Australian Electoral Commission 2008). At the time this project was conducted, the participants were 23 to 27 years of age.

Respondents who indicated they had used ecstasy or methamphetamine three or more times in the last 12 months—that is, ATS users—were eligible to be recruited to the main study group. This inclusion criterion was used to ensure the sample represented recurrent users of ATS, rather than young adults who were experimenting or using as a one-off. Those respondents who indicated they had never used ATS—that is, ATS non-users—were eligible to be recruited to the comparison group. Because the study was concerned with differentiating long-term patterns of behaviour on the basis of ATS use, the eligibility requirements for the comparison group did not extend to the non-use of other drugs; thus, some members of the comparison group had used cannabis and other illegal drugs. However, ATS use is generally considered to be an indicator of greater use of a variety of drugs, including cannabis. This is borne out by the current study. Levels of cannabis use in the comparison group are very low when juxtaposed with those of the main study group. Interestingly, as described in this report, it also appears that levels of alcohol use and concomitant harms are much higher among the ATS users compared with the non-users. The study's sampling method and recruitment outcomes are described in greater detail elsewhere (Smirnov, Kemp, Wells, Legosz & Najman 2014).

Data collection

The NHSDU has so far been conducted across five waves of data collection for the main study group and four waves for the comparison group. Data were collected at baseline through a face-to-face interview; at six months by internet survey (ATS users only); at 12 months face-to-face; at 30 months via the internet; and, most recently, at 54 months (4½ years) face-to-face. The data for the present study were principally collected at 4½ years, although data from other intervals has also been used to enable some understanding of longitudinal relationships between drug use and 'problem' behaviours.

Participant retention rates for the NHSDU have been reasonably good. Rates have varied slightly between face-to-face and internet data collection modes due to the availability of participants and their capacity or willingness to attend interviews in person. A substantial minority of participants were living overseas or interstate, including in regional areas of Australia, at the time of the last interview; consequently many interviews were completed by Skype or telephone, with some ancillary data collection completed via the

internet. Around 80 percent of the cohort (78% of ATS users and 83% of non-users) completed the 4½-year face-to-face interview and more than 85 percent have indicated they are willing to be involved in future study waves, especially through the use of internet surveys.

Any systematic bias due to non-response appears to be negligible with regard to the drug use behaviours examined in this study. Further, on the basis of feedback from participants, it appears that non-response is principally due to issues of availability for research.

Table A: Recruitment and attrition of established study cohort, 2008–2011

Year	Activity and response	
2008	Random population screening activity: 12,079 valid screening questionnaires sent to valid addresses, 6,027 complete screeners returned, 49.9% response.	
	ATS using group	Comparison group (never used ATS)
2009	Pool of 522 eligible respondents, 67.4% were available and agreed to participate (*n*=352)	Pool of 4,682 eligible respondents; 320 were randomly selected for the study, and of these 63.8% were available and agreed to participate (*n*=204)
2009	Baseline face-to-face interview: *n*=352	Baseline face-to-face interview: *n*=204
2009–10	6-month follow-up internet survey: *n*=335, participation rate 95.2%	6-month follow-up internet survey: *n*=201, participation rate 98.5%
2010	12-month face-to-face interview: *n*=315, participation rate 89.5%	No 12-month face-to-face interview was conducted for comparison group
2011	30-month follow-up internet survey: *n*=319, participation rate 90.6%	30-month follow-up internet survey: *n*=190, participation rate 93.1%
2013–14	54 month (4½-year) follow-up face-to-face survey: *n*=274, participation rate 77.8%	54 month (4½-year) follow-up face-to-face survey: *n*=169, participation rate 82.8%

Data linkage

Data linkage with the Department of Transport and Main Roads (TMR) was conducted with the consent of participants who held, or had ever held, a Queensland driver's licence. This data linkage was conducted with advice from staff from the Centre for Accident Research and Road Safety—Queensland (CARRS-Q). Provision for access to driver record information for research purposes was made under the Transport Operations (Road Use Management) Act 1995 (Qld). The process involved a one-way linkage, where identifying details including licence numbers (ie customer reference numbers or CRNs) were provided to TMR solely for the purpose of data extraction. No NHSDU study data or other details of study involvement were provided to TMR. The data extracts comprise details of each driver's traffic history including any driving offences; licence history, including suspensions; and crash history, including the factors contributing to crashes. Data extracts were requested retrospectively and prospectively, covering the five years prior to and the five years following September/October 2013, when fieldwork for the 4½-year follow-up commenced. The use of this data-linkage timeframe allows the study to record all relevant activity for this cohort that occurred during early adulthood. The prospective traffic data will be examined in subsequent publications.

In total, 352 participants (63.3% of the total study sample; 79.5% of participants who completed an interview for the fifth wave) consented to driver-record data linkage with TMR. This comprised 217 ATS group participants (61.6% of the total ATS group sample; 79.2% of the ATS group participants who completed an interview for the fifth wave) and 135 comparison group participants (66.2% of the total comparison group sample; 79.9% of the comparison group participants who completed an interview for the fifth wave).

Sample profile

Because of the population-based sampling approach used in this study, this cohort of ATS users differed in several respects from other Australian samples of ATS users, representing a greater variety of ATS-use patterns and reflecting the range of behaviour occurring in the population. ATS users did not differ markedly from the comparison group of non-users in education and employment. ATS users earned more than non-users at the study baseline, which probably reflects a tendency for earlier departure from school or other educational institutions and earlier involvement in the workforce. A greater proportion of ATS users had completed trade and TAFE qualifications. At the 4½-year follow-up, almost identical proportions of ATS users had completed a tertiary qualification of some type, including trade and TAFE qualifications, and were involved in full-time or part-time employment. There was no significant difference between the income levels of ATS users and non-users at 4½ years. The ATS users thus comprise a reasonably functional group of young adults.

Most of the ATS-using cohort had regularly used ecstasy, and a subgroup had also used methamphetamine. This reflects the higher population prevalence of ecstasy use compared with methamphetamine use at the time of recruitment into the study. Different types of ecstasy-use trajectories have been identified in this group (Smirnov et al. 2013). All ecstasy-use trajectories declined within a 30-month period of follow-up. A majority of users (56.2%) were on an intermediate-use trajectory—using slightly more than once a month and quickly declining to using less than once a month. A substantial proportion (35.7%) were on a low-use trajectory characterised by stable patterns of very minimal use; they used less than once a month. A minority (8.1%) were on a high-use trajectory. At the peak of this trajectory, participants were using one to two times a week, but this peak rapidly escalated and de-escalated within the space of 12 months. At the end of 30 months, members of this group tended to use ecstasy less than twice a month.

Table B: Sample characteristics—ATS group (*n*=346) vs comparison group (*n*=200)

	Sample characteristics		
	ATS group - % *n*=346	Comparison group - % *n*=200	Test statistic
Age at baseline			
Mean (standard deviation)	20.8 years (1.17)	20.8 years (1.31)	t=0.88
Range	19–23 years	19–23 years	
Sex			
Female	50.0	60.0	2=5.10*
Male	50.0	40.0	
Education at baseline			
Completed high school	66.5	77.0	2=6.73**
Tertiary education[a]			
Completed tertiary education	71.7	72.5	2=0.04
Income at baseline			
0–999	48.0	72.5	
1,000–1,299	21.7	8.0	
1,300–1,599	15.9	11.0	
1,600–1,999	7.2	5.0	
>2,000	7.2	3.5	2=33.74***
Employed at baseline			
Full-time	46.0	28.4	

Part-time	39.7	53.9	2=16.79***
Income at 4½ years			
0–999	23.0	26.4	
1,000–1,299	10.7	8.6	
1,300–1,599	19.6	18.4	
1,600–1,999	25.9	25.8	
>2,000	20.7	20.9	2=1.04
Employed at 4½ years			
Full-time	64.1	64.3	
Part-time	21.5	19.6	2=0.35

* $p<0.05$

* $p<0.01$

*** $p<0.001$

a: Measured at baseline and 30-month follow-up; tertiary education refers to university, technical and further education (TAFE) or trade qualifications

Measures

Buss-Perry Aggression Questionnaire—physical aggression scale

The Buss-Perry Aggression Questionnaire measures levels of trait aggression, or in other words, individual disposition toward aggressive behaviour, including physical aggression. The physical aggression (PA) scale is one of four factors in the Buss-Perry Aggression Questionnaire (the others being verbal aggression, hostility and anger). The PA scale has been tested in many settings. Confirmatory factor analyses and comparisons with other measures of aggression support the construct validity of the scale and indicate that it is generalisable to different populations (Buss & Perry 1992; Gerevich, Bacskai & Czobor 2007; Harris 1996). The PA scale has high internal consistency (Cronbach's alpha 0.75 to 0.85) and test-retest reliability (0.75 to 0.86). The scale appears to be unaffected by sex bias but there is some evidence of social desirability bias (Condon, Morales-Vives, Ferrando & Vigil-Colet 2006; Harris 1996). Further, it is strongly related to measures of acts of direct physical aggression, especially aggression toward another person of the same sex (Archer & Webb 2006). Scores on the PA scale are significantly higher among male respondents and younger adults (Gerevich et al. 2007). The scale has been widely used in research examining the relationship between consumption of alcohol and other drugs and aggressive behaviour (Giancola 2002; Skara et al. 2008; Tremblay, Graham & Wells 2008).

Conflict tactics scales

The conflict tactics scales (CTS) were developed to measure the use of reasoning, verbal aggression and violence within families and, with respect to the version used in this study, within intimate relationships in particular. The CTS comprise a series of questions about the respondent's behaviour within the relationship and a series of matching questions about the behaviour of the respondent's partner. In research involving couples where confidentiality has been guaranteed, high rates of inter-partner agreement have been found with regard to aggregate scores of abuse and victimisation (Moffitt et al. 1997). Different findings have been found for young adults compared with other population groups in the context of dating violence, with female participants exhibiting relative high rates of violent perpetration (Jain, Buka, Subramanian & Molnar 2010).

Drug market questions

The drug market questions for this project were originally developed by the Queensland Alcohol and Drug Research and Education Centre (QADREC), Queensland Health, and the Crime and Misconduct Commission at the outset of the NHSDU in 2008–09. The questions have undergone some refinement in subsequent waves of fieldwork, but essentially the same set has been asked at each of the face-to-face interviews. Consequently, some of the variables used in this report are composite measures of drug market involvement throughout the course of the study. In particular, variables were created regarding the extent to which ecstasy and methamphetamine were acquired from dealers. Participants were asked, at each of the three face-to-face study intervals (baseline, 12 months and 4½ years), whether they sometimes or always acquired their ecstasy or methamphetamine from a dealer. The responses were categorised according to the number of intervals at which contact with dealers was reported—that is, no acquisition from dealers, acquisition from dealers at one time interval, or acquisition from dealers at greater than one time interval. Other variables, as required, have only used the most recent 4½-year data collection. These include variables assessing different sources of ecstasy and methamphetamine over the last 12 months, and the range of different drugs used over the same period.

Contact with police: self-initiated

To measure self-initiated contact with police, participants were asked whether they had ever made contact with police—for example, to report a crime or seek assistance. Focusing on the most recent self-initiated contact with police, the study asked participants who reported self-initiated police contact what the reason for contact was—whether the user was involved in a traffic accident, victim of a crime, being threatened, requiring assistance or other—and the location of the most recent contact—their own residence, a private dwelling, on the street, in a nightclub, in a pub/bar, at a music/dance festival, while driving or other.

Contact with police: substance- (ie alcohol and other drug) related

To measure substance-related police contact, participants were asked whether police had ever made contact with them that was in any way related to their own drug or alcohol use. Participants who reported substance-related contact were asked how many times police had made intensive substance-related contact with them, including occasions such as being questioned or detained by police, searched by police or sniffer dogs, or charged or arrested for a drug- or alcohol-related offence, including drug and drink-driving. To explore the context of police contact, participants who reported intensive substance-related contact were asked the reason for the most recent contact—whether speeding, driving under the influence of alcohol and/or other drugs, police patrolling a public area, police patrolling with sniffer dogs, police investigating a noise or disturbance, asking police for information, informal contact or other—and where the contact occurred, whether at their own residence, a private dwelling, on the street, in a nightclub, in a pub/bar, at a music/dance festival, while driving or other.

Intensive ecstasy and methamphetamine use

To measure intensive patterns of ecstasy and methamphetamine use among ATS users two variables, one for ecstasy use and one for methamphetamine use, were created using data from the baseline interview and the 12-month and 4½-year follow-up interviews. ATS users were categorised into one of two groups based on frequency of ecstasy/methamphetamine use: intensive use and non-intensive use. Intensive use was defined as weekly or more frequent use in the last 12 months at baseline, 12-month follow-up or 4½ -year follow-up. Conversely, non-intensive use refers to less than weekly use at baseline, 12-month follow-up, and 4½ -year follow-up.

Perceptions of most recent contact with police (self-initiated and police-initiated)

A section of the survey aimed to examine participants' perceptions of police specifically in relation to their most recent encounter with police. These same questions were asked in relation to both participants' most recent self-initiated contact with police and their most recent substance-related police contact. The survey questions were drawn from the work of Murphy and Mearns (2008) and have also been used to examine specific police-citizen interactions by Mazerolle and colleagues (2011). Participants were asked to indicate how strongly they agreed or disagreed on a five-point Likert scale (1=strongly disagree; 5=strongly agree). Questions were as follows:

- Perception of police fairness scale:
  - The police officer was fair.
  - The police officer gave me the opportunity to express my views.
  - The police officer listened to me during the encounter.
- Perception of police respect scale:
  - The police officer treated me with dignity and respect.
  - The police officer was polite when dealing with me.
- Perception of police trustworthiness scale:
  - I felt that the police officer was trustworthy.
  - I had confidence that the police officer was doing the right thing.
- Perception of participant compliance scale:
  - I did as I was told by the police officer.
  - I felt obligated to do as I was told.
- Satisfaction with encounter scale:
  - I felt the police officer did a good job.
  - I was satisfied with the way the police officer conducted the interaction.
  - I was satisfied with how I was treated.
  - I was satisfied with the outcome.

Procedural justice, police legitimacy, and law legitimacy

To measure general perceptions of police and policing, a section of the survey focused on participants' belief in procedural justice, police legitimacy and law legitimacy. The survey questions were drawn from Mazerolle and colleagues' (2012) reduced scales for procedural justice, police legitimacy and law legitimacy, which are based on procedural justice and police legitimacy research from Australia and the United States (see Murphy & Hinds 2007; Murphy, Hinds & Fleming 2008; Murphy, Murphy & Mearns 2010a; 2010b; Sunshine & Tyler 2003; Tyler 1990; Tyler & Huo 2002). For the questions below, participants were asked to indicate how much they agreed or disagreed on a five-point Likert scale (1=strongly disagree; 5=strongly agree).

- Belief in procedural justice scale:
  - Police try to be fair when making decisions.
  - Police treat people fairly.
  - Police treat people with dignity and respect.
  - Police are always polite when dealing with people.
  - Police listen to people before making decisions.
  - Police make decisions based upon facts, not their personal biases or opinions.
  - Police respect people's rights when decisions are made.

- Belief in police legitimacy scale:
  - Overall, I think the police are doing a good job in my community.
  - I trust the police in my community.
  - I have confidence in the police in my community.
  - Respect for police is an important value for people to have.
  - I feel a moral obligation to obey the police.
- Belief in law legitimacy scale:
  - You should always obey the law even if it goes against what you think is right.
  - I feel a moral obligation to obey the law.
  - People should do what our laws tell them to do even if they disagree with them.
  - Disobeying the law is sometimes justified (reverse coded).

Commitment to police

The motivational posture of 'commitment', based on the motivational posturing work of Braithwaite (2003), represents close ties between an individual and an authority and has been shown to be related to an individual's willingness to comply with the rules and decisions of an authority. Three questions were used to measure participants' commitment to the police. These questions were drawn from the work of Murphy and colleagues (Murphy et al. 2010a; 2010b) and were measured using a five-point Likert scale (1=strongly disagree; 5=strongly agree).

- Commitment to police scale:
  - I obey the police with good will.
  - Obeying the police is the right thing to do.
  - I feel a strong commitment to help police.

Self-reported willingness to cooperate with police

To measure their willingness to cooperate with police, participants were asked how likely or unlikely they would be to cooperate with police in four scenarios using a five-point Likert scale (1=very unlikely; 5=very likely). The items below have been used to represent cooperation with the police in both Australian and United States research (see Murphy, Hinds & Fleming 2009; Sunshine & Tyler 2003).

- Self-reported willingness to cooperate with police scale:
  - How likely would you be to call police to report a crime?
  - How likely would you be to help police find someone suspected of committing a crime by providing them with information?
  - How likely would you be to report dangerous or suspicious activities to police?
  - How likely would you be to willingly assist police if asked?

Attitudes toward drug-law enforcement

The study developed two questions to measure participants' attitudes towards drug-law enforcement. Participants were asked to indicate on a five-point Likert scale (1=strongly disagree; 5=strongly agree) how much they agreed with each statement. Statements were as follows:

- The activity of the police related to the enforcement of drug laws is generally beneficial to the community.
- The current drug laws are appropriate for safeguarding the community.

Potential outcomes of substance-related police contact: Drug offences and contact with health services for substance-related health issues

To examine outcomes of substance-related police contact, participants were asked if they had ever been charged with a drug-related offence, for example possession of a dangerous drug or supply of a dangerous drug. To measure contact with health services for substance-related issues, participants were asked if they had been to a health service for help with any substance (i.e., alcohol, tobacco, or other drugs) related health issue. Health services included: family doctors or general practitioners, hospital emergency departments, alcohol and drug treatment services, allied health professionals such as nutritionists or physiotherapists, and alternative health practitioners such as naturopaths or acupuncturists. Contact with health services for substance-related health issues was measured at baseline (ever had contact) and 12-month follow-up (last 12 months contact). A single variable was created to measure those who had ever had contact with a health service for substance-related health issues at baseline or 12-month follow-up.

Data analysis

Pearson chi-square tests were used throughout the report to examine relationships among pairs of categorical variables, usually concerned with young adult characteristics and the outcomes of alcohol or drug use. Where discrete or continuous measures where used, a Student's two-sample *t*-test was used to compare groups. However most of the discrete measures used in the study, such as scores on the Buss-Perry Physical Aggression Scale, comprise a skewed or non-normal distribution and are consequently compared using a Wilcoxon Mann-Whitney test. All quantitative data analysis was conducted using Stata/SE version 12.1.

Five scales were developed to measure perceptions of policing: perceptions of police fairness, police respect, police trustworthiness, participant compliance and satisfaction with the encounter. These were created from the survey questions measuring participants' perceptions of most recent police contact, both self-initiated and substance-related. To create these scales, a score was calculated for each participant averaging their responses across the items included in the scale. Participants' scores on the scales thus ranged from one to five, with higher scores indicating more favourable perceptions. To assess whether there was a statistically significant difference between ATS users and non-users for each scale and its items two-sample Wilcoxon Mann-Whitney tests were utilised, rather than two-sample t tests, as the data were skewed.

Scales were also created for: belief in procedural justice, police legitimacy, and law legitimacy; commitment to police; and self-reported willingness to cooperate with police. A score was calculated for each participant against each scale by averaging their responses across the items included in the scale. Scores were produced only for participants who had answered each item included in the scale. Participants' scores ranged from one to five, with higher scores indicating stronger belief, greater levels of commitment to police, and greater willingness to cooperate with police.

Chapter 1: ATS use and drug markets

Key points

- Lifetime patterns of drug use (whether participants had 'ever used') did not change during the study period, with the exception that a higher proportion reported having ever used cocaine by the time of the 4½-year follow-up.
- The proportions engaged in recent (last 12 month) drug use decreased from baseline to the 4½-year follow-up for all drugs except cocaine.
- The decreases in the use of cannabis and tobacco across 4½ years were smaller in magnitude than the decreases in either ecstasy or methamphetamine use.
- Friends were the predominant source for acquiring either ecstasy or methamphetamine.
- Among male ATS users, it was more common to acquire methamphetamine from dealers than to acquire ecstasy this way (19.4% vs 8.7%) but a greater proportion acquired ecstasy from acquaintances as compared with methamphetamine (19.6% vs 5.6%). The greater use of dealers for methamphetamine acquisition may reflect the more open nature of the market.
- There were gender differences in acquisition patterns. A large majority of females (80 to 90 percent) acquired ecstasy or methamphetamine from their friends, whereas 67 to 70 percent of males acquired their ATS in this manner. Males were more likely to buy methamphetamine or ecstasy from a dealer, and were also more likely to obtain ecstasy from acquaintances.
- Both female and male ATS users were more likely to have contact with dealers for purchasing ecstasy than for purchasing methamphetamine, perhaps reflecting the higher population prevalence of ecstasy use.
- Having no engagement with dealers appeared to be protective for drug-related police contact. Of this group, 60.4 percent had any alcohol or drug-related police contact, compared with 85.4 percent of those who had one occasion of police contact and 83.6 percent of those who had police contact on more than one occasion.
- Those who had repeated engagement with ecstasy or methamphetamine dealers tended to have the highest levels of ecstasy or methamphetamine use, respectively, over the course of the study. Further, selling ecstasy or methamphetamine was associated with using a significantly greater number of drug types.
- A large majority had never sold methamphetamine but the same was not true of ecstasy. Males were more likely than females to have sold methamphetamine, predominantly without profit.
- Those who repeatedly engaged with dealers over the study period to buy ecstasy or methamphetamine were more likely to sell these drugs themselves, with or without profit.

Introduction

At the time the sample for the NHSDU was recruited in 2008–09, ecstasy had overtaken methamphetamine as the most popular illicit stimulant among Australian young adults, and ecstasy use was second only to cannabis use as the most common form of illicit drug use (AIHW 2008). In 2013, the reported 12-month prevalence (ie recent use) of ecstasy use declined slightly, while methamphetamine's remained stable. However, ecstasy use still appears to be marginally more common than methamphetamine use. For regular users, both ecstasy and methamphetamine appear to be fairly easy to obtain.

While early adulthood is the peak period for involvement with illicit drugs, alcohol is an even more pervasive feature of this phase of life. Moreover, the available international evidence suggests that while illicit drug use

gradually tapers off for most young adult users, patterns of alcohol and tobacco use tend to persist into later phases of life (Chen & Kandel 1995; Perkonigg et al. 2008). At the same time, a sub-group of young adult drug users may develop a dependence on illicit drugs and associated problems, which means their trajectories will differ markedly from those of other young adults (Hser, Huang, Brecht, Li & Evans 2008). The longitudinal patterns or trajectories of drug use largely determine the scope and magnitude of the public health and social burden resulting from the use of a particular drug, including levels of involvement in the illicit drug market. Because the NHSDU used a population-based approach to recruiting drug users and non-users, it is able to provide some estimates regarding community patterns of alcohol and drug use and associated problems among users and non-users of ATS (Smirnov, Kemp, Wells, Legosz & Najman 2014).

The nature of drug users' contact with the drug market—buying, selling and other drug transactions—varies according to drug types, geographic and social settings, and periods of time (Hoffer et al. 2009; May & Hough 2004). Amphetamine-type stimulants are likely to differ from other drugs such as opiates, but ecstasy and methamphetamine may also differ from each other. It is not only the nature of drug production and trafficking, which shapes the market, but also the nature of drug use and the demand for different drugs. It is this 'demand side' of the drug market which is the principal focus of this study. A number of factors are likely to be relevant here: the frequency with which drugs are used, the longevity of drug-using 'careers' (and liability to drug dependence), the settings in which drugs are consumed and the characteristics of drug-using culture, including the gender-related dynamics of drug use (Griffin & Rodriguez 2011; Semple, Strathdee, Zians & Patterson 2013). It has been observed, for example, that the short-term and sporadic nature of ecstasy-using trajectories may mitigate the extent to which relatively entrenched community distribution networks can develop.

Social nature of use

Motivations for drug dealing, and the business models used by dealers, can also differ across drug types and settings (May & Hough, 2004; Sales & Murphy 2007). In the present study, ATS sellers or dealers are young adults who began selling as an outcome of their own drug use. The motivations for selling may vary within this group. Recent estimates of the profit margins of methamphetamine dealing in Australia suggest that profit is not necessarily a sufficient motive for medium- and low-level dealers (Gong, Ritter, Bright & Doran 2012). Users may begin dealing drugs as a way of supporting a drug habit or regular drug use. Studies of ecstasy dealers conducted in the US suggest that some view their dealing as an altruistic or community-oriented activity, which is predicated on favourable group perceptions of ecstasy use. However, from the various settings in which drug dealing has been studied, it appears to be a male-dominated activity (Griffin & Rodriguez 2011). The extent to which these observations are applicable to the Australian ATS market is unclear.

The nature of the social and physical harms arising from drug markets is partly determined by the structure of the market. For example, open street-based drug markets are often associated with a high degree of public disorder and violence (May & Hough 2004; Small et al. 2013). Open markets that sell to a wide range of people, including strangers and acquaintances, may also be intensely hierarchical. Closed markets, where the dealer primarily only sells to a known set of drug users, may reduce some of the inherent risks of buying and selling drugs and thus have less harmful outcomes, even though the profit motive may still be present. However, less is known about closed markets compared with more visible forms of drug dealing. The probability of being caught by the police is unknown. Many users may perceive themselves as law-abiding citizens despite their illegal drug use and it is possible they implicitly assume, rightly or wrongly, that their use will go undetected.

Ecstasy dealing may constitute a special form of closed market. Surveys of Australian ecstasy users suggest that most ecstasy sales occur between peers (Sindicich et al. 2009). Thus, relatively low-level and transient sellers may predominate in this type of market, and some users may not recognise their supplier as a dealer even if they are selling to a large number of peers. Further, users tend to utilise no more than a few peers to locate ecstasy. For the most part, it seems as though ecstasy users do not need to step outside their comfort

zone to obtain the drug. Although many methamphetamine users may also source the drug from friends, it is not clear to what extent the market structure is similar to that of the ecstasy market. Drug-use patterns may influence the types of drug acquisition practices that young adults are willing to engage in. In particular, drug dependence, which is more predominatly a feature of methamphetamine than ecstasy use, may drive people to take greater risks and use a higher number of drug sources. However, research also suggests that younger ecstasy users may also be willing to take greater risks to obtain the drug compared with older users (Ben Abdallah, Scheier, Inciardi, Copeland & Cottler 2007). This may to some extent reflect a peak in their drug use.

It is possible there are different pathways into dealing ecstasy or methamphetamine. Some young adults have been observed to drift from the social supply of drugs such as cannabis and ecstasy into higher-level dealing; this change is not necessarily accompanied by increases in other forms of criminality and antisocial behaviour, and some of the communal ethos surrounding social supply may be maintained (Taylor & Potter 2013). However, other research suggests that young people who become involved in drug selling not only have high levels of drug use of a variety of drugs, but are also more likely to engage in other delinquent acts (Semple, Strathdee, Volkmann, Zians & Patterson 2011; Vaughn, Shook, Perron, Abdon & Ahmedani 2011). The extent to which low- to medium-level selling of ATS, and ecstasy in particular, in Australia is linked with antisocial behaviour is not known.

In addition, ATS use often appears to occur in conjunction with high levels of alcohol consumption, and thus is it plausible that the supply of alcohol and ATS may not be entirely separate (Breen et al. 2006; Kinner, George, Johnston, Dunn & Degenhardt 2011). It is possible that young adult ATS users may use licensed premises in sourcing ATS. This may involve direct contact with dealers in these settings; it could also involve the development of new social contacts through which ATS can be obtained. Further, some ATS acquisition in these settings may be unplanned and opportunistic in nature.

Table 1-1. Lifetime and recent use of ecstasy, methamphetamine, cocaine, cannabis and tobacco at the study baseline and the 4½-year follow-up, by gender

	Ever used		Used last 12 months	
	Baseline	4½ years	Baseline	4½ years
Ecstasy				
Female	98.9 (95.9–99.9)	97.9 (94.0–99.6)	95.4 (91.1–98.0)	46.5 (38.2–55.0)
Male	100.0 (97.9–100.0)	96.8 (91.9–99.1)	96.6 (92.6–98.7)	48.4 (39.3–57.5)
Methamphetamine				
Female	79.2 (72.4–85.0)	82.5 (75.3–88.4)	55.5 (47.8–63.0)	27.3 (20.2–35.3)
Male	83.9 (77.6–89.0)	84.0 (76.4–89.9)	64.4 (56.8–71.4)	27.2 (19.6–35.9)
Cocaine				
Female	57.2 (49.5–64.7)	78.6 (70.8–85.1)	42.2 (34.7–49.9)	33.6 (25.8–42.0)
Male	64.4 (56.8–71.5)	82.4 (74.6–88.6)	43.7 (36.2–51.4)	28.8 (21.1–37.6)
Cannabis				
Female	95.4 (91.1–98.0)	98.9 (93.8–100.0)	74.1 (67.0–80.5)	53.5 (42.4–64.3)
Male	97.1 (93.4–99.1)	100.0 (95.5–100.0)	83.3 (76.9–88.5)	60.0 (48.4–70.8)
Tobacco				
Female	84.5 (78.2–89.5)	92.0 (84.1–96.7)	75.3 (68.2–81.5)	43.7 (33.1–54.7)
Male	94.3 (89.7–97.2)	98.8 (93.2–100.0)	83.9 (77.6–89.0)	62.5 (51.0–73.1)

Drug-use patterns

The lifetime and recent drug-use patterns of the ATS-using sample, reported at the study baseline (2009) and the 4½-year follow-up (2013–14), are described in Table 1-1. Lifetime patterns of drug use (ie 'ever used') did not change significantly from baseline to the 4½-year follow-up, with the exception of cocaine use. For both female and male ATS users, a higher proportion reported having ever used cocaine by the time of the 4½-year follow-up.

The proportion of participants engaged in recent (last 12 month) drug use decreased from baseline to the 4½-year follow-up for all drugs except cocaine. These findings for lifetime and recent drug use not only suggest there is a tendency to initiate cocaine use later than the use of ecstasy, methamphetamine or cannabis, but that many who try cocaine will persist with at least occasional use during their mid-20s.

The decreases in use of cannabis and tobacco across 4½ years were smaller in magnitude than the decreases in both ecstasy and methamphetamine use. This is consistent with previous research which indicates that, while the use of illicit stimulants tends to decline during the 20s, the use of cannabis and tobacco is more likely to persist throughout early adulthood and beyond. These changes in drug use may reflect a number of age-related factors, including changing personal commitments and social activities, possibly alongside changing subjective experiences of drug use.

Alcohol consumption

Levels of alcohol consumption differed according to whether the participants were using ATS when drinking alcohol (Figures 1-1 and 1-2). Alcohol consumption patterns were assessed at the 4½-year follow-up. On a typical day of drinking in the last month, a majority of female participants (66%) consumed alcohol within the safe range of nought to four standard drinks. When using ecstasy with alcohol, 35.7 percent drank within this range; when using methamphetamine 44.8 percent did so. The remainder drank five or more standard drinks, and one in ten consumed 11 to 19 standard drinks during their episodes of ATS use.

Male ATS users drank more than their female counterparts. Slightly less than half (48%) consumed within the range of nought to four standard drinks on a typical day of use in the last month. When using ecstasy, 12.4 percent drank within this safe range; and 22.6 percent did so when using methamphetamine. Extreme levels of alcohol consumption concurrent to ATS use were observed, with one in five male ATS users consuming 20 or more standard drinks on their last occasion of either ecstasy or methamphetamine use. These findings are consistent with data from purposive samples of regular ATS users (Kinner, George, Johnston, Dunn & Degenhardt 2011) but have not previously been replicated in a population-level sample.

Given the prevalence of ATS use, the findings indicate a considerable proportion of young adults, especially males, are at considerable risk of alcohol-related harm in the short term. In particular they may have an increased likelihood of engaging in hazardous or antisocial activities, such as drink-driving or creating a public disturbance. The risk may be elevated by the fact that the subjective effects of the ATS may mask their alcohol-related impairment. Further, if these patterns of alcohol consumption are repeated to any extent over the long term, they pose a serious threat to the long-term health and wellbeing of this cohort of male ATS users. The high proportion of male ATS users drinking at unsafe levels, even in the absence of ATS, suggests that this is a substantial risk.

Figure 1-1. Female ATS users' alcohol consumption (standard drinks): Typical consumption per day of use in last month, last occasion of ecstasy use, last occasion of methamphetamine use

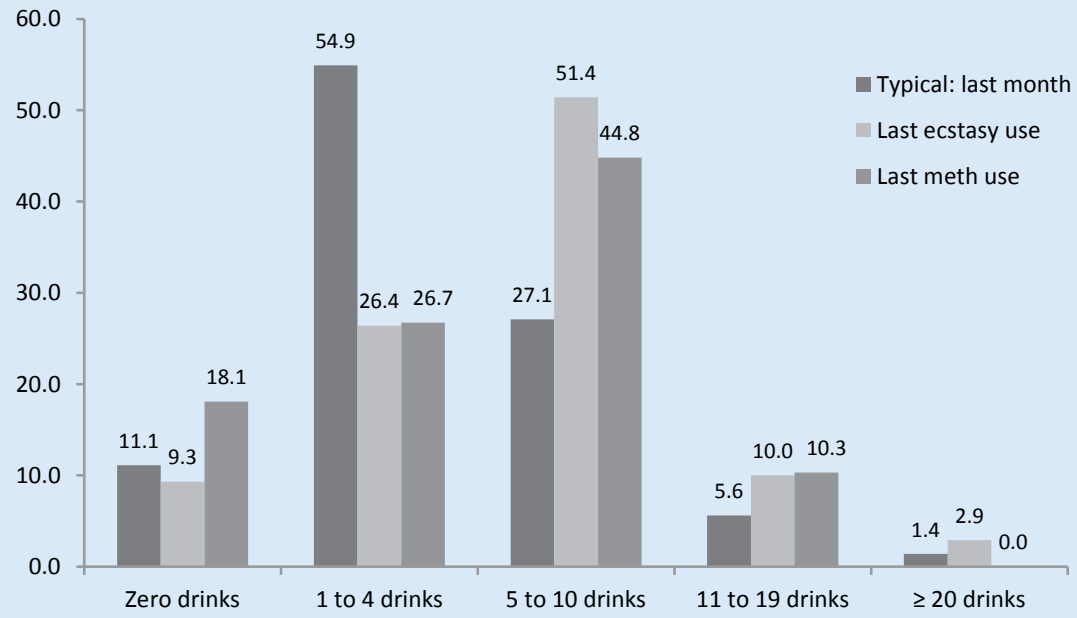
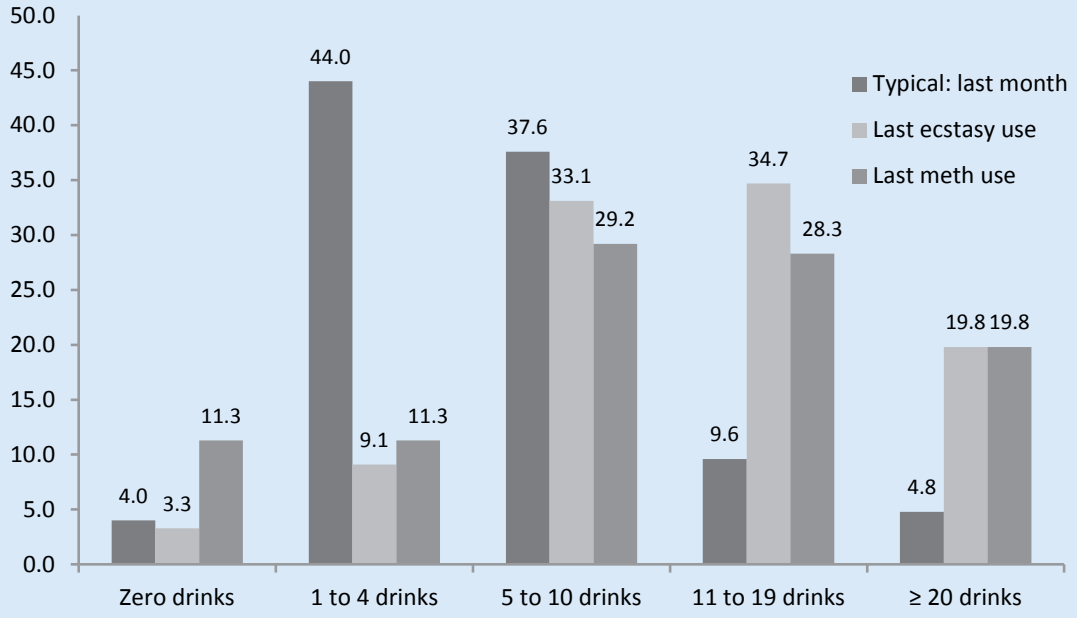


Figure 1-2. Male ATS users' alcohol consumption (standard drinks): Typical consumption per day of use in last month, last occasion of ecstasy use, last occasion of methamphetamine use



Buying ATS: Sources of ecstasy and methamphetamine

At the 4½-year study follow-up, recent (12 month) users of ecstasy and methamphetamine were asked who they sourced the drug from on their last occasion of use. The main response categories included: friend, dealer, partner (girlfriend/boyfriend/spouse), acquaintance, and family member or relative.

The proportions using different drug sources are presented for females in Figure 1-3 and for males in Figure 1-4. Friends were the predominant source for acquiring both ecstasy and methamphetamine. This is consistent with the research literature around sourcing ecstasy, which suggests that the distribution of ecstasy is largely conducted within established social networks. The role of friends as the primary source of methamphetamine may reflect the age of this group and the largely recreational nature of their drug use. However, the findings relating to other drug sources indicate some important differences between the ecstasy and methamphetamine markets.

For female ATS users, there was no difference in patterns of sourcing ecstasy compared with methamphetamine—with the exception of a small group of female participants who acquired methamphetamine from dealers, whereas none acquired ecstasy from dealers. Among male ATS users there were some significant differences with regard to sourcing ecstasy versus sourcing methamphetamine. It was more common to acquire methamphetamine from dealers than ecstasy (19.4% vs 8.7%), but a greater proportion acquired ecstasy from acquaintances compared with methamphetamine (19.6% vs 5.6%). The greater use of dealers for methamphetamine acquisition may reflect the more open nature of the market for regular methamphetamine users. In contrast, the large proportion of males acquiring ecstasy from acquaintances may reflect the nature of ecstasy-using social networks and the fluid social dynamics of the settings in which ecstasy is used. Young adults attending social events or venues may become acquainted with a number of people within these settings, some of whom may supply ecstasy. It is possible that some acquaintances may in fact be dealers, while others may supply ecstasy on an opportunistic basis without making a profit. Indeed, it appears that some people buy a quantity of ecstasy for their peer group, some of which may be surplus to the needs of immediate friends. This may create opportunities for provision to new friends or acquaintances. In such instances, the provision of ecstasy may be perceived by users as a service to the community. Some users may also provide ecstasy as a gift to garner social favour with the recipient.

Further, there were significant differences between female and male ATS users in their engagement with drug markets. A large majority of females (80–90%) acquired ecstasy or methamphetamine from their friends, whereas 67–70 percent of males acquired their ATS in this manner. Males were more likely to obtain either methamphetamine or ecstasy from a dealer, and were also more likely to obtain ecstasy from acquaintances. This is consistent with previous research on gender and drug markets that indicates a greater involvement of males compared with females in the buying and selling of drugs. It is also illustrative of possible limitations in the convergence of male and female patterns of drug use in early adulthood. The gender differences may be linked to psychological traits such as aggression and sensation seeking.

Figure 1-3. Percent of female recent (12 month) ecstasy/methamphetamine users acquiring ecstasy/methamphetamine, by source, for last occasion of use

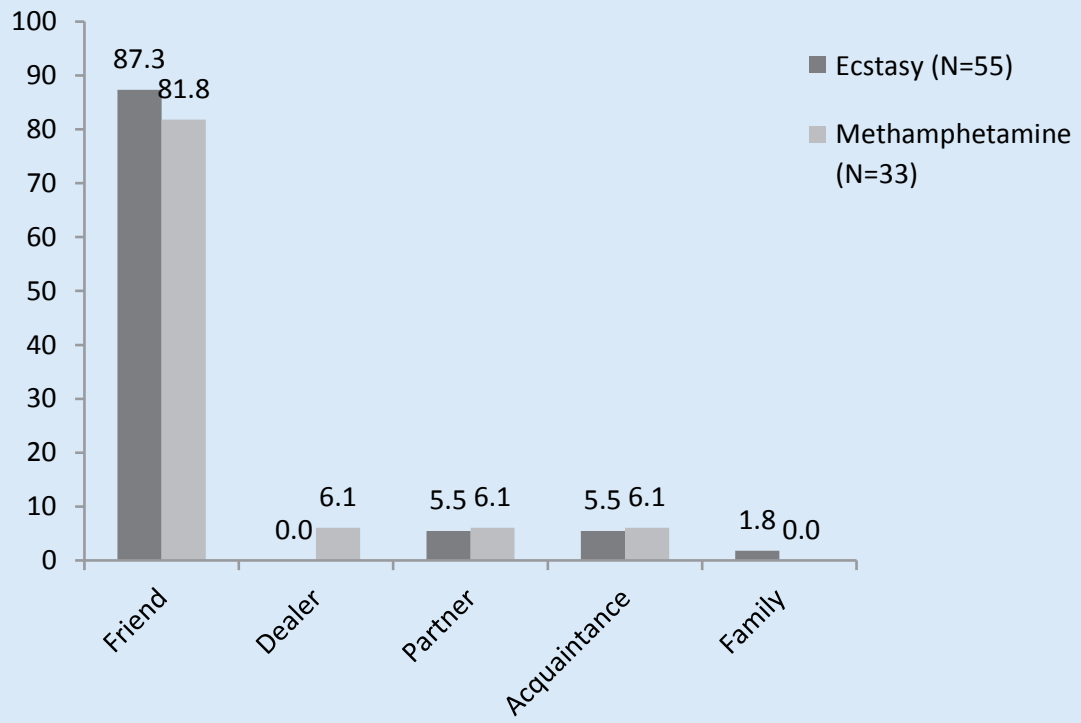
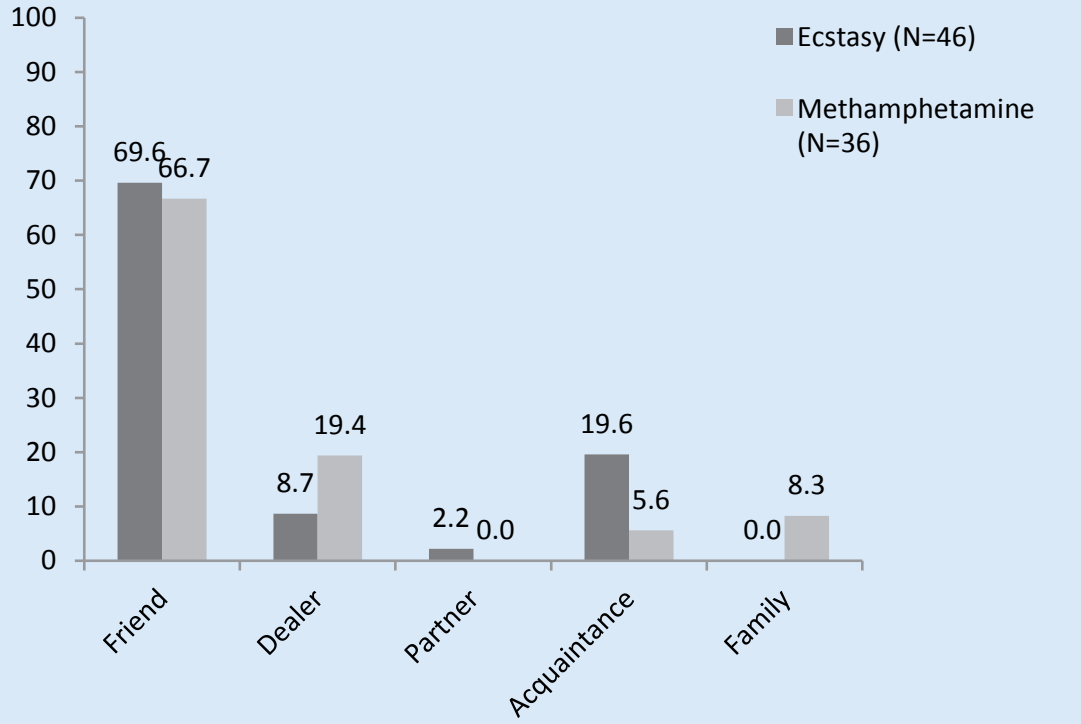


Figure 1-4. Percent of male recent (12 month) ecstasy/methamphetamine users acquiring ecstasy/methamphetamine, by source, for last occasion of use



Levels of contact with dealers

Levels of engagement with dealers over the 4½ years of the study were examined. Specifically, participants were asked at each of the three face-to-face study intervals (baseline, 12 months and 4½ years) whether they 'sometimes/always' acquired their ecstasy or methamphetamine from a dealer. The responses were categorised according to the number of intervals at which contact with dealers was reported.

About one fifth of female, and just over one quarter of male, ecstasy users had acquired ecstasy from dealers on a repeated basis (more than once) over the duration of the study (see Table 1-2). There was no significant gender difference in levels of contact with dealers over the study period.

With regard to acquiring methamphetamine, four percent of females and 9.1 percent of males had repeated contact with dealers, and a further 15.8 percent and 25.7 percent, respectively, had contact during one interval. These gender differences were significant.

Over the course of the study, both female and male participants were more likely to have contact with dealers to acquire ecstasy than to acquire methamphetamine. To some extent, this may simply reflect differences in the population patterns of ecstasy and methamphetamine use and, in particular, the higher population prevalence of ecstasy use.

Table 1-2. Acquiring ATS from a dealer during study period

	Females (*n*=177) % (*n*)	Males (*n*=175) % (*n*)	χ^2
Ecstasy acquisition			
No acquisition from dealer	41.8 (74)	36.6 (64)	
Acquisition from dealer at 1 time interval	39.0 (69)	34.9 (61)	
Acquisition from dealer at >1 time interval	19.2 (34)	28.6 (50)	4.25
Methamphetamine acquisition			
No acquisition from dealer	80.2 (142)	65.1 (114)	
Acquisition from dealer at 1 time interval	15.8 (28)	25.7 (45)	
Acquisition from dealer at >1 time interval	4.0 (7)	9.1 (16)	10.53*

* $p<0.01$

Outcomes of contact with dealers

Repeated engagement with dealers could possibly expose ATS users to a greater likelihood of coming into contact with the police for alcohol- or drug-related reasons, and of being charged with a drug offence such as possession of a dangerous drug. The study examined whether levels of engagement with dealers were associated with either police contact or being charged with a drug offence.

The findings concerning police contact are presented in Figure 1-5 and those for drug offences are presented in Figure 1-6. The associations were non-significant in regard to both police contact and offences. In particular, levels of contact with dealers appeared to be unrelated to being charged with a drug offence. Nonetheless, when simply contrasting those who had any police contact with those who had none, having no engagement with dealers appeared to be a protective factor. Of this group, 60.4 percent had had any alcohol or drug-related police contact, compared with 85.4 percent for those with one occasion of police contact and 83.6 percent for those with more than occasion.

Contact with dealers and levels of drug use

In contrast, however, there was a clear relationship between engagement with dealers and levels of drug use. Figure 1-7 shows the distribution (box plot) of number of pills taken, ordered according to level of engagement with dealers. Those who had repeated engagement with ecstasy dealers tended to have the highest levels of ecstasy use over the course of the study. Those who had not engaged with a dealer used a median of three pills over the course of the study (interquartile range [IQR]: 0–15 pills); those engaged at one interval had used a median of 9.3 pills (IQR: 1–28 pills); and those engaged at more than one interval used a median of 27.5 pills (IQR: 18.5–50 pills). Contrasted with those who had no dealer engagement, those who engaged with a dealer at repeated intervals had significantly higher levels of ecstasy use (Coef. 28.93, 95% Confidence Interval [CI]: 16.96–40.89). The difference pertaining to dealer engagement at one time interval was non-significant (Coef. 3.04, 95% CI: -7.51–13.60).

The study did not collect comparable data on the quantity of methamphetamine used over the course of the study, but did ask about typical quantity used per day of use (grams) at each of the study follow-ups. A typical quantity of methamphetamine used per day of use over the course of the study was derived, based on the highest reported quantity over each of the time intervals. Figure 1-8 shows the distribution of this methamphetamine consumption according to levels of dealer engagement. Similarly to ecstasy use, those who repeatedly engaged with dealers consumed the highest typical quantities of methamphetamine. Those who did not engage with dealers typically used a median of 0.45 grams per day of use (IQR: 0–15 pills), those engaged at one interval had used a median of 9.3 pills (IQR: 1–28 pills), and those engaged at more than one interval used a median of 27.5 pills (IQR: 18.5–50 pills).

Figure 1-5. Levels of police contact according to level of engagement with ecstasy dealers over the 4½ years of the study

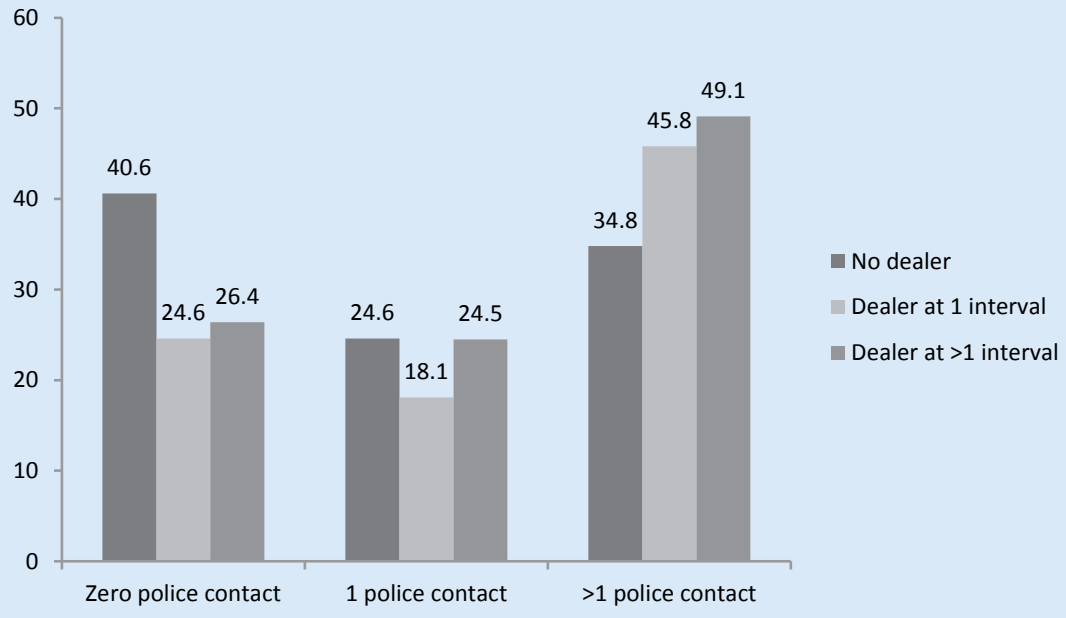
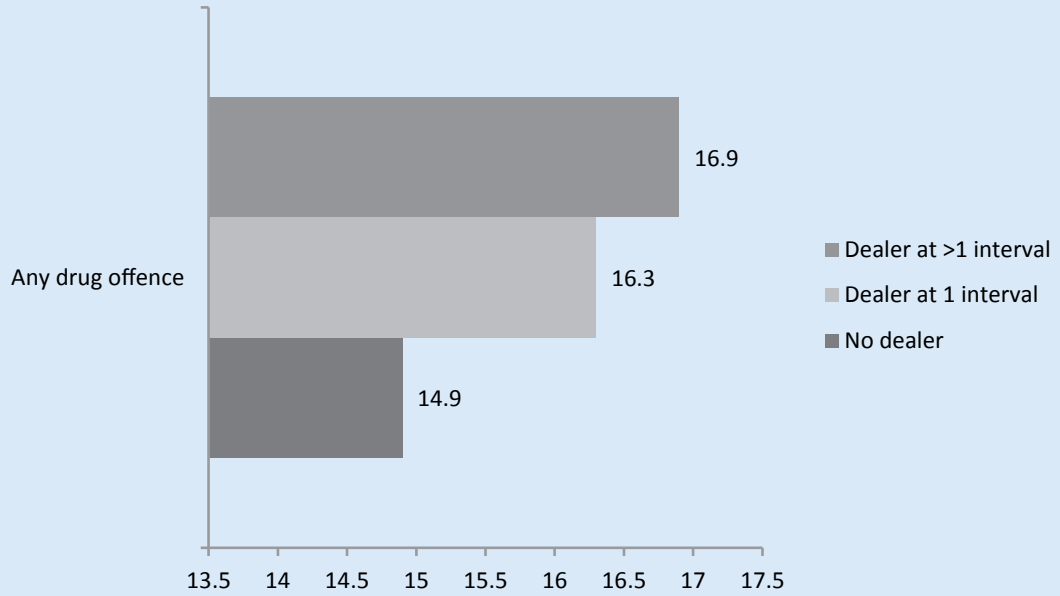


Figure 1-6. Proportion charged with any drug offence, according to level of engagement with ecstasy dealers over the 4½ years of the study



The difference for those who repeatedly engaged with dealers compared with those who did not engage with dealers was significant (Coef. 1.09, 95% CI: 0.57–1.62); but for those who engaged at one interval only it was not (Coef. 0.22, 95% CI: -0.17–0.61).

This relationship between repeated dealer contact and longitudinal levels of drug use for both ecstasy and methamphetamine raises questions about the possible link between drug supply and demand. There are three sets of possible explanations for this relationship, which are not mutually exclusive. Firstly, ongoing engagement with dealers may lead to higher or sustained levels of use over a period of time, due to ready availability of the drug. Secondly, a disposition to regularly use ecstasy or methamphetamine may lead the user to actively seek a person who can regularly supply the drug. Thirdly, individual characteristics such as social deviance may lead a person to use ecstasy or methamphetamine and also to associate with people who may sell these drugs. In the latter case, the peer group may play a critical role in both the normalisation of drug use and ensuring the availability of drugs. For this cohort, engagement with dealers appeared to occur in the early to peak stages of drug use, predominantly in the late teens and early twenties. Of the ATS users who were engaged with dealers at the study baseline, 43.2 percent went on to engage at subsequent intervals; whereas, of those who had not engaged with dealers at baseline, only 1.2 percent engaged with dealers at repeated intervals. Previous research involving this cohort has found that social contact with peers who use ecstasy is a significant predictor of initiating ecstasy use (Smirnov et al. 2013).

Further analysis shows that having a large social network of ecstasy users (>10 users) significantly increases the likelihood of having repeated contact with a dealer (Odds Ratio [OR]: 4.15, 95% CI: 1.84–9.38). Thus, while involvement with dealers may lead to greater or sustained ATS use over a number of years, this involvement must be considered within the broader context of the ecstasy users' social environment. For a subgroup of ATS users who engage with dealers, an additional possibility is that this engagement may be related, in the long term, to their own ATS selling behaviour, which in turn may help to perpetuate their own ATS use.

Figure 1-7. Boxplot of total number of ecstasy pills taken during the 4½-year study period, by level of engagement with ecstasy dealers

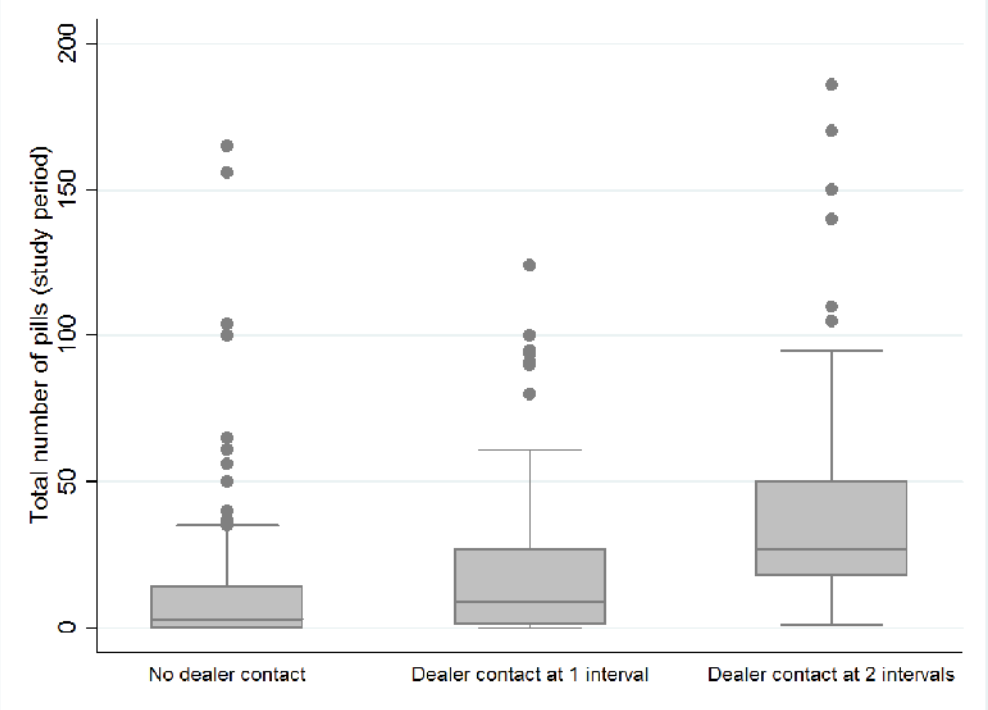
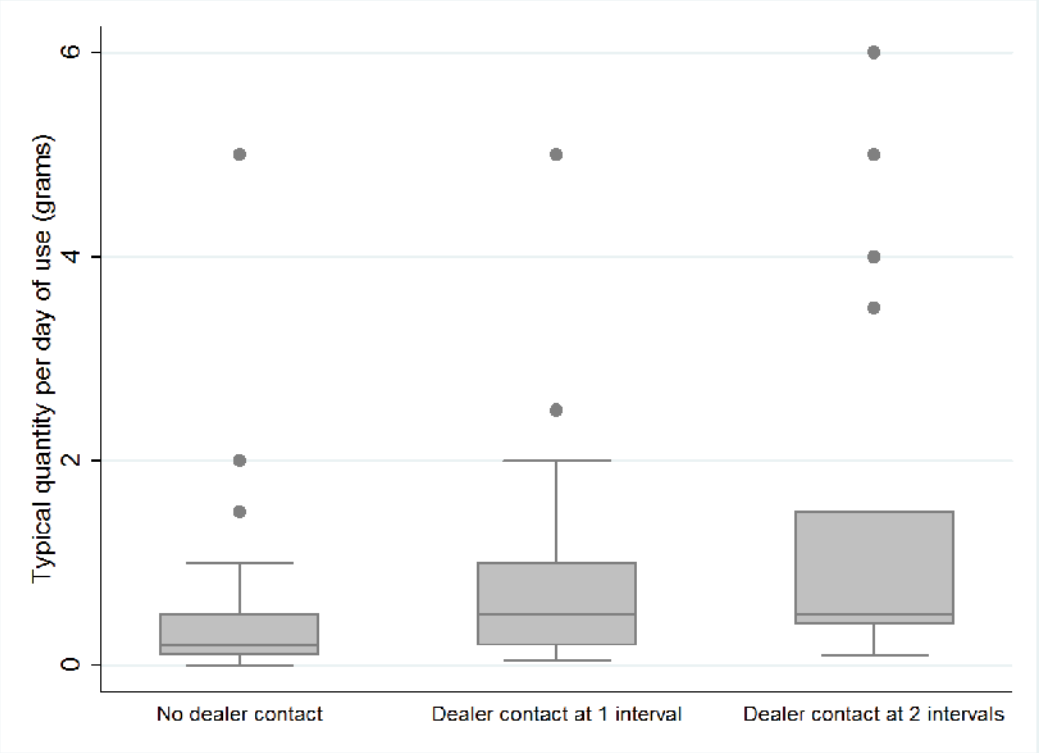


Figure 1-8. Boxplot of typical quantity of methamphetamine consumed per day of use, during the 4½-year study period, by level of engagement with methamphetamine dealers



Selling ATS

Participants were asked at each of the face-to-face data collection waves (baseline, 12 months and 4½ years) whether they had ever sold ecstasy or methamphetamine without profit, and whether they had ever sold these drugs for even a few dollars profit. A variable was created comprising three categories: those who had sold for profit; those who had sold without profit; and those who had never sold ecstasy or methamphetamine. All respondents who indicated selling for profit at any of the time intervals were included in the first category, regardless of their responses at other intervals.

While a large majority had never sold methamphetamine, the same was not true of ecstasy (see Table 1-3). The difference between levels of ecstasy and methamphetamine selling was significant for males but not females ($\chi^2(2)=36.22$, $p<0.001$). To some extent this may reflect the background prevalence of ecstasy use compared with methamphetamine, given that a smaller proportion of this young adult population was using methamphetamine. However, it may also reflect differences between the ecstasy and methamphetamine market structures. Further, the bulk of ecstasy selling was not profit-oriented.

There were some significant gender differences, with males more likely than females to have sold methamphetamine, predominantly without profit ($\chi^2(2)=12.69$, $p<0.01$).

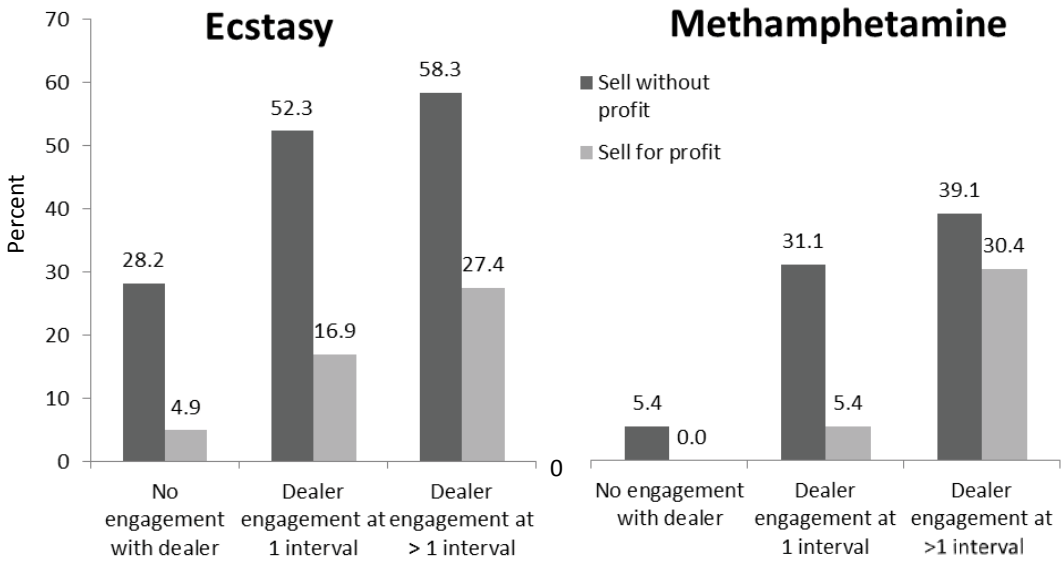
Table 1-3. Percent who ever sold ecstasy/methamphetamine for profit or otherwise, by gender

	Ecstasy		Methamphetamine	
	Female (*n*=177)	Male (*n*=175)	Female (*n*=177)	Male (*n*=175)
Have never sold this	44.1	37.1	89.8	78.3
Have sold, but never for profit	44.6	44.6	8.5	17.1
Have sold for profit at least once	11.3	18.3	1.7	4.6

Dealer engagement and selling ATS

These data indicate that those with higher levels of engagement with dealers for buying ecstasy or methamphetamine were in fact more likely to sell these drugs themselves, with or without profit (Figure 1-9). In particular, a majority (58.3%) of those who repeatedly engaged with ecstasy dealers had sold ecstasy without profit at some stage, and a further quarter (27.4%) of this group had sold with profit. It is likely that those selling without profit are serving as a conduit between the dealers and their peer group. This pattern of ecstasy acquisition is distinct from circumstances that do not involve selling among members of a peer group. At the study baseline 23 percent of ATS users reported they had recently pooled resources to buy ecstasy, which reflects a planned process of acquisition to obtain a predetermined number of pills, probably for a particular occasion of use. In contrast, the circumstances of those independently buying a number of pills from a dealer for subsequent distribution may be somewhat different; in particular, there may be greater potential for discretionary and opportunistic selling of pills on a number of occasions.

Figure 1-9. Proportion selling ecstasy or methamphetamine, according to level of engagement with ecstasy dealers over the 4½ years of the study



It also appears that increased contact with dealers is associated with an increased likelihood of selling ecstasy or methamphetamine for profit. The motivation to sell could be related to market factors such as the cost, quantity and quality of available drugs. However, it could also be related to a process of social learning and the modelling of peer behaviour. Those who have greater contact with dealers may increasingly identify with dealing behaviour; it may appear more normal. In addition, it may seem more desirable in terms of perceived rewards derived from dealing. In addition, social contact with dealers may enable ATS users to learn about strategies for selling drugs or even provide opportunities to sell ecstasy collaboratively. However, it is important to consider that the amount of profit involved may be very small in some instances, and that the motivation for obtaining a profit may vary accordingly.

Participants who reported selling ecstasy or methamphetamine were asked about their motivations for doing so. The quotes in this section are taken from participants' responses to this question. For some people, it appears to be a matter of covering the costs and effort of obtaining the drugs:

> Going out of my way to organise it and recouping the cost from people who were meant to pay back. (ATS user)

For others, it may be a way of financing their own drug use, whether of ecstasy or methamphetamine. This could relate to either an occasional or a regular pattern of selling:

> To pay for my own pill. (ATS user)

Similar to the research findings pertaining to other illicit drugs, requests from friends to obtain ecstasy or methamphetamine may prompt someone to engage in dealing:

> Friend asked for it, so sold to them.

> Supporting my habit and helping other people. Sometimes reason for acquiring is requests for [sic] other people.

A US study of ecstasy distribution found that most dealers were themselves ecstasy users and viewed ecstasy use as a positive experience they wanted to share with friends, even to the point of perceiving selling ecstasy as an altruistic and community-minded activity. The reasons most often given in the present study for selling ecstasy are consistent with this:

> Mainly just to share with friends.

> So everyone has it—so we are all on the same level.

> People want it—not-for-profit motive—as a favour—people don't know another way to get it.

> So friends can have a good time as well.

ATS selling and patterns of drug use

Some differences were observed with regard to the polydrug-use patterns of those with different levels of involvement in selling ecstasy or methamphetamine. To gauge broad patterns of drug usage, ATS users were asked to indicate which drugs they had used (other than ecstasy, methamphetamine and cannabis) from the following list: steroids/performance-enhancing drugs, hallucinogens, inhalants, GHB, ketamine, heroin, other opioids, benzodiazepines and emerging drug types such as synthetic cannabis. Selling ecstasy was associated with significantly greater levels of drug use. Those who had never sold ecstasy had used a mean of 1.88 drug types in addition to ecstasy, methamphetamine and cannabis; those who had only sold ecstasy without profit had used a mean of 2.38 types; and those who had sold ecstasy for profit had used a mean of 3.71 types ($F=13.00$, $p<0.001$). Similarly, those who had never sold methamphetamine had used a mean of 1.39 drug types; those who sold it without profit had used a mean of 3.63; and those who sold it with profit had used a mean of 4.27 drug types ($F=8.41$, $p<0.001$).

Table 1-4. Proportion of ecstasy users who had used other drug types (ever/last 12 months) at 4½ years, by level of involvement in selling ecstasy				
Drugs type used	Never sold ecstasy (*n*=103)	Sold ecstasy without profit (*n*=123)	Sold ecstasy for profit (*n*=43)	*p*-value
Steroids/performance enhancing drugs				
Ever	2.9	3.3	4.7	
Last 12 months	1.0	1.6	9.3	<0.05
Hallucinogens				
Ever	43.7	52.0	51.2	
Last 12 months	20.4	17.9	39.5	<0.01
Inhalants				
Ever	29.4	34.2	51.2	
Last 12 months	4.9	11.4	16.3	<0.01
GHB				
Ever	8.7	17.9	30.2	
Last 12 months	4.9	3.3	4.7	<0.05
Ketamine				
Ever	10.7	20.3	41.9	
Last 12 months	5.8	4.1	2.3	<0.01
Heroin				
Ever	5.8	5.7	4.7	
Last 12 months	2.9	0.8	2.3	
Other opioids				
Ever	15.5	15.5	32.6	
Last 12 months	9.7	8.1	4.7	
Benzodiazepines				
Ever	37.9	31.7	44.2	
Last 12 months	16.5	27.6	32.6	
Emerging drug types				
Ever	36.9	37.4	46.5	
Last 12 months	10.7	11.4	30.2	<0.01

Table 1-5. Proportion of methamphetamine users who had used other drug types (ever/last 12 months) at 4½ years, by level of involvement in selling methamphetamine				
Drugs type used	Never sold meth (*n*=165)	Sold meth without profit (*n*=36)	Sold meth for profit (*n*=10)	*p*-value
Steroids/performance enhancing drugs				
Ever, but not last 12 months	4.9	3.2	0.0	
Last 12 months	3.9	0.0	10.0	
Hallucinogens				
Ever, but not last 12 months	47.6	51.6	40.0	
Last 12 months	26.2	32.3	60.0	
Inhalants				
Ever, but not last 12 months	40.8	35.5	30.0	
Last 12 months	11.7	19.4	30.0	
GHB				
Ever, but not last 12 months	19.4	29.0	30.0	
Last 12 months	3.9	6.5	20.0	
Ketamine				
Ever, but not last 12 months	18.5	48.4	40.0	
Last 12 months	5.8	0.0	0.0	<0.05
Heroin				
Ever, but not last 12 months	4.9	12.9	10.0	
Last 12 months	1.0	6.5	0.0	
Other opioids				
Ever, but not last 12 months	19.4	32.3	20.0	
Last 12 months	6.8	22.6	20.0	<0.05
Benzodiazepines				
Ever, but not last 12 months	39.8	32.3	50.0	
Last 12 months	24.3	48.4	20.0	
Emerging drug types				
Ever, but not last 12 months	42.7	48.4	60.0	
Last 12 months	16.5	22.6	30.0	

ATS dealing and antisocial behaviour

Dealing ecstasy or methamphetamine appeared to be associated with some forms of antisocial behaviour but not others (Table 1-6). A minority of ATS dealers engaged in most of the antisocial behaviours that were measured, but there were notable differences between ecstasy and methamphetamine dealers. The most common form of antisocial behaviour was verbal abuse, and methamphetamine dealers engaged in this behaviour at nearly twice the rate of ecstasy dealers. More notably, one in five methamphetamine dealers had physically abused someone, compared with about one in 20 ecstasy dealers.

The association between conduct disorder and dealing ATS was examined to see whether involvement in antisocial behaviour could be the outcome of a pattern of behaviour which began to develop at an earlier

stage. There was no significant association between a lifetime diagnosis of DSM-IV conduct disorder and ever having sold ATS for profit (disorder: 25.4% vs no disorder: 17.0%; $\chi^2(1)=2.06$, ns). However, for nearly half (45.2%) of those who had such a diagnosis (n=73), the onset of the disorder occurred early, prior to age 13 years. The early onset of conduct disorder was associated with later involvement in dealing ATS. Nearly one third (32%) of those with early onset had sold ATS for profit at some stage, compared with 14.5 percent of the remaining ATS users.

These findings suggest the possibility of different pathways to and outcomes of ATS dealing. A large majority did not engage in antisocial behaviour, especially with regard to ecstasy dealing. This provides some support for the 'drift' hypothesis, in which ecstasy sellers gradually expand their role of social supply without any considerable change in other unlawful or antisocial behaviour. The findings also provide partial support for the proposition that, for some, ATS dealing is a product of earlier delinquent behaviour. It should be noted that, unlike findings regarding some other forms of drug dealing, there was no association between ATS dealing and property crime.

Table 1-6. Recent antisocial behaviour at 4½-year follow-up, by ecstasy/methamphetamine selling behaviour throughout the study

Ecstasy				
	Never sold (*n*=83)	Sold without profit (*n*=109)	Sold for profit (*n*=41)	*p*-value
Created a public nuisance/disturbance	0.0	6.4	14.6	<0.01
Caused damage to property	0.0	2.8	4.9	
Verbally abused someone	3.6	11.0	22.0	<0.01
Physically abused someone	0.0	0.9	4.9	
Methamphetamine				
	Never sold (*n*=150)	Sold without profit (*n*=29)	Sold for profit (*n*=10)	*p*-value
Created a public nuisance/disturbance	4.7	10.3	20.0	
Caused damage to property	1.3	6.9	10.0	
Stole money/goods/property	2.0	3.5	10.0	
Verbally abused someone	8.7	24.1	40.0	<0.01
Physically abused someone	0.0	3.5	20.0	<0.001

Conclusions

During the 4½ years of this study the rates of drug use and the drug market involvement of this cohort declined considerably, but a large proportion maintained some level of involvement. After 4½ years, just under half of both males and females had recently used ecstasy. Rates of methamphetamine use were considerably lower, and in fact these rates were similar or lower than those for recent (last 12 months) cocaine use. The findings suggest that, for young adults, cocaine may emerge as a drug of choice at a later stage than ATS. There were no great differences between males and females in rates of recent drug use, with the exception of tobacco and cannabis use. However, the results across a number of indicators suggest that males may be more intensely involved in ATS and alcohol use than females. This intensity of drug use was particularly apparent with regard to levels of concurrent alcohol and stimulant use. Moreover, the intensity of the males' drug-use patterns were reflected in their levels of drug market involvement and associated risk behaviour.

Male ATS users' levels of involvement in the drug market differed from those of females, as evidenced by the greater proportion of males who used dealers and acquaintances for acquiring ATS and the greater persistence of dealer contact over the course of the study. Differences in market structure were also evident

for ecstasy and methamphetamine, with a greater overall tendency to acquire methamphetamine from dealers. The lower rates of recurrent contact with methamphetamine dealers over the course of the study simply reflect the lower incidence of methamphetamine use compared with ecstasy use for this cohort. However, for those who persist with methamphetamine use, different market dynamics seem to apply.

Greater levels of recurrent engagement with the ATS market—including both contact with ATS dealers and selling ATS—were associated with exposure to greater risks including drug-related police contact, being charged with a drug-related offence, using higher cumulative quantities of ATS over the course of the study, and using a larger range of illicit drugs. Moreover, those who sold ATS for profit appeared more likely to experience these outcomes than those who sold ATS without profit. Higher levels of polydrug use among ATS users has previously been linked to worse health and social outcomes, compared with those whose patterns of use were limited or more controlled.

ATS users may be dissuaded from selling ATS for profit if they are aware of the high likelihood of adverse outcomes, especially the risk of being caught and facing penalties. However, the link between early onset of conduct disorder and later involvement in ATS dealing suggests early interventions are important. Moreover, nearly one quarter of regular ATS users have a history of conduct disorder. This reflects the high background prevalence of conduct disorder and related problems in the general population (Bayer et al. 2011; Sawyer et al. 2001). Thus, school- and community-based programs which engage with at-risk families and children may be critical for reducing levels of involvement in the most problematic forms of drug-related behaviour (Martineau, Tyner, Lorenc, Petticrew & Lock 2013; Patulny, Muir, Powell, Flaxman & Oprea 2013; Sawyer, Borojevic & Lynch 2011; Winther, Carlsson & Vance 2014); it is also imperative that resources are available for the proper monitoring and evaluation of these programs.

Chapter 2: Offending behaviour

Key points

- Gender and drug use each contribute significantly to aggressive traits. Male ATS users are more aggressive than male non-users and the same is true among females, but males are more aggressive than females regardless of their involvement in ATS use.
- The proportion of ATS users reporting feelings of hostility and anger while under the influence of methamphetamine was significantly greater than the proportion reporting these feelings under the influence of ecstasy.
- The rates of reported hostility and/or anger increased with greater doses of methamphetamine but not with greater doses of ecstasy.
- The proportion reporting hostility and/or anger during episodes of ATS use increased with higher levels of concurrent alcohol use, but these increases were considerably greater for methamphetamine than for ecstasy.
- No feelings of hostility and/or anger were reported for those occasions of methamphetamine or ecstasy use where the quantity of alcohol consumed was very low (0–4 standard drinks). This suggests that alcohol consumption may play an important role in the activation of aggression in ATS users.
- Paranoia was more common among methamphetamine users than ecstasy users, while empathy was more common among ecstasy users. Paranoia and delusional thinking appear to be positively associated with aggressive acts among methamphetamine users, and it is plausible that feelings of empathy may be negatively associated with aggressive acts.
- Among ATS users, self-reported occasions of public nuisance behaviour were appreciably more common when the person was under the influence of alcohol than when they were under the influence of illicit drugs. Rates of public nuisance were slightly higher among males than females.
- Property crime, including theft and property damage, was more common among ATS users than non-users. For the ATS users, alcohol intoxication appeared to contribute more to property crime than intoxication from illicit drugs, and methamphetamine use appeared to play a greater role than ecstasy use.

Introduction

This chapter examines offending behaviour and potential for offending among young adult ATS users and non-users, including individual aggressive traits, violent behaviour, public nuisance behaviour, intimate partner violence, property crime and drug-related offences. Due to the limited nature of available research, the rates at which these problem behaviours occur in young adult populations are unknown. This chapter focuses in particular on offence rates among young adults who have a history of regular ATS use, compared with those who have never used ATS, to enable a better understanding of how ATS use contributes to patterns of offending. There is still only a nascent understanding of what causal mechanisms, if any, may be responsible for the observed association between ATS use and particular forms of offending behaviour such as violence (Dawe, Davis, Lapworth & McKetin 2009; McKetin, Lubman et al. 2014). A key consideration of this literature and the present study is the extent to which these behaviours vary according to levels of drug use. The contributions of methamphetamine and ecstasy use to offending behaviour are compared here, as well as any additional or modifying influence of alcohol use.

A substantial research literature shows a positive correlation between methamphetamine use and a variety of offending behaviours including public violence, property crime and possibly intimate partner violence (Ernst, Weiss, Enright-Smith, Hilton & Byrd 2008; Gizzi & Gerkin 2010; McKetin, Lubman et al. 2014; Tyner & Fremouw 2008). There is, similarly, an established literature showing linkages between alcohol use and these types of problem behaviours (Hoaken & Stewart 2003); and alcohol consumption appears to contribute more than other drugs to violent crime (Pilgrim, Gerostamoulos & Drummer 2014; Rowe, Wiggers, Wolfenden & Francis 2010). However, little attention has been given to the possible contribution of alcohol consumed during episodes of methamphetamine use.

In contrast to the methamphetamine literature, there is little published regarding the presence or otherwise of an association between ecstasy use and criminal behaviour. An Australian epidemiological study found that frequent (≥ weekly) ecstasy users were more likely than less-frequent users to have engaged in crime in the prior month and to have been arrested in the previous year (Degenhardt et al. 2009). However, criminal activity was predominantly comprised of dealing for profit, followed by property crime. Further, a US population-based study found that young adult arrestees were less likely than other young adults to have used ecstasy, and that ecstasy use among arrestees was positively associated with drug market involvement but negatively associated with violent and property crime (Hendrickson & Gerstein 2005). These epidemiological findings are consistent with animal studies which suggest that ecstasy may have anti-aggressive acute effects (Kirilly et al. 2006; Maldonado & Navarro 2001).

Nonetheless, some exploratory studies indicate that ecstasy users may consume very high quantities of alcohol when using ecstasy (Breen et al. 2006; Kinner et al. 2011). While the possible impact of these concurrent consumption behaviours on risk behaviours such as drug driving and unsafe sex has been explored the possible link with offending behaviour, including aggression and violence, has not been investigated. It has been proposed that ecstasy users generally perceive themselves to be law-abiding despite their involvement in illegal drug use (Agar & Reisinger 2004; Martinus, McAlaney, McLaughlin & Smith 2010), although the same process of normalisation may apply to cannabis and methamphetamine use, to varying degrees (Blackman, 2010). This study looks at whether ecstasy users have the same orientation toward offending behaviour as non-users.

There is a growing literature committed to better understanding the relationship between methamphetamine use and antisocial behaviour, and violence in particular. Despite some improvement in the methods used to examine these issues, there are still questions regarding the extent to which the behaviours observed in relevant studies are generalisable to the broad population of methamphetamine users and whether there is a direct causal link between methamphetamine use and violence. The available evidence concerning the prevalence of violence among methamphetamine users comes from self-selected volunteer samples or special populations such as treatment clients and arrestees. Half of all methamphetamine-dependent participants in one study reported engaging in violent behaviour at some point during the study period; however not all methamphetamine users, including long-term users, will engage in violent behaviour (Sommers & Baskin 2006). There are a number of factors which may affect the likelihood of violent outcomes during methamphetamine use including a personal predisposition for physical aggression or impulsivity, the users' gender, the potency and dose of methamphetamine, the concurrent use of other drugs—especially alcohol—and the social environment of drug use (Dawe et al. 2009; McKetin, Lubman et al. 2014). Recent research supports the proposition that violent behaviour may be positively associated with the dose of methamphetamine used (McKetin, Lubman et al. 2014). In addition, it is possible that certain individual characteristics, including an individual predisposition to aggression, may influence the extent to which methamphetamine use may elicit aggressive or violent behaviour. These aggressive traits may originate in childhood and adolescence, and the factors contributing to these traits may be the same as those that increase the individual's predisposition to use drugs. Further, there is evidence to suggest that young people who exhibit conduct disorder prior to initiating drug use may have a stronger predisposition to severe violence (Torok, Darke & Kaye 2012). This chapter also explores the possible relationship between conduct disorder, offending behaviour and drug use.

A majority of the ATS-related crime which comes to the attention of police occurs in public settings. With regard to violent behaviour, it is possible that young adults' patronage of licensed venues could promote greater consumption of ATS, and commensurate violence, in the same manner it does for alcohol. Other public activities of young adult ATS users, including risk-taking and public nuisance behaviour, may also bring them to the attention of police. In many instances this may lead to arrests and drug-related charges, especially for drug possession. Beyond these apparent linkages, it is also possible that levels of involvement in different social settings of drug use may influence behaviour in the long term (Lee, Battle, Soller & Brandes 2011).

Violence and aggression

Female ATS users scored higher levels of trait aggression (ie a stable disposition toward aggression) on the physical aggression subscale of the Buss-Perry Aggression Questionnaire compared with female non-users; similarly, male ATS users had higher levels compared with male non-users (see Table 2-1). However, young male adults were more aggressive than their female counterparts regardless of whether they used ATS. These differences in trait aggression are important, because being more predisposed to aggression has been linked with greater involvement in aggressive acts (Archer & Webb 2006). Further, aggressive behaviour elicited under the influence of alcohol, and possibly other drugs, is more likely to occur in people with a high disposition toward aggression, especially in circumstances where there are only low levels of provocation (Giancola 2002; Tremblay et al. 2008). Certainly, associations between high-level alcohol consumption and aggressive behaviour have been largely or fully attenuated after controlling for trait aggression. The residual role of alcohol consumption is unclear, but it has been suggested that alcohol may act as a primer or catalyst for aggressive behaviour. In particular, alcohol may activate established cognition and emotions that lend themselves to aggressive behaviour among those who have high levels of trait aggression, further lowering the threshold to aggressive behaviour (Giancola 2002).

Gender differences in trait aggression are well documented, and may have a biological as well as a social basis (Harris 1996). These gender differences may also, arguably, explain some of the link between alcohol consumption and aggressive behaviour. Males are more likely to consume alcohol at high levels and are also more likely to exhibit stronger trait aggression, and the greater involvement of males in aggressive acts can be largely explained by the latter factor (Tremblay et al. 2008). This is entirely consistent with evidence indicating that females with high trait aggression are also implicated in alcohol-related aggression and violence (Newberry, Williams & Caulfield 2013). Considered within a developmental context, trait aggression in adolescence and early adulthood may lead to greater involvement in alcohol and drug use and, moreover, some of the individual characteristics underlying trait aggression may be the same as those underlying a propensity to drink large amounts of alcohol (Skara et al. 2008). Trait aggression may also shape some of the young adults' expectancies around alcohol use in social settings.

Table 2-1. Mean scores on Buss-Perry Aggression Questionnaire, on a scale from 1 to 5, where 1 is 'not at all like me' and 5 is 'completely like me', by gender and study group (ATS and comparison)[a]

	Females		Males	
	ATS	CG	ATS	CG
Buss-Perry AQ Total[b]	14.193	11.854*	18.994	15.220**
Once in a while I can't control the urge to strike another person	0.846	0.790	0.949	0.890
Given enough provocation, I may hit another person	1.389	1.202	2.143	1.637*
If somebody hits me, I hit back	2.118	1.724*	3.069	2.604*
I get into fights a little more than the average person	0.920	0.735**	1.029	0.857
If I have to resort to violence to protect my rights I will	1.967	1.662	3.034	2.582*
There are people that pushed me so far that we came to blows	1.404	1.054**	2.085	1.549*
I can think of no good reason for ever hitting a person[c]	2.681	2.514	3.007	2.495*
I have threatened people that I know	1.076	0.838	1.549	1.143*
I have become so mad that I have broken things	1.791	1.346	2.171	1.462*

a: Higher scores are indicative of more aggressive behaviour

b: Total possible score ranges from 9 to 45

c: Item is reverse scored

* $p<0.05$

** $p<0.01$

Drug use and aggressive behaviour

The ATS users were asked (at baseline, 12 months and 4½ years) how often they experienced a range of subjective effects on occasions of ecstasy or methamphetamine use in the past 12 months. Figure 2-1 shows the proportion experiencing feelings of anger or hostility on half or more of the occasions of their ecstasy or methamphetamine use. A higher proportion of males than females reported anger and/or hostility, although this difference was only significant for methamphetamine use. However, for both female and male ATS users, aggression was more common with methamphetamine use than it was with ecstasy use. The difference was particularly pronounced for male ATS users, with around one in six reporting these effects from methamphetamine use—more than twice the rate reported for ecstasy use.

Variations in anger and/or hostility, according to the typical dose of ecstasy or methamphetamine used by participants, were examined (Figure 2-2). The proportion reporting aggression on ecstasy remained stable regardless of dosage level (low=0 to 1.5 pills, intermediate=2 to 2.5 pills, high=3 or more pills). However, for methamphetamine, there was a significant increase in the proportion reporting aggression with the higher doses used (low=0 to 0.1 grams, intermediate=0.15 to 0.5 grams, high=0.6 grams or more). While one in 10 reported aggression on a low dose of methamphetamine, around one in five reported aggression on a high dose.

The way in which ATS users' aggression varied according to concurrent alcohol use was also examined (Figure 2-3). The typical quantity of alcohol (standard drinks) consumed on each occasion of ecstasy or methamphetamine use was assessed. Nearly all participants drank alcohol when using ATS, with consumption levels varying from less than four to well above 10 standard drinks (see also Figures 1-1 and 1-2). There was a positive association between alcohol consumption and aggression on occasions of both methamphetamine and ecstasy use, but the proportion reporting aggression was far higher for methamphetamine than for ecstasy. However, no participants reported aggression when the level of alcohol consumed was low (0 to 4 standard drinks). This suggests that alcohol may play a critical role in activating aggressive behaviour in ATS users, and this process may have stronger implications for methamphetamine use.

In examining the degree of aggression arising from ATS use, it may also be worth considering feelings of aggression in the context of other subjective effects of ecstasy and methamphetamine use, especially effects that may increase or reduce aggression. There is extensive qualitative evidence indicating that ecstasy users experience pro-social effects of ecstasy such as increased empathy, which may reduce the likelihood of any aggressive outcomes of use (Giancola 2003). Conversely, paranoid ideation has been shown to increase the likelihood of aggressive outcomes among stimulant users. The same measurement approach used for aggression and/or hostility was used for assessing empathy and paranoia. Significantly more participants experienced increased empathy when using ecstasy compared with methamphetamine (81.9% vs 60.4%, $z=5.99$, $p<0.001$). On the other hand, paranoia was more common on occasions of methamphetamine use compared with ecstasy use, although the magnitude of the difference was smaller (19.3% vs 12.5%, $z=2.31$, $p<0.05$). These results provide further evidence that aggressive behaviour is more likely to arise from methamphetamine rather than ecstasy use.

However, as a broad caveat, methamphetamine use per se does not appear to be the primary factor behind aggression behaviour in ATS users—simply because aggression, compared with other types of experiences, is a relatively uncommon outcome of use. The findings also show that various factors increase the likelihood of aggression in methamphetamine users. Aggression may be an outcome of high-dosage methamphetamine use and concurrent use of large quantities of alcohol. An additional possibility is that aggressive responses under the influence of methamphetamine (or ecstasy) may vary according to individual aggressive traits. Figure 2-4 shows dose-related rates of aggressive subjective effects, on ecstasy and methamphetamine users respectively, according to whether they had low- or high-level aggressive traits. For ecstasy users, the rate of anger and/or hostility remained unrelated to dosage; but while those with low aggressive traits reported negligible anger and/or hostility, around one in 10 of those with high aggressive traits reported these subjective effects. For methamphetamine the relationship was more pronounced, with rates of anger and/or hostility being related to both dosage and trait aggression. Those with high levels of trait aggression who also took intermediate to high doses of methamphetamine were at greatest risk, with one quarter or more reporting these effects. These findings parallel what we know about the relationship between alcohol and aggression (Giancola 2002).

Figure 2-1. ATS users' reported subjective effect of anger/hostility from ecstasy/methamphetamine use, at any time interval during 4½-year study period

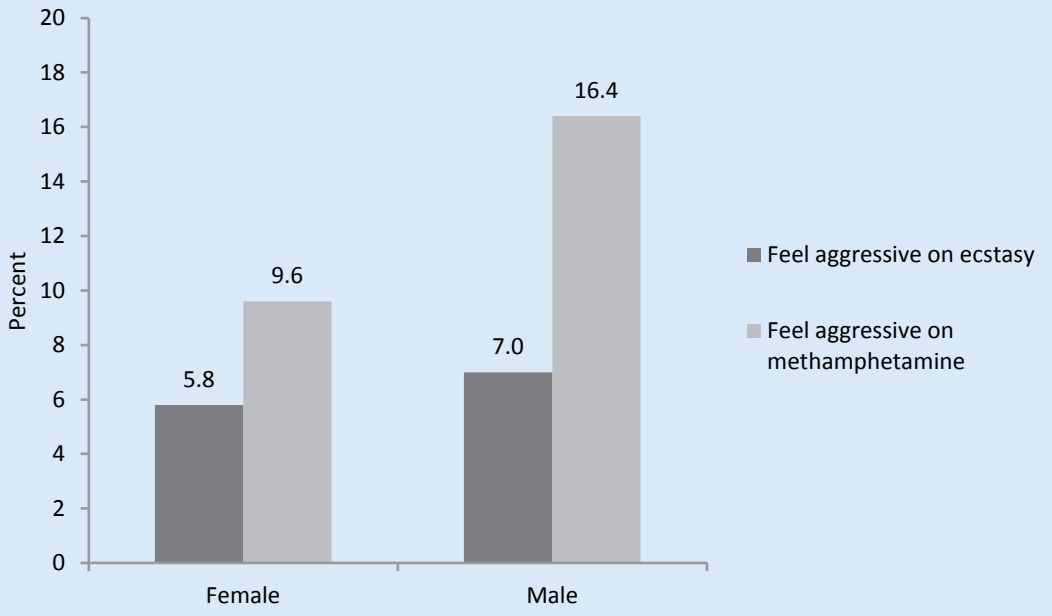


Figure 2-2. Proportion reporting subjective effect of aggression/hostility, according to ecstasy or methamphetamine dosage level

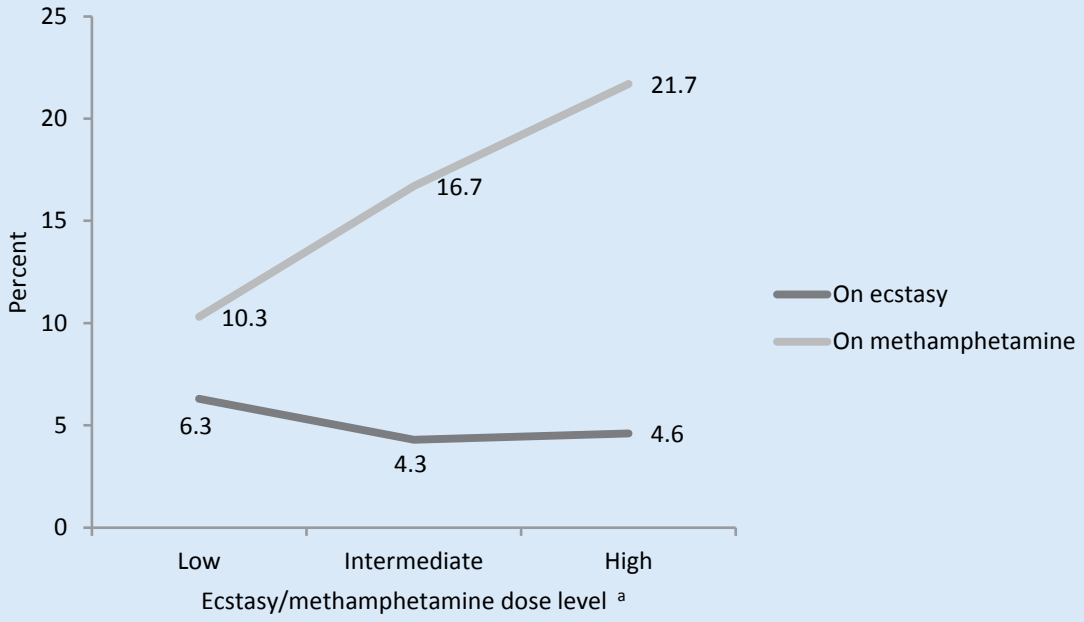


Figure 2-3. Proportion reporting subjective effect of aggression/hostility, according to level of concurrent alcohol consumption during ATS use episodes at 4½ years

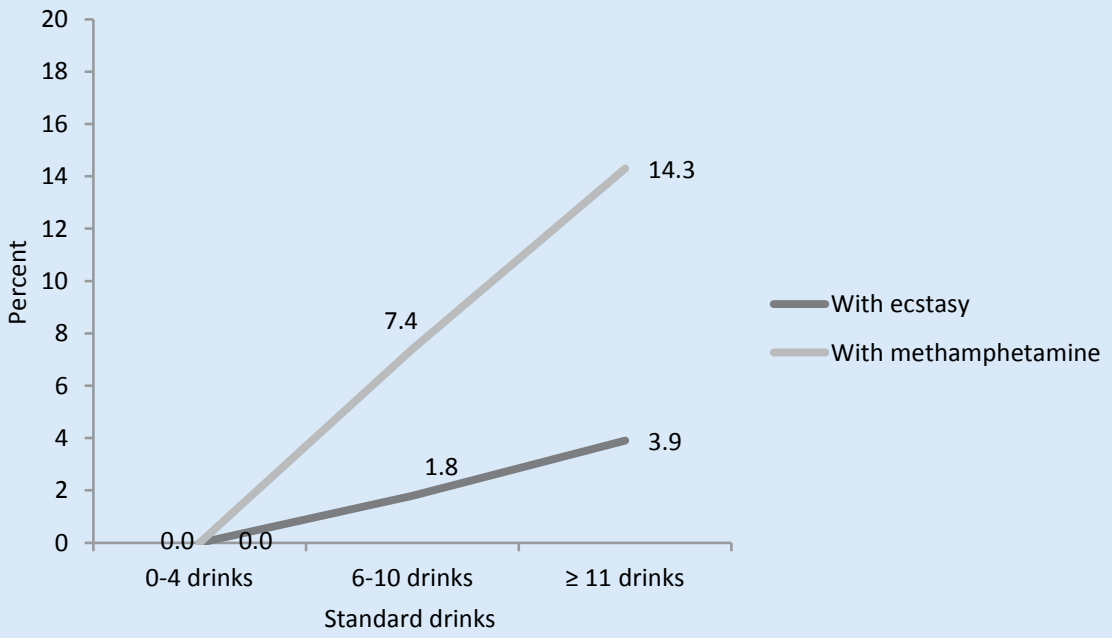
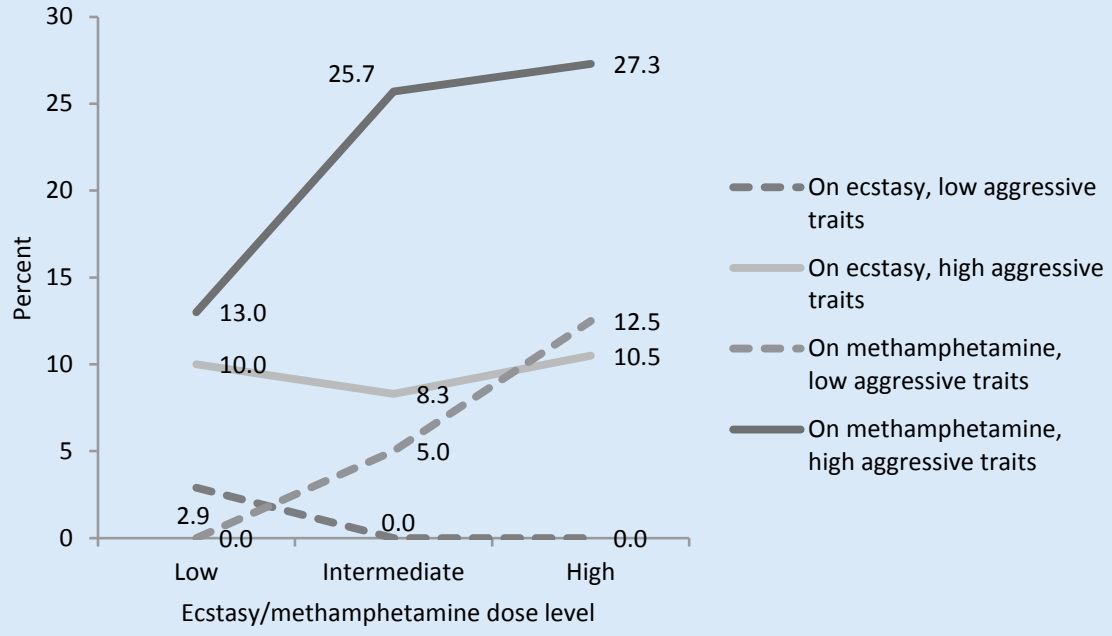


Figure 2-4. Proportion reporting subjective effect of aggression/hostility, according to level of aggressive traits (low/high) and ecstasy/methamphetamine dosage level



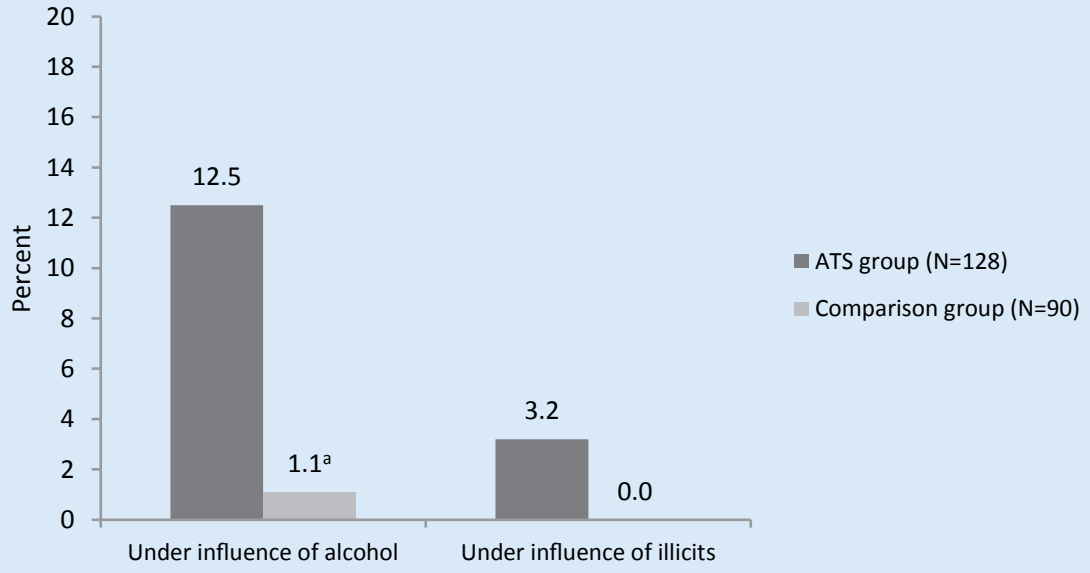
Public nuisance

At the 4½-year follow-up, very few comparison group participants reported creating a public nuisance while under the influence of alcohol or illicit drugs in the previous 12 months (Figure 2-5 and Figure 2-6). Within the ATS group, rates of public nuisance were slightly higher among males than females. However, they were also appreciably higher with regard to being under the influence of alcohol compared with being under the influence of illicit drugs for both males and females (males: 17.9 vs 8.2, z=2.78, $p<0.01$; females: 12.5 vs 3.2, $z=2.14$, $p<0.05$).

The gender differences are consistent with what is known about externalising behaviour and also with the gender differences in aggression reported in this study. Nonetheless, the fact that one in 10 of the female participants had recently engaged in public nuisance behaviour while under the influence of alcohol suggests that alcohol-related public behaviour is a problem among young adults of both genders. On the other hand, public nuisance under the influence of illicit drugs appears to be uncommon in this population of female ATS users.

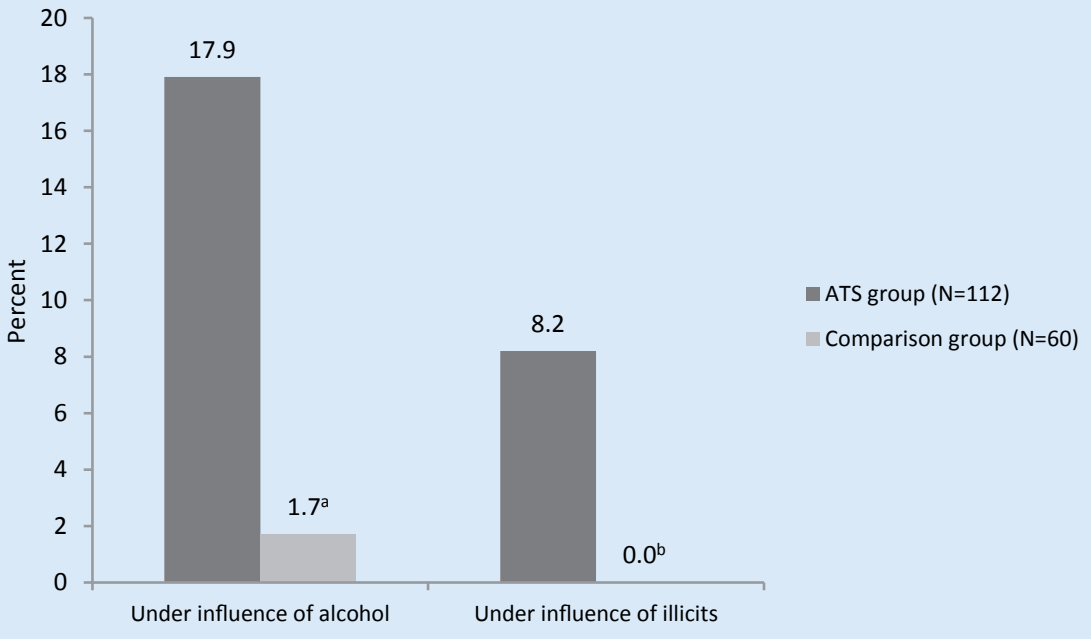
The high rates of public nuisance attributable to alcohol are consistent with available data on alcohol sales and relevant offences. However, previous studies have not compared public nuisance offences attributable to alcohol and those attributable to ATS and other illicit drugs. One study examining king-hit (or one-punch) fatal assaults suggests that alcohol may play a greater role than illicit drugs in severe violence and antisocial behaviour, but more evidence is required with regard to a variety of problem behaviours in different settings.

Figure 2-5. Last 12 months, female participants, create a public disturbance/nuisance under the influence of alcohol/illicit drugs, by study group



a: Significant group difference ($\chi^2(1)=9.53$, $p<0.01$)

Figure 2-6. Last 12 months, male participants, create a public disturbance/nuisance under the influence of alcohol/illicit drugs, by study group



a: Significant group difference ($\chi^2(1)=9.55$, $p<0.01$)

b: Significant group difference ($\chi^2(1)=9.53$, $p<0.05$)

Table 2-2. Proportion of ATS users creating a public nuisance under the influence of alcohol and illicit drugs, according to frequency of venue attendance (nightclubs, live music venues, pubs/bars) in last 12 months

	None	<Monthly	Monthly	Weekly	*p*-value
Under the influence of illicit drugs					
Nightclubs	0.0	3.6	11.1	20.0	<0.01
Live music venues	4.0	4.0	8.2	18.2	
Pubs/bars	0.0	3.2	6.3	8.9	
Under the influence of alcohol					
Nightclubs	5.6	11.3	28.9	26.7	<0.01
Live music venues	8.0	13.2	16.0	45.5	<0.05
Pubs/bars	0.0	9.6	13.6	26.8	<0.05

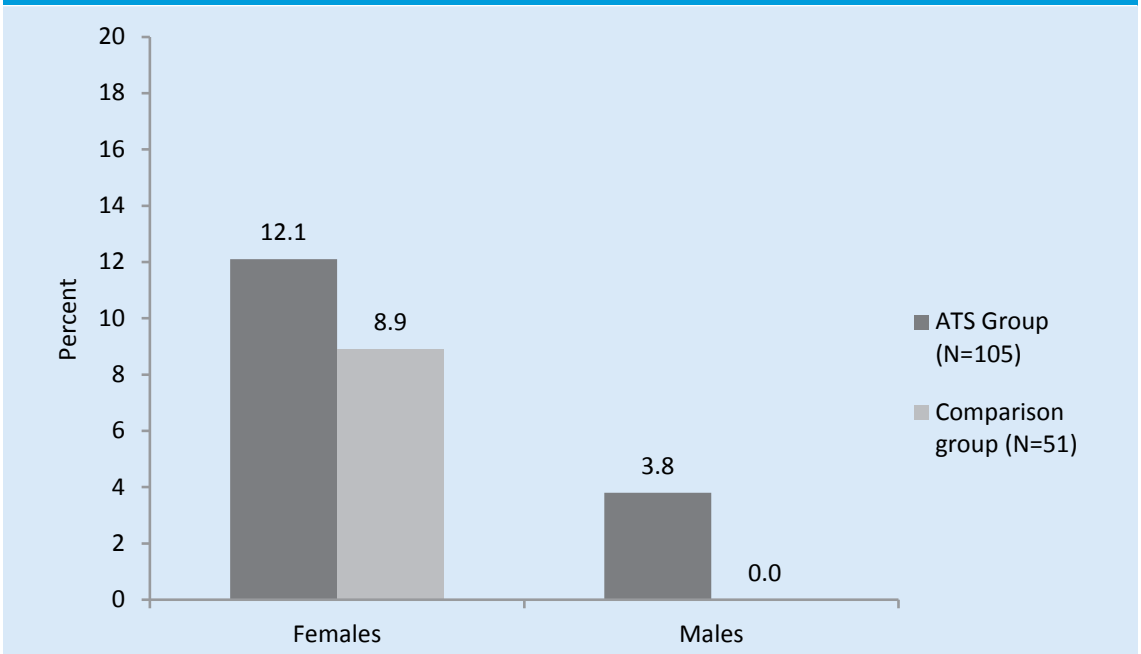
Intimate partner violence

Scales measuring intimate partner violence (IPV), including the conflict tactics scales used in this study, are prone to social desirability bias, which includes under-reporting of violent perpetration by men and possibly also over-reporting of perpetration by women. However, if it can be assumed that this bias impacts on the self-reporting of drug users and non-users equally, there appear to be only modest group differences with regard to both perpetration and victimisation, except perhaps with regard to male victimisation.

The focus of the conflict tactics scales is limited to those participants who had been in a relationship during the past 12 months. Most notably, around eight percent of ATS-using and six percent of non-using females reported being subject to violence from their partners. This is discordant with the rates of perpetration reported by males of both groups, notwithstanding the fact that data are not collected from the actual partners. These findings suggest under-reporting of violence by male perpetrators, but it is also possible there is general under-reporting for both males and females (Emery 2010). There is also likely to be some heterogeneity in the severity of the violent acts reported, and this heterogeneity may also contribute to the observed gender differences. Despite the probable systematic bias in these data, the estimates of rates of IPV are similar to those obtained in other studies of drug users (Ernst et al. 2008).

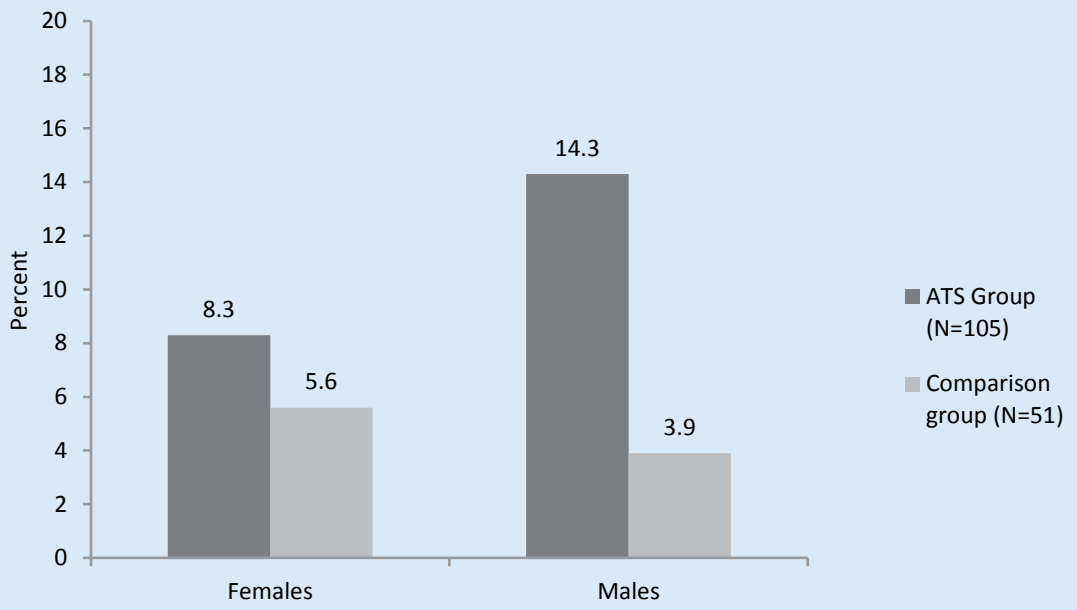
The relatively high rate of physical IPV perpetration reported by female ATS users, if valid, raises the possibility that there may be a greater incidence of aggressive acts among recent cohorts of female young adults, alongside increases in alcohol and drug use. Other data collected in the study in relation to aggression provide some support for the validity of the IPV measure. Firstly, 56.3 percent of the female ATS users who reported physical IPV perpetration had high-level aggressive traits—that is, they were in the upper quartile on the Buss-Perry Physical Aggression scale—compared with 15.5 percent of those who did not report perpetration ($\chi^2(1)=14.34$, $p<001$). Secondly, at the 12-month follow-up, a greater proportion of these perpetrators reported physically abusing someone while under the influence of alcohol or illicit drugs, compared with those who did not engage in perpetration (45% vs 10.8%; $\chi^2(1)=17.70$, $p<001$). At the 4½-year follow-up, the rates of reported physical abuse had decreased and the difference between these groups of female ATS users had become marginal. From these results, it appears that IPV among a small subgroup of female ATS users may be one component of a more general pattern of aggression and violence. However, this involvement in aggressive acts appears to diminish over time during early adulthood. Further, the exact severity of the IPV perpetration and its impact on partners cannot be ascertained from the data collected in this study.

Figure 2-7. Severe physical violence: ever perpetrated, by gender



Note: severe physical violence items include: using a knife or gun, punching or hitting with object, kicking, slamming against wall

Figure 2-8. Severe physical violence: ever victimised, by gender



Note: severe physical violence items include: using a knife or gun, punching or hitting with object, kicking, slamming against wall

Some differences were observed in instances of IPV victimisation reported by female ATS users with regard to the type of relationship. A slightly lower proportion of females with older partners than those with younger partners reported violent victimisation, but this difference was not statistically significant (ages 18–24 years: 6.7%, 25–28 years: 7.4%, 29–42 years: 2.6%, χ^2=1.02, ns). However, it did appear that longer relationships were potentially protective against IPV. There was a positive but statistically marginal association between being in a relationship of less than one year and being a victim of IPV (13.0% vs 4.1%, χ^2=2.74, p<0.10), which may be worthy of further examination. It is possible that casual, short-term and unstable relationships are linked with an increased probability of IPV. Conversely, relationships where IPV is present may be less likely, in some circumstances, to last more than a year. Interestingly, ATS users were more likely than non-users to be in relationships lasting less than one year (25.2 vs 13.5, χ^2=3.89, p<0.05), and thus, despite the absence of significant differences in reported IPV, may be more exposed to such behaviour.

It appears that in many reported cases of IPV the victimisation may have been reciprocated or potentially provoked with similar violent acts. In particular, 37.5 percent of female ATS users who engaged in physical IPV perpetration also reported physical IPV victimisation, compared with 4.3 percent of those who did not engage in perpetration (χ^2(1)=20.28, p<001). However, a lack of data about the temporal order or severity of IPV acts in the present study means that it is not possible to properly assess the manner in which gendered relationship dynamics contribute to instances of victimisation.

Table 2-3. Proportion of ATS users experiencing recent victimisation (last 12 months) at 12-month follow-up, by gender and status of perpetrator (under influence of alcohol vs under influence of illicit drugs)

	Females (*n*=300)			Males (*n*=147)		
	Person under influence of alcohol	Person under influence of illicit drugs	*z* score	Person under influence of alcohol	Person under influence of illicit drugs	*z* score
Verbally abuse you	65.4	29.4	9.77**	70.1	35.6	8.74**
Physically abuse you	15.7	7.8	3.64**	31.3	13.0	6.60**
Put you in fear	31.4	21.7	2.91*	25.2	20.0	1.58

* $p<0.05$

** $p<0.01$

*** $p<0.001$

Victimisation

A majority of ATS users experienced some form of victimisation perpetrated by people who were intoxicated with alcohol or illicit drugs. This predominantly took the form of verbal abuse, with fewer ATS users experiencing physical abuse or being made fearful. Rates of victimisation in the form of verbal abuse were similar for males and females, but occurred at about twice the rate for alcohol-intoxicated, compared with drug-intoxicated, perpetrators.

Rates of physical victimisation were higher among males than females, which may reflect the greater extent to which males are a target of same-sex aggression in public settings. Again, alcohol-related perpetration occurred at about twice the rate of drug-related perpetration. There was little difference between male and female ATS users with regard to being made fearful. For females, it was slightly more common to be made fearful by alcohol-intoxicated persons than drug-intoxicated persons. For males, it made no difference whether the perpetrator was intoxicated by alcohol or by illicit drugs.

ATS users were asked about their relationship with the perpetrators, including whether this person was a partner, friend or stranger (Table 2-5). For both females and males, strangers were the most common perpetrators. Perpetration by friends was more common among males than females, with the exception of being put in fear.

Perpetration by a partner was more common for females than males. Interestingly, the results of these victimisation questions somewhat validate the findings of the IPV data, with similar results obtained. The IPV items from the conflict tactics scale focus on current relationships and indicate about eight percent of female ATS users had experienced physical victimisation at some time during this relationship. The general questions about victimisation indicate that about 10 percent have ever been physically abused or made fearful by a partner. On the basis of the results for these different instruments, it can reasonably be estimated that one in 10 female ATS users have experienced physical victimisation within a relationship.

Table 2-4. Type of perpetrator (partner, friend, stranger) involved in recent occasions of alcohol or drug-related victimisation, by gender and type of victimisation (n=300)

	Partner		χ^2	Friend		χ^2	Stranger		χ^2
	Female	Male		Female	Male		Female	Male	
Verbally abuse you (%)	17.7	8.2	5.96*	14.4	31.3	12.23***	41.8	50.3	2.19
Physically abuse you (%)	9.2	2.7	5.49*	1.3	9.5	10.02**	7.2	19.1	9.32**
Put you in fear (%)	9.8	0.7	12.36***	5.2	2.7	1.23	19.0	19.1	0.00

* $p<0.05$

** $P<0.01$

*** $p<0.001$

Property crime

Very few young adult non-users of ATS engaged in any kind of property crime over the duration of the study (Figure 2-9). Among ATS users, the most common type of property crime involved damaging property, comprising activities such as graffiti and vandalism. Property theft was less common. Notably, a significantly greater proportion of property damage and theft was perpetrated by young adults under the influence of alcohol than by those under the influence of illicit drugs. In particular, one in 10 had stolen property and about a quarter had damaged property while under the influence of alcohol. For illicit drug-related property crime, theft occurred at half the rate, and damage at less than half the rate, of alcohol-related events. Consequently, it could be proposed that the nexus between ATS use and property crime is not as strong as that between alcohol and property crime. Further, it is plausible that acquisitive crime, supporting and/or driven by drug use, does not occur with ATS use in the same way that it does with other drugs. However, when compared with non-users of ATS, it appears that young adult ATS users may have a greater propensity for excessive alcohol use and a concomitant propensity for antisocial acts including property damage and, to a lesser extent, property theft. The proximal influences on antisocial behaviour could include the acute or sustained psychological effects of alcohol and/or ATS use, in combination with peer-group influences and other contextual social factors. However, less immediate factors, such as childhood and adolescent factors, may also be relevant, especially for those ATS users most likely to perpetrate antisocial behaviour.

Figure 2-9. Proportion of young adults who damaged or stole property under the influence of alcohol or illicit drugs during 4½-year study period, ATS group (*n*=315) and comparison group (*n*=150)

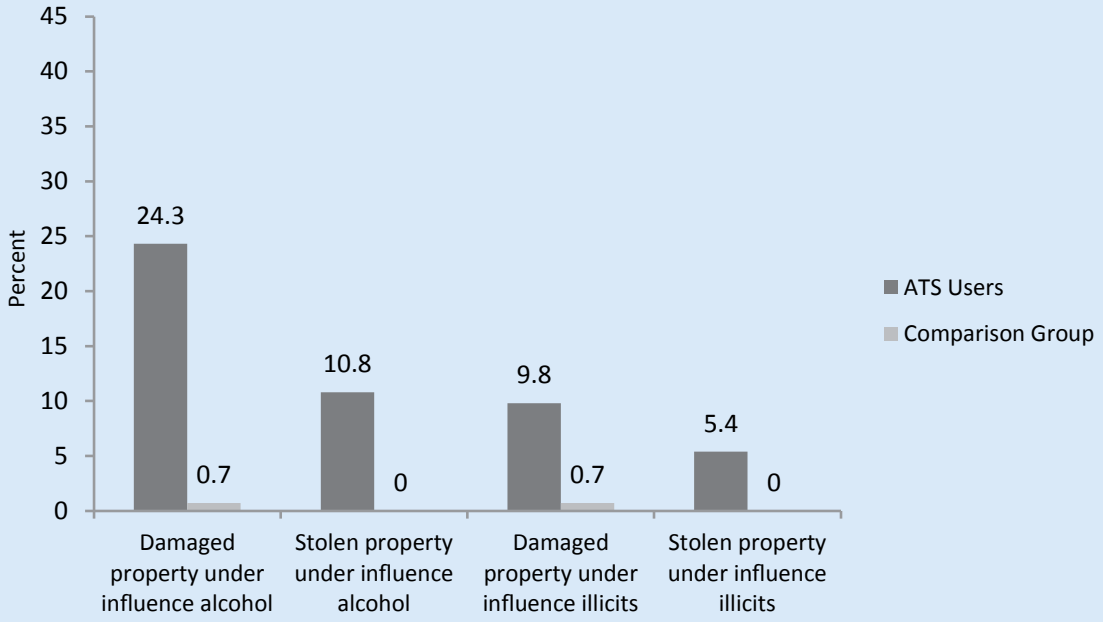
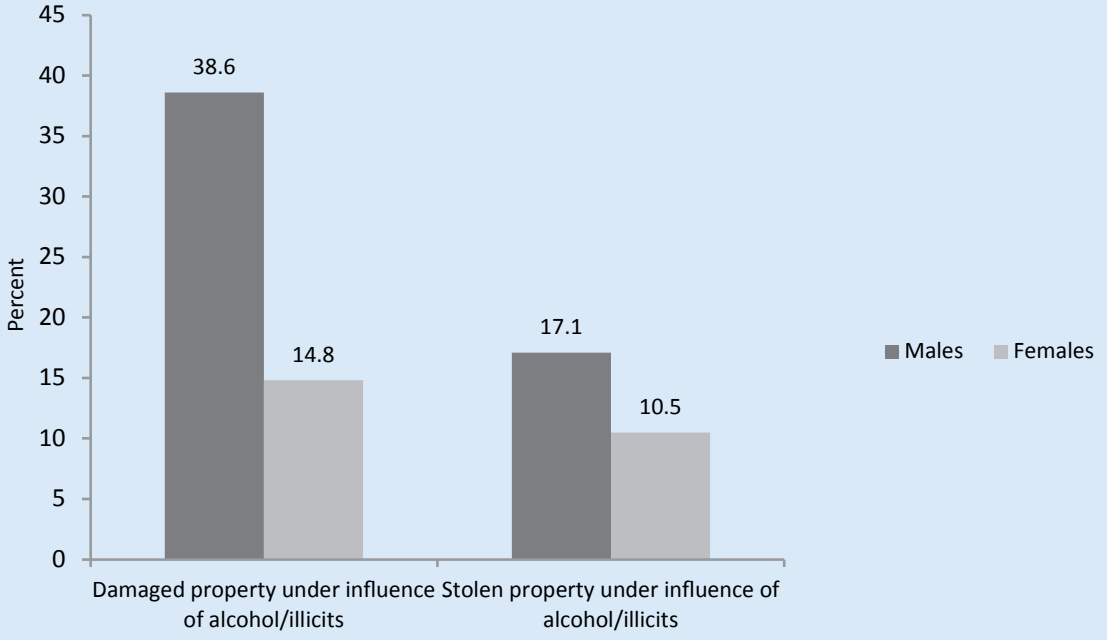


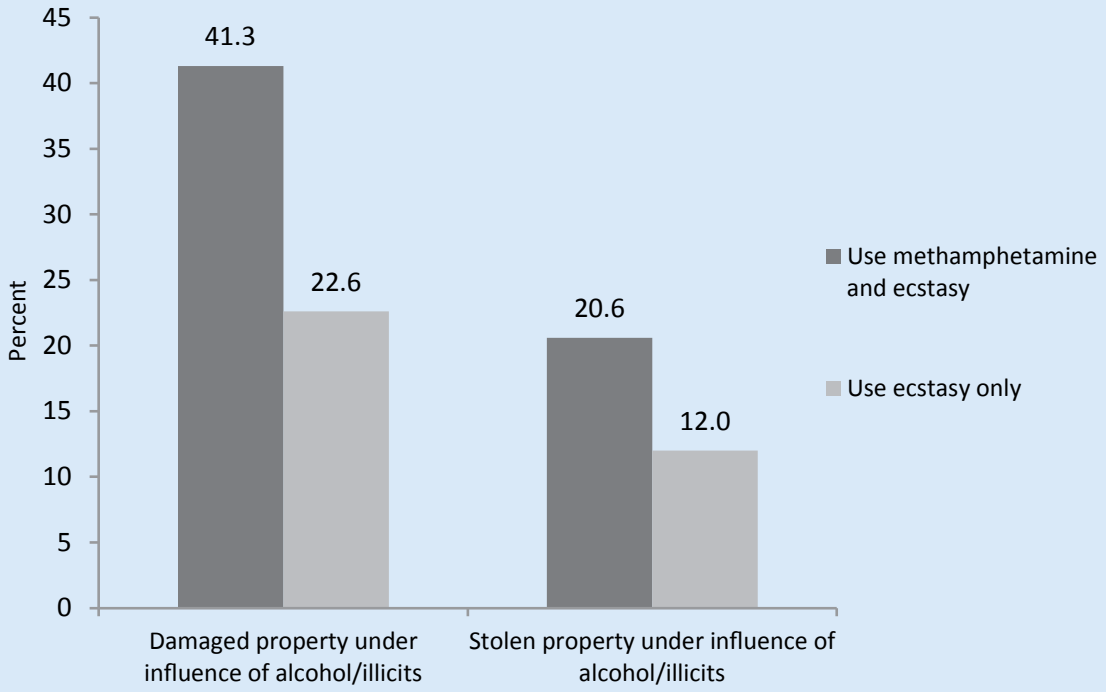
Figure 2-10. Proportion of ATS users who damaged or stole property under the influence of alcohol/illicit drugs, by sex (males [*n*=152] vs females [*n*=162]) during 4½-year study period



The probable importance of socialisation and developmental influences on acts such as property crime is underscored by the significantly higher involvement of males in these activities compared with females (Figure 2-10). Typically, this type of behaviour is initiated in adolescence. However, drug-induced changes in behaviour in the short term (eg increased confidence and aggression) or long term (eg drug dependence) may also elicit particular behavioural outcomes. Methamphetamine may differ from ecstasy both in its subjective effects and the nature of dependence on the drug. Significant differences were observed in the use of these drug types, with methamphetamine users engaging in property damage and theft (under the influence of alcohol/illicit drugs) at about twice the rate of those who principally used ecstasy (Figure 2-11).

It is not possible to conclude, however, that the effects of methamphetamine are entirely responsible for this difference. Those who regularly used methamphetamine predominantly also used ecstasy and a range of other drugs. Thus, polydrug use may contribute to the observed set of behaviours, either in terms of the effects of using a variety of substances or the individual and environmental influences which lead people into these drug-use patterns. Nonetheless, the fact that one in five regular methamphetamine users had stolen property, and two in five had damaged property, suggests this level of drug involvement in young adults is a marker of risk for engagement in property crime.

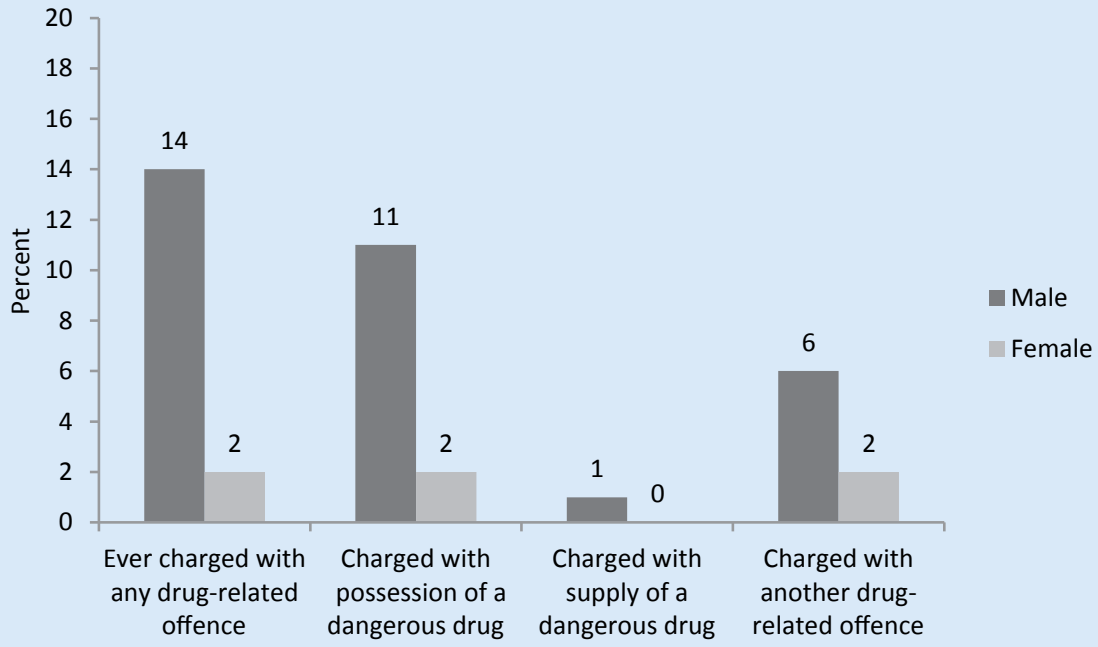
Figure 2-11. Proportion of ATS users who had damaged or stolen property under influence of alcohol/illicit drugs, by methamphetamine use status (methamphetamine use [*n*=63] vs ecstasy-only [*n*=251]) during 4½-year study period



Drug-related offences

More than one in 10 ATS users had been charged with a drug-related offence, predominantly possession of a dangerous drug (Figure 2-12). These data indicate that involvement in illicit drug use entails a real risk of apprehension and legal sanctions for young adult males who use ATS. In contrast, being charged with a drug-related offence was a rare occurrence for female ATS users, with two percent having ever been charged. This significant gender difference may reflect a tendency for males to use greater amounts of ATS and other drugs and their greater involvement in the ATS market, as documented in this study. However, charges of supply of a dangerous drug were extremely rare in this group; thus, from a drug market perspective, this gender difference may arise because male users purchase ATS more frequently—including, perhaps, small quantities to pass on to friends. The level of risk for these young male adults may also be increased by their higher rates of involvement in conspicuous public behaviour, such as verbal aggression or creating a public nuisance, and dangerous behaviour such as drug or drink-driving. Certainly, the police encounter findings for this study show the vast majority of contact related to alcohol or illicit drug use occurs in a public setting, including occasions when the offender is driving under the influence of alcohol or drugs.

Figure 2-12. Percent of ATS group sample charged with a drug-related offence, by gender (*n*=272)



Conduct disorder and offending behaviour

It is possible that the relationships observed between ATS use and offending could be explained by earlier behavioural patterns that have led to both of these activities in early adulthood. Participants were assessed retrospectively for a history of conduct disorder, which comprises a systematic pattern of behaviours such as lying, stealing, truancy and bullying beginning in childhood or adolescence. A significantly higher proportion of ATS users than non-users were assessed as having ever had conduct disorder (23.9% vs 8.9%; $\chi^2(1)=14.72$, $p<0.001$).

Among the ATS users, substance-related patterns of antisocial or offending behaviour were examined at 12 months and 4½ years, according to whether there was a diagnosis of conduct disorder (Table 2-5). Inclusion of data for each of these time intervals enabled some appraisal of whether adolescent behavioural patterns have an enduring influence on offending behaviour throughout early adulthood. It was found that rates of offending behaviour decreased greatly over the study period, regardless of a history of conduct disorder. As a consequence, the strength and scope of the associations between conduct disorder and offending behaviour appeared to diminish by the 4½-year follow-up. At 12 months, conduct disorder was associated with causing property damage, stealing property and physically abusing someone while under the influence of illicit drugs, and with stealing property while under the influence of alcohol. In contrast, at 4½ years conduct disorder was only associated with creating a public disturbance under the influence of illicit drugs. The findings provide some support for the proposition that delinquent behaviour varies according to levels of involvement in alcohol and drug use. However the findings also suggest that most ATS users, including those with a history of conduct disorder, eventually mature out of both intensive drug use and antisocial behaviour.

An additional finding is that a history of conduct disorder was unrelated to whether the ATS user had ever been charged with a drug-related offence such as possession. It appears that factors other than an antisocial predisposition may contribute to the likelihood of being charged with such an offence. These factors could comprise a variety of risk-taking behaviour, such as carrying drugs in public. To some extent this may reflect the predominantly social nature of ATS use.

Table 2-5. ATS users' offending behaviour at 12 months and 4½ years, while under the influence of alcohol/ illicit drugs, according to history of conduct disorder

	12 months			4½ years		
	Conduct disorder (*n*=55)	No conduct disorder (*n*=170)	*p*-value	Conduct disorder (*n*=55)	No conduct disorder (*n*=170)	*p*-value
Under the influence of alcohol						
Created a public disturbance/ nuisance	38.9	30.0		17.9	14.4	
Caused damage to property	29.6	20.7		10.7	3.9	<0.10*
Stole money/goods/ property	18.9	8.2	<0.05	1.8	1.7	
Verbally abused someone	54.7	42.1		30.4	24.4	
Physically abused someone	16.7	9.4		7.3	3.3	
Under the influence of illicit drugs						
Created a public disturbance/nuisance	28.3	17.1	<0.10*	10.9	3.9	<0.05
Caused damage to property	15.1	5.3	<0.05	5.5	1.1	<0.10*
Stole money/goods/ property	9.4	2.9	<0.05	5.5	1.1	<0.10*
Verbally abused someone	32.1	19.4	<0.10*	12.7	9.0	
Physically abused someone	11.5	3.0	<0.05	1.8	1.1	
Drug offences						
Ever charged with a drug offence (e.g. possession, supply)	n/a	n/a		20.7	14.1	

*Marginal association

Conclusions

ATS users appear to have slightly higher levels of aggressive traits compared with non-users, but this is unlikely to be entirely a product of drug involvement. With regard to ATS use and aggressive or violent behaviour, this relationship is complex and varies according to gender, level of alcohol consumed and the perpetrators' level of aggressive traits. For methamphetamine, aggression and violence also vary according to the dose of methamphetamine used. The different subjective and longer-term effects of methamphetamine compared with ecstasy may contribute to the differences observed.

Levels of alcohol use among ATS users appeared to play a significant role in both public nuisance activity and property crime. These types of offences were committed by methamphetamine users at a higher rate than by ecstasy users.

Drug possession is the most common type of drug-related offence reported by ATS users. Few had been charged with supply or other drug-related offences. Drug-related offences occurred predominantly among males, which may reflect their greater degree of involvement in the drug market and higher level of risk-taking activity.

Offending behaviour among ATS users is linked, to some extent, to a history of delinquent behaviour in childhood or adolescence. ATS users' rates of offending behaviour, including the rates of those with a history of conduct disorder, decrease considerably as they progress through early adulthood. There are different implications of this general pattern of behavioural development. Firstly, community-level interventions for at-risk adolescents are required; these are described in Chapter 1. Secondly, appropriate interventions which minimise the levels of involvement in risky behaviours during the peak phase of drug use in early adulthood are required. Low-threshold interventions, with the goal of reducing alcohol and drug use and associated harms, may have the flow-on effect of reducing offending rates and helping young adults to negotiate a sometimes fraught period of transition. Screening and brief interventions in primary care and hospital emergency departments have been effective in meeting these goals with regard to alcohol use (Bailey, Baker, Webster & Lewin 2004; Jonas et al. 2012; McQueen, Howe, Allan, Mains & Hardy 2011; Monti et al. 1999). These initiatives could be translated to, and integrated with, interventions in the problematic use of other substances including ATS (Newton et al. 2011). It may also be worthwhile exploring the application of such interventions in other locations, including in custodial settings, to increase engagement with at-risk groups (Chariot et al. 2014; Coulton et al. 2012). Further, interventions which use electronic platforms, including text messaging, social network websites and smart phone applications, could prove effective for engaging with large numbers of the target population (Haug, Kowatsch, Castro, Filler & Schaub 2014; Suffoletto, Callaway, Kristan, Kraemer & Clark 2012; Tait & Christensen 2010).

Chapter 3: Driving behaviour and traffic offences

Key points

- Male ATS users (36%) were more likely than male non-users (12%) to report they had driven under the influence of alcohol during the last 12 months.
- More than a third of male ATS users reported drink-driving during a 12-month period, and nearly the same proportion reported driving under the influence of illicit drugs during this same period.
- About twice as many male ATS users than female ATS users reported driving under the influence of alcohol or illicit drugs.
- For ATS users, drink-driving was a contributing factor in three of 15 crashes, and speeding was a contributing factor in one of 15 crashes, over the previous four years. Drink-driving and speed were not contributing factors in any crashes among non-users.
- Traffic offences occurred among ATS users at a greater rate than among non-users. One third (33.5%) of ATS users, compared with 11.5 percent of non-users, had three or more recorded speeding offences, and 9.8 percent, compared with 1.5 percent, had a drink-driving offence.
- Drink-driving offences among ATS users were positively associated with frequency of use of both ecstasy and methamphetamine.
- There was a strong relationship between recent alcohol consumption and drink-driving offences, which is particularly salient given the very high levels of alcohol consumption within the ATS-using group.
- Higher levels of concurrent alcohol consumption during episodes of ecstasy use increased the likelihood of having a drink-driving offence.
- The association between concurrent alcohol consumption on occasions of ecstasy use and drink-driving appears to be contingent on a person's typical patterns of alcohol consumption. Those with low levels of usual alcohol consumption appeared to be comparatively unlikely to have a drink-driving offence, regardless of levels of concurrent alcohol consumption
- Male ATS users with high-level aggressive traits were more likely to have had three or more speeding offences, compared with both male ATS users with low aggression and male non-users with high aggression. Aggression was closely related to speeding but not to drink-driving offences.

Introduction

This chapter examines self-reported driving risk behaviour of young adult ATS users and non-users, as well as retrospective driving history records for both these groups. In addition to examining crashes and the factors that contribute to crashes, particular attention is paid to speeding and drug or drink-driving offences.

Young adults are a high-risk group for dangerous driving and crashes, but it is likely that the level of risk may vary considerably according to certain attributes including involvement in illicit drug use (Scott-Parker, Watson, King & Hyde 2013). There is evidence that the use of ATS, including ecstasy, is related to impaired driving performance in experimental and simulated driving conditions (Kuypers, Bosker & Ramaekers 2009; Stough et al. 2012), but actual rates of problem driving behaviour among ATS users have not been adequately studied. In a purposive study of Australian club and rave attendees, nearly half reported driving within four hours of using an illicit drug on at least one occasion in the past 12 months (Duff & Rowland 2006). Further, attendees' frequency of ecstasy and cannabis use was positively associated with driving under the influence

of illicit drugs. Similar results have been obtained for other convenience samples of Australian ecstasy users (Matthews et al. 2009). However, these findings have not been replicated in a population-based sample of ATS users. Further, other possible impacts of illicit drug use have not been systematically examined, including the presence of any links with other offences, including drink-driving and speeding.

Available epidemiological evidence regarding the unique contribution of illicit stimulant use to dangerous driving and crashes is inconclusive in relation to both incidence and consequences. In Victorian roadside drug tests up to the end of 2009, drugs were detected at a ratio of 1:64 drivers (Chu et al. 2012). Methamphetamine was the most common drug detected. Of all oral fluid specimens sent for laboratory analysis, 77 percent were positive for methamphetamine, 42 percent for THC, and 17 percent for MDMA. Similarly, in Queensland roadside drug tests, methamphetamine is the most common illicit drug detected (Davey, Armstrong & Martin 2014). Australian hospital and other administrative data concerning drivers injured, fatally or non-fatally, in crashes show methamphetamine present in three to four percent of cases and MDMA in less than one percent, compared with around 30 percent with a blood alcohol content of ≥ 0.05 (Ch'ng et al. 2007; Drummer et al. 2003; Drummer et al. 2012). The data suggest that in around one in ten cases a combination of alcohol and other drugs is present. However, it is not clear what proportion of injured drivers who were under the influence of stimulants were also under the influence of alcohol.

Stimulants may impair decision-making regarding whether to drive after consuming alcohol due to the stimulant effect of increased confidence and their potential for masking the subjective effects of alcohol intoxication. There is however a lack of information regarding the actual impact, at a population level, of stimulant use on driving behaviour and crashes. With regard to the possible scope of this problem, it is worth considering the possible effect of stimulant use on other common forms of dangerous driving behaviour, particularly speeding.

Two possible factors suggest that stimulant users could commit speeding offences more often than other young adults. Firstly, the subjective effects of stimulants, such as increased confidence and excitement, could increase the likelihood of engaging in this behaviour. Secondly, stimulant users may be more likely to have a risk-taking or sensation-seeking disposition, making them likely to speed (Bosanquet et al. 2013). These explanations are not mutually exclusive. It is possible that the drug's effects may activate a disposition toward risky driving practices.

Driving risk behaviour

At the 4½-year follow-up study participants were asked how often they had driven under the influence of alcohol and illicit drugs in the last 12 months. Male ATS users were more likely than male non-users to have driven under the influence of alcohol ($\chi^2(1)=11.60$, $p<0.01$). However, there was no difference in the proportion of females from each group who reported this behaviour (Figure 3-1). A small proportion of non-users did report driving under the influence of illicit drugs in the past 12 months, but ATS users were significantly more likely to have done so regardless of gender (Figure 3-2; females: $\chi^2(1)=11.48$, $p<0.001$, males: $\chi^2(1)=17.45$, $p<0.001$).

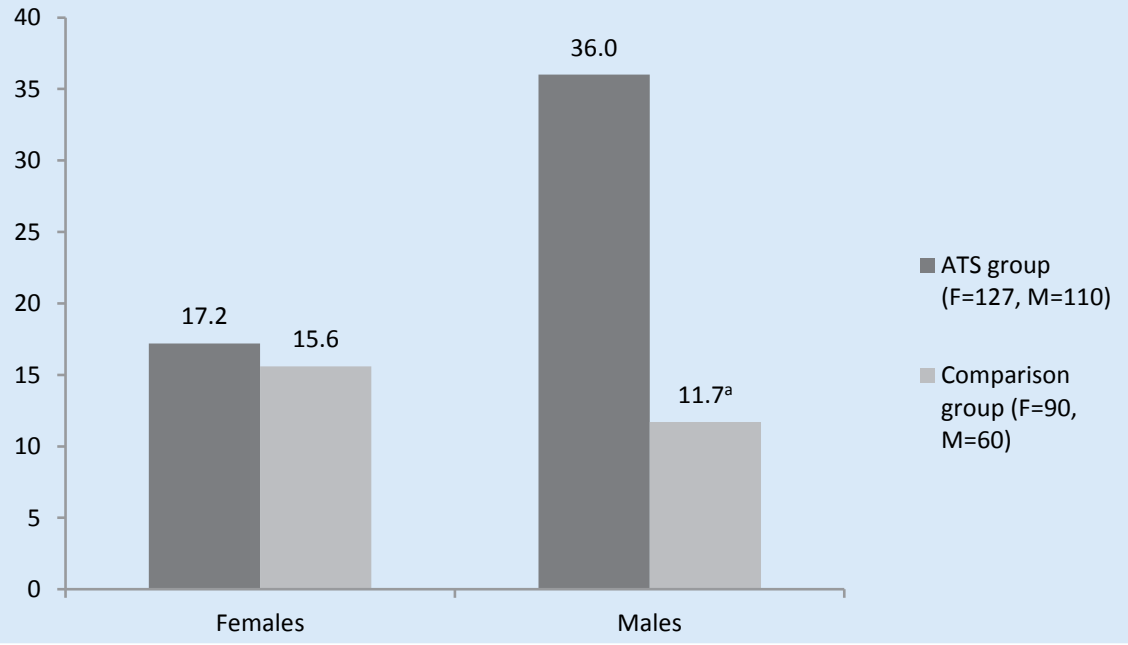
The results show, firstly, that drink-driving is not uncommon even among young adults who do not use ATS. More than one in 10 of the non-users reported engaging in this behaviour in the last 12 months. Further, male ATS users are extremely likely to drink-drive, with more than one third doing so during the 12 month period.

For the ATS user group, rates of driving under the influence of illicit drugs were similar to those for alcohol, with nearly one third of the males and one in six females reporting drug driving in the last 12 months. The fact that male ATS users engaged in both drink-driving and drug driving at about twice the rate of their female counterparts is consistent with known gender differences in driving behaviour and also with the differences observed in this study with regard to a range of other hazardous behaviours. While males tend to have a greater propensity for risk-taking, these patterns may also reflect gender differences in levels of alcohol and drug use.

It is possible that concurrent alcohol and ATS consumption contributed to the reported rates of both drink-driving and drug driving. Participants were not asked whether they drove under the influence of alcohol and ATS

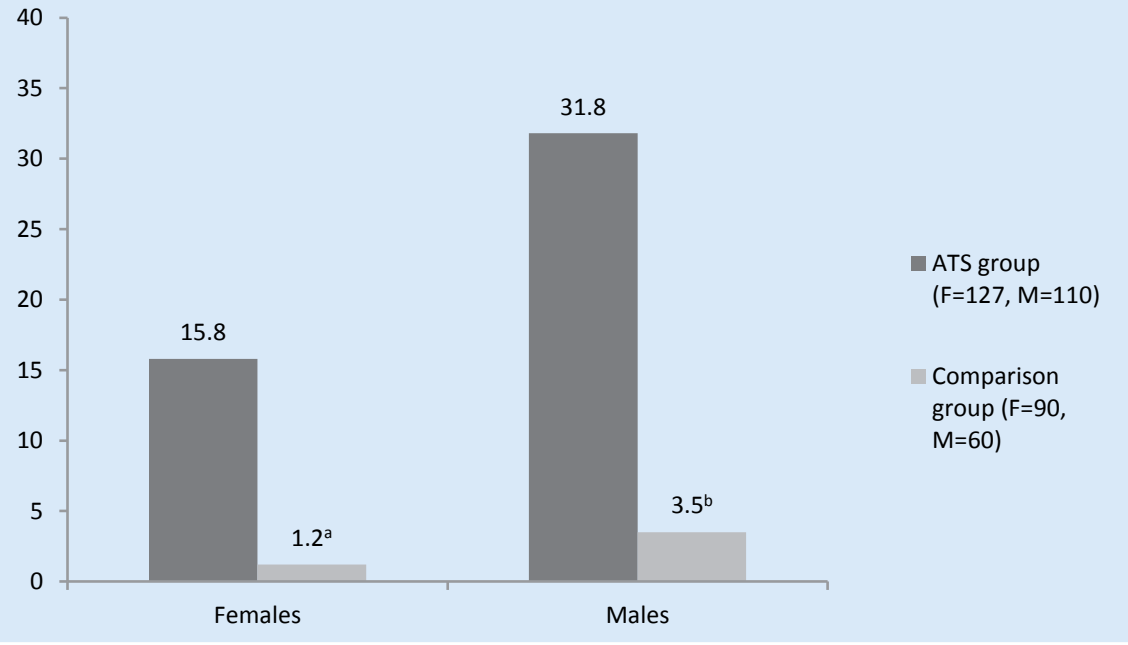
simultaneously. However, high levels of alcohol use concurrent with ecstasy use—but not methamphetamine use—were associated with greater rates of these behaviours (drink-driving: 36.8% [high-level] vs 19.9% [low-level]; drug driving: 31.1% vs 18.3%).

Figure 3-1. Last 12 months, driving under the influence of alcohol, by study group and gender



a: Significant group difference ($\chi^2(1)=11.60$, $p<0.01$)

Figure 3-2. Last 12 months, driving under the influence of illicit drugs, by study group and gender



a: Significant group difference ($\chi^2(1)=11.48$, $p<0.001$)

b: Significant group difference ($\chi^2(1)=17.45$, $p<0.001$)

Crashes

Driving record data was obtained, subject to participant consent, from the Queensland Department of Transport and Main Roads, comprising four years of data retrospectively from September 2013, when 4½-year follow-up

interviews began. This encompasses the period from when participants were around 19 to 23 years of age until they were 23 to 27 years of age, and thus covers much of the group's early driving history.

There was no significant difference in the proportion of ATS users and non-users who had been involved, as a vehicle driver or motorcycle rider, in a crash during this period. Of the ATS users, 15 drivers (7.6%, *n*=198) had been in a crash compared with seven (5.7%, *n*=122) of the non-users. However, for three of 15 (20%) of the crashes among ATS users, drink-driving was a contributing factor, whereas this was not the case for any of the crashes among non-users. Further, among ATS users speeding was a contributing factor in one of 15 crashes (6.7%), but did not contribute to any of the crashes of the non-using group. Thus it could be tentatively proposed that drink-driving and speeding are greater contributors to crashes among young adults who use ATS compared with those who do not. A larger sample size would be required to confirm the presence of any such association. In addition, it is possible that a significant difference in crash rates for ATS users and non-users could be found in a larger sample, especially in light of the differences pertaining to drink-driving and speeding as contributing factors.

There was no significant gender difference in crash rates for either group (ATS users: males 8.8% vs females 6.5%; non-users: males 6.1% vs females 5.5%).

Traffic offences

Data regarding traffic offences was also obtained from participants' driving records. Offences pertaining to drug and drink-driving, speeding and other risky behaviours were examined.

Rates of speeding and drink-driving offences were higher among ATS users than non-users. Among ATS users, 36.8 percent had one or two speeding offences compared with 41.2 percent of non-users; but 33.5 percent of ATS users compared with 11.5 percent of non-users had three or more speeding offences ($\chi^2(3)=23.2$, $p< 0.001$). With regard to drink-driving, 9.8 percent of ATS users compared with 1.5 percent of non-users had an offence recorded. No drug driving charges were recorded. Two of the non-users (1.5%) had a hooning offence; none of the ATS users had this offence recorded.

Figure 3-3. Proportion with drink-driving offence, by frequency of ecstasy and methamphetamine use, at 4½ year follow-up

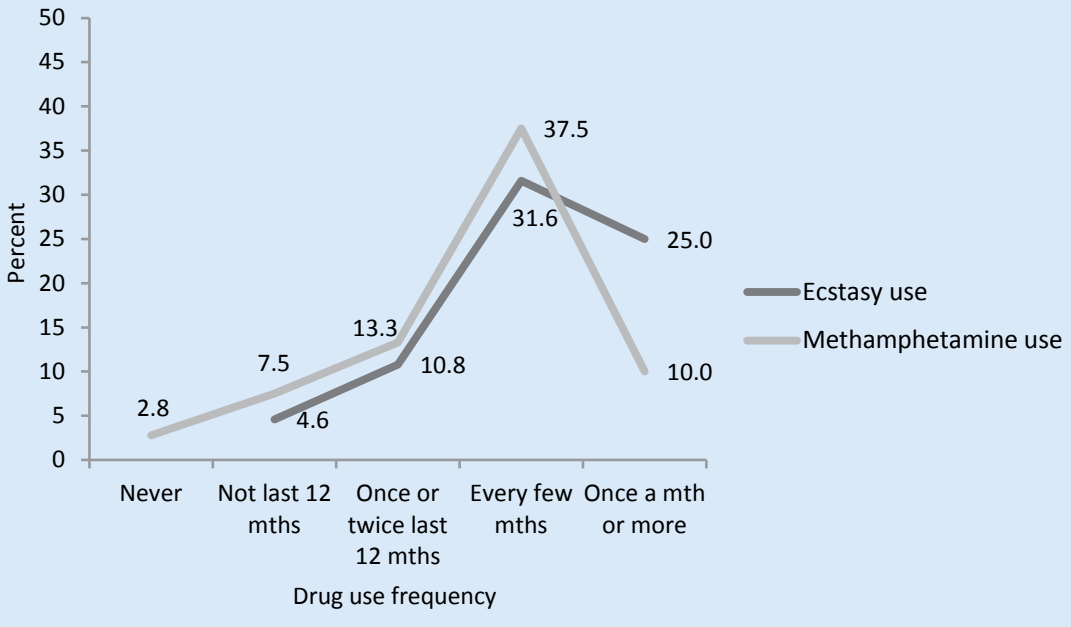
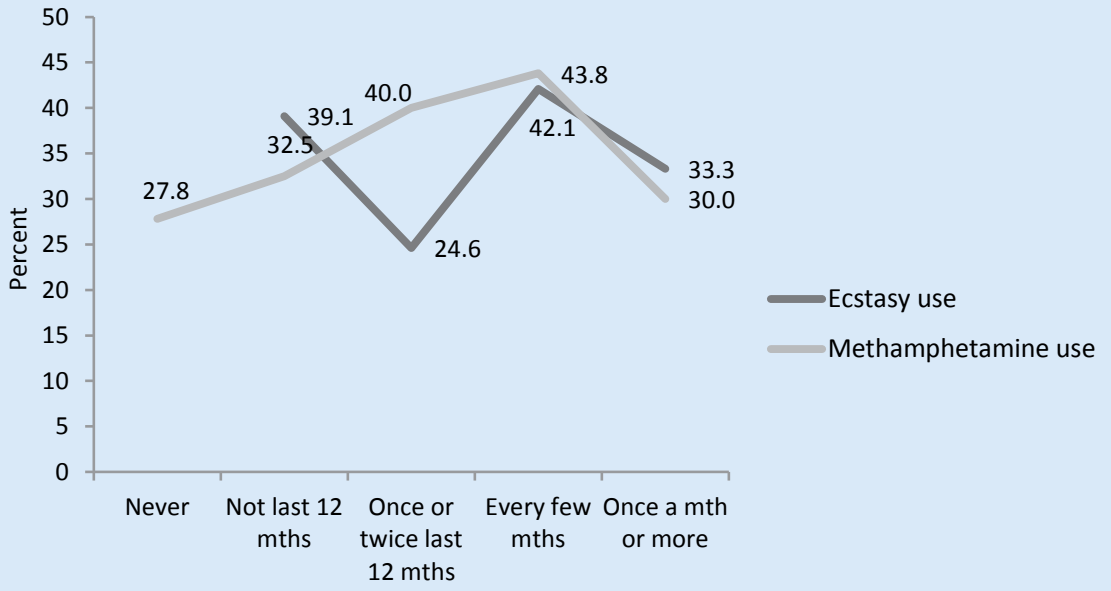


Figure 3-4. Proportion with 3 or more speeding offences, by frequency of ecstasy and methamphetamine use, at 4½-year follow-up



For the ATS users, the relationships between levels of drug use and traffic offences were examined. Figure 3-3 shows the proportion of drink-driving offences according to levels of ecstasy and methamphetamine use. There was a significant positive association between having a drink-driving offence and both frequency of ecstasy use ($\chi^2(3)=16.2$, $p < 0.01$) and frequency of methamphetamine use ($\chi^2(4)=16.9$, $p < 0.01$). Those who used ecstasy or methamphetamine every few months had the highest rates of drink-driving offences, with one third or more having an offence recorded. Interestingly, offence rates declined at the highest level of ATS use, especially for methamphetamine use. One possible explanation is that some very frequent users of ATS consume alcohol at relatively low levels.

Figure 3-4 indicates that there is no consistent relationship between frequency of ATS use and speeding offences. There was no significant association for either ecstasy ($\chi^2(3)=4.3$, *ns*) or methamphetamine use ($\chi^2(4)=2.0$, *ns*). However, there was a slight upward trend in methamphetamine use, and this relationship may be worthy of further investigation in a larger sample.

Drink-driving was strongly related to young adults' levels of alcohol consumption. Drink-driving offences were examined for both groups, in relation to the number of standard drinks consumed in the last month (at the 4½-year follow-up). There was a strong positive association between recent alcohol consumption and having a drink-driving offence in the ATS-using group. One third of ATS users who had very high levels of recent alcohol consumption (>99 standard drinks) had a drink-driving offence. There were only two individuals in the non-using group who had a drink-driving offence, and both reported very high levels of recent alcohol consumption.

The relationship between drink-driving and levels of alcohol consumption during episodes of ATS use were examined (Figure 3-6). With regard to ecstasy use episodes, higher levels of concurrent alcohol consumption increased the likelihood of having a drink-driving offence ($\chi^2(2)=7.5$, $p<0.05$). The association pertaining to alcohol consumption during methamphetamine use episodes was not significant ($\chi^2(2)=4.4$, *ns*). This suggests that within this cohort there is a particular association between alcohol consumption concurrent with ecstasy use and drink-driving, which may reflect the greater incidence of ecstasy use in this group. However, the possibility that a similar relationship may exist with regard to episodes of methamphetamine use cannot be entirely excluded.

Figure 3-5. Proportion of drivers with drink-driving offences, by level of past-month alcohol consumption (standard drinks), at 4½-year follow-up

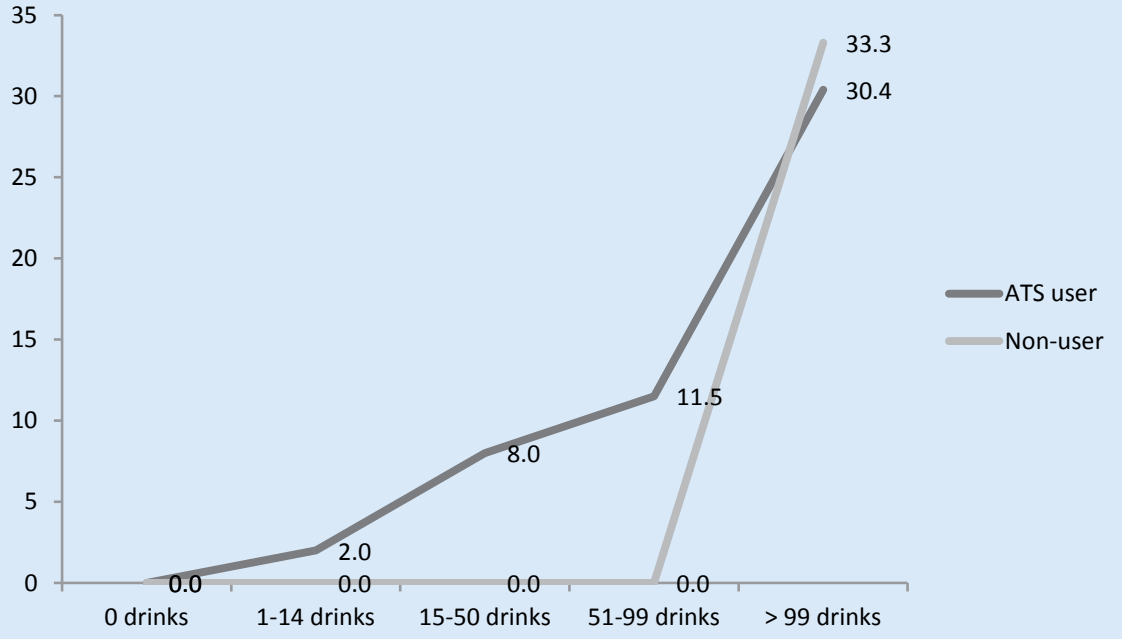


Figure 3-6. Proportion of drivers with drink driving offences, by level of concurrent alcohol consumption (standard drinks) on last occasions of ecstasy and methamphetamine use, reported at 4½-year follow-up

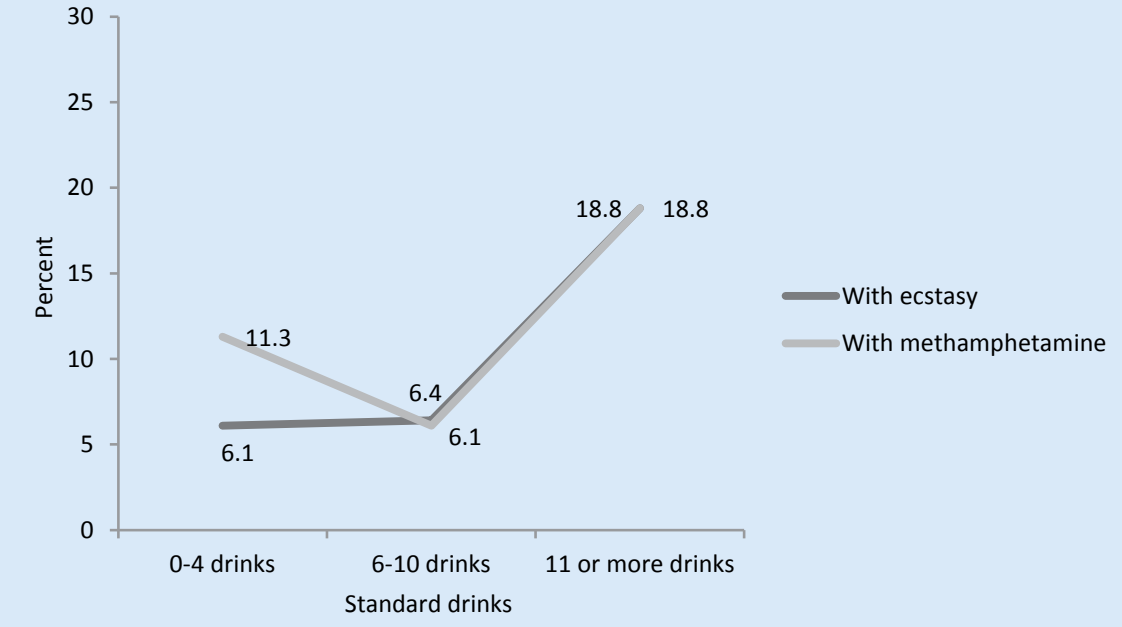
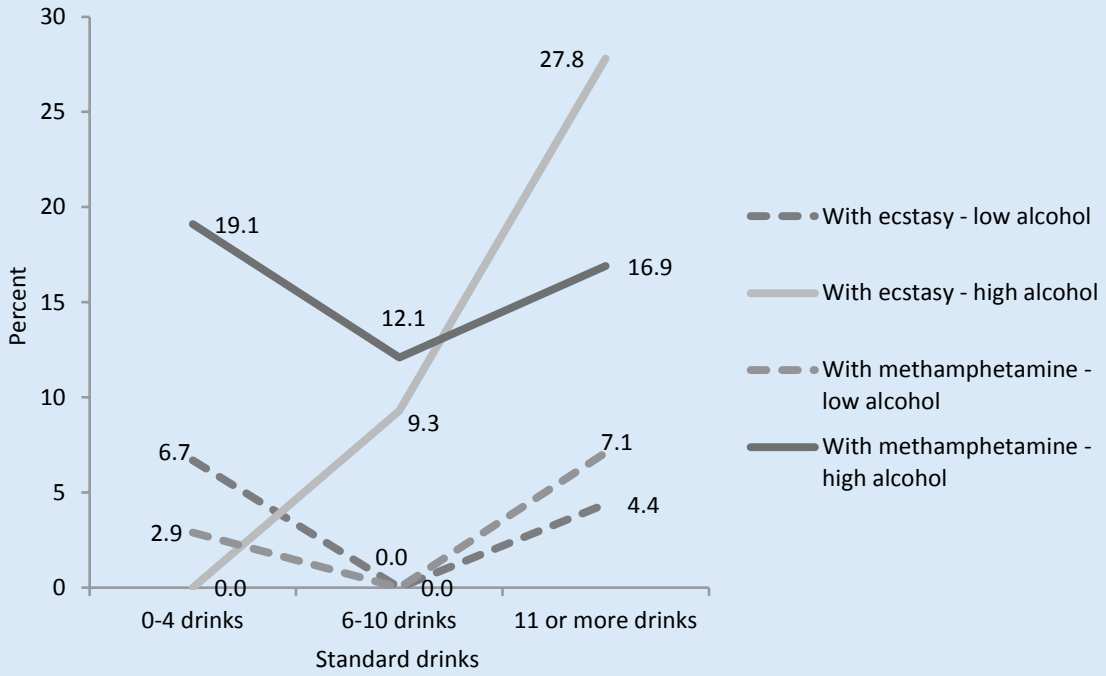


Figure 3-7. Proportion of drivers with drink-driving offences, grouped by level of concurrent alcohol consumption (standard drinks) on last occasions of ecstasy and methamphetamine use, within level of typical daily alcohol consumption (reported at 4½-year follow-up)



In an effort to disentangle the association between drink-driving and patterns of alcohol consumption during ATS use versus patterns occurring separately from ATS use, the association with concurrent patterns of alcohol consumption was examined in the context of levels of typical alcohol consumption (Figure 3-6). Whether a person usually drank large quantities of alcohol appeared to influence the relationship between concurrent alcohol use and drink-driving offences. For those who usually drank small quantities of alcohol, there was no association between the quantity of alcohol consumed during ATS use and having a drink-driving offence. In contrast, for those who usually drank relatively large quantities of alcohol, there was a strong positive association between the amount of alcohol consumed when using ATS and having a drink-driving offence recorded. Thus, the association between concurrent alcohol consumption and ecstasy use, and drink-driving, appears to be contingent on a person's usual patterns of alcohol consumption.

Traffic offences and aggression

Speeding and drink-driving offences were examined in the context of aggressive behavioural traits (Table 3-1). The link between aggressive traits and traffic offences appeared to be stronger for male ATS users than for other participants, and more pronounced in regard to speeding offences compared with drink-driving offences. In particular, male ATS users with high-level aggressive traits were more likely than those with low-level traits to have had three or more speeding offences. There was also a comparable, but marginal, association for males in the non-using group. However, male ATS users with high aggression were far more likely than non-users with the same aggression level to have this number of speeding offences. Nearly half of the male ATS users with high-level aggressive traits had three or more speeding offences. There was no association between aggressive trait levels and speeding offences for females of either group. There was no clear pattern of association between aggressive traits and drink-driving offences.

Table 3-1. Speeding and drink driving offences, by levels of aggressive traits and study group			
	Low aggression % (*n*)	High aggression % (*n*)	*p*-value
Speeding offences on 3 or more occasions			
Females			
ATS users	25.7 (70)	28.9 (45)	
Non-users	11.7 (60)*	5.3 (19)*	
Males			
ATS users	23.5 (34)	49.2 (65)	< 0.05
Non-users	4.3 (23)#	20.7 (29)**	< 0.10#
Drink driving ever			
Females			
ATS users	4.3 (70)	2.2 (45)	
Non-users	0.0 (60)	0.0 (19)	
Males			
ATS users	26.5 (34)	12.3 (65)	< 0.10#
Non-users	0.0 (23)**	6.9 (29)	

Comparison between ATS users and non-users within aggression x gender subgroups

* $p<0.05$

** $p<0.01$

marginal result ($p<0.10$).

Conclusions

This study provides insight into the driving risks associated with ATS use by indicating that the use of these drugs may contribute to speeding as well as drink-driving. Young adult ATS users were more likely to be charged with speeding and drink-driving offences than non-users.

One third of ATS users had been charged with three or more speeding offences. This is of concern, especially given that speeding was a contributing factor in one of 15 crashes for ATS users compared with none of seven crashes for non-users. It is likely that the high rate of speeding offences reflects to some extent the behavioural traits of ATS users, rather than necessarily being a consequence of acute ATS intoxication. This is consistent with evidence from a simulated driving study which showed that, while speeding and other risk behaviours were more common among methamphetamine users compared with non-users, these behaviours were unrelated to blood levels of amphetamines (Bosanquet et al. 2013). The behaviours in that study were instead associated with higher levels of impulsivity and antisocial personality disorder. In the present study speeding was more common among male than female ATS users, with around 40 percent of males having three or more offences. Among male ATS users, having three or more speeding offences was associated with high-level aggressive traits. Further, higher levels of aggression were found among ATS users than among non-users. Aggressive traits and other personal characteristics may be linked to both ATS use and speeding behaviour, at least among males. However, the possibility that methamphetamine intoxication contributes to some proportion of speeding behaviour cannot be dismissed, as marginally higher rates of speeding were observed in the present study among those using every few months compared with those who had not used methamphetamine recently.

ATS use is robustly linked with an increased risk of drink-driving, and it appears that this may be due to the overall higher levels of alcohol consumed by ATS users as well as the acute effects of ATS use, which may mask the effects of alcohol consumption. One in 10 ATS users had a drink-driving offence recorded. The

information self-reported by ATS users indicates that 36 percent of males and 17 percent of females had driven under the influence of alcohol in the last 12 months, although information on blood alcohol content is unavailable. These data provide important contextual information for the offence data, showing that the rate of risk behaviour is somewhat greater than the rate of detection. Conversely, the offence rates also provide support for the validity of information self-reported by these young adults. Importantly, drink-driving was a major cause of adverse outcomes in this group, contributing to three of 15 crashes. Drink-driving offences among ATS users were positively associated with both the frequency of ecstasy use and the frequency of methamphetamine use, which points not only to the role of ATS intoxication but also to the hazardous levels of alcohol consumed by this subgroup of users. Concurrent alcohol and ATS use was linked to drink-driving offences, and this was particularly the case for those who regularly consumed alcohol at hazardous levels. In other words: while the effects of ATS may contribute to a decision to drink-drive, such decisions may be contingent on a more general propensity for hazardous alcohol consumption.

The independent contribution of acute ATS intoxication to dangerous driving and crashes could not be properly assessed using the present set of data. No drug driving offences were recorded, and drugs were not a contributing factor in any of the crashes. To some degree, this is likely to be a consequence of low rates of detection, especially given that 32 percent of male and 16 percent of female ATS users reported driving under the influence of ATS drugs in the last 12 months. As with drink-driving, not all cases of drug driving will be detected. It may be possible that, if alcohol is detected as a contributing factor in crashes, the presence of drugs may in some cases go undetected. However, it is also possible that the contribution of ATS to dangerous driving and crashes is less than that of alcohol. Experimental data suggest that ATS do not impair driving in the same way alcohol does; however, in practical terms, most ATS users consume alcohol when they use ATS and ATS therefore cannot be considered in isolation from alcohol. In the present study, ATS users were not asked in detail about their use of multiple substances when they chose to drive. This should be a focus of future research.

In light of the contribution of ATS use to dangerous driving, and drink-driving in particular, there may be some merit in reviewing law-enforcement procedures to increase testing for ATS in cases where the driver exceeds the legal blood alcohol content. This may be especially worthwhile in instances where a crash has occurred, so that the contribution of drug driving to crashes may be better understood. In 2009, a policy of compulsory collection of blood samples of all injured drivers taken to hospital, to allow testing of blood concentrations of alcohol and a range of other drugs, was introduced in Victoria (Drummer et al. 2012). The samples are collected by hospital staff. These data have yielded useful information on the prevalence of different drugs use among drivers involved in crashes. Future survey research could also gather more nuanced information regarding the quantities of alcohol and other drugs consumed prior to driving. This could improve our understanding of patterns of risk behaviour, including the extent to which ATS users drive after using a combination of alcohol, ATS and other drugs. These different measures may help to improve our understanding of the contribution of drug driving to adverse outcomes.

Chapter 4: Contact with the police

Key points

- Over half (64.8%) of participants reported either self-initiated or substance-related police-initiated contact with police.
- Substance-related police contact was more common among ATS users; significantly higher proportions of ATS users had non-intensive (ATS users: 71.5%; non-users: 61.5%) and intensive (ATS users: 46.3%; non-users: 10.7%) substance-related contact compared with non-users.
- Substance-related police contact generally occurred in public settings for both ATS users (75.4% of most recent encounters) and non-users (61.6% of most recent encounters).
- ATS users reported significantly less favourable perceptions of police respect and police trustworthiness in their most recent substance-related contact than did non-users.
- ATS users were significantly less satisfied with their most recent substance-related contact than non-users.
- No significant associations were found between intensive patterns of ATS use (ie at least weekly ecstasy or methamphetamine use in the previous 12 months at baseline, 12 months, and 4½ years) and greater intensive substance-related police contact, suggesting that higher levels of ATS use are not associated with greater intensive substance-related contact.
- ATS users' less favourable views of substance-related contact, compared with non-users, may be linked to greater levels of intensive contact, which is likely to be inherently negative due to the circumstances leading to this type of contact.

Introduction

This chapter examines the circumstances under which contact with police occurs, focusing on where and why contact occurs and how the encounter with police is viewed. Results are presented from analyses comparing ATS users' and non-users' responses to questions regarding: types of police contact (self-initiated and non-intensive and intensive substance [ie alcohol and other drugs]-related police-initiated contact); reason and location for most recent self- and police-initiated contact; and perceptions of most recent self- and police-initiated contact. Substance-related police contact was defined as any police contact, initiated by the police or a third party, related to the participant's own drug or alcohol use, including traffic offences and random breath tests (RBTs). In contrast, intensive substance-related police contact was defined as contact initiated by the police or a third party in response to the participant's own drug or alcohol use, including when the contact involved any of the following: being questioned or detained by police, being searched by police or checked by sniffer dogs, being charged or arrested for a drug- or alcohol-related offence, or being tested for drug or drink-driving (but only if the participant was found to be over the legal alcohol limit or if drugs were detected).

Effective policing relies largely on the support and voluntary cooperation of the public (Murphy 2009). Contact with police, and how an individual interprets their treatment by police during that contact, has a significant impact on attitudes towards police (Tyler 1990). A large body of literature has demonstrated that procedural justice—the perceived quality of police treatment of citizens and the quality of police decision-making—can enhance positive perceptions of police-citizen encounters and increase satisfaction with both the encounter and its outcome; this has been highlighted as an effective method of promoting police legitimacy (Mazerolle, Bennett, Davis, Sargeant & Manning 2013). Perceptions of police legitimacy have been shown to influence cooperation with police and compliance with the law (Mazerolle et al. 2013). As

such, police encounters with the public, and the way the public interprets these encounters, are particularly important for increasing cooperation with and support for police.

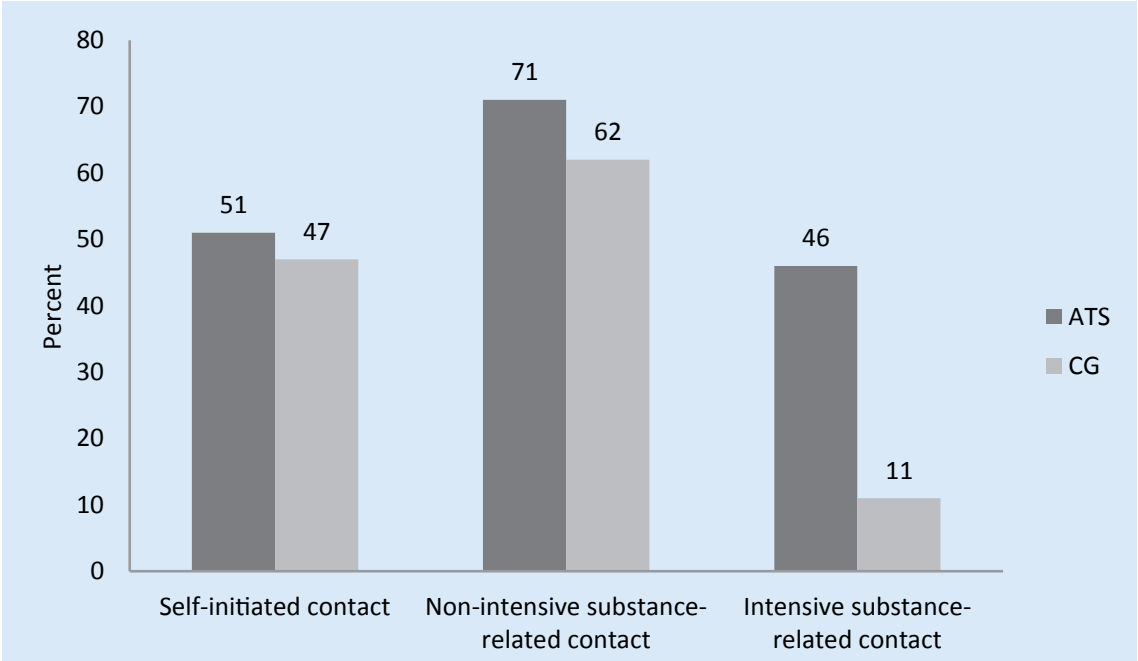
Attitudinal scales

The survey questions relating to perceptions of most recent police contact were drawn from procedural justice and police legitimacy research in Australia and the United States (Mazerolle et al. 2011; see also Murphy & Mearns 2008; Tyler 2003; 2004; Tyler & Fagan 2008; Tyler & Huo 2002). For each question measuring perceptions of most recent police contact—whether self-initiated or substance-related and police-initiated—participants were asked to indicate on a scale from one (strongly disagree) to five (strongly agree) how much they agreed or disagreed with the statement. To create scales for perception of police fairness, police respect, police trustworthiness, participant compliance, and satisfaction with the police encounter, a score was calculated for each participant averaging their responses across the questions included in the scale. Participants' scores on the scales thus ranged from one to five, with higher scores indicating more favourable perceptions.

Contact with police

The majority of ATS users and non-users in the study (64.8%) had experienced either self-initiated or substance-related police contact. Figure 4-1 shows the proportions of ATS users and non-users who had ever experienced self-initiated and non-intensive and intensive substance-related contact with police. There was not a significant difference between the proportions of ATS users and non-users who had ever initiated contact with the police themselves. In contrast, there was a significant difference between ATS users and non-users for non-intensive (χ^2=4.70, p<0.05) and intensive substance-related police contact (χ^2=61.54, p<0.001), with higher proportions of ATS users having ever had non-intensive (71.5%) and intensive (46.3%) substance-related contact compared with non-users (non-intensive: 61.5%; intensive: 10.7%).

Figure 4-1 Percentage of ATS users (n=270) and non-users (n=169) who have ever had police contact



Note: Intensive substance-related contact refers to police contact, initiated by the police or a third party, related to participant's own drug or alcohol use including occasions such as: being questioned or detained by police, being search by police or checked by sniffer dogs, or being charged or arrested for a drug- or alcohol-related offence.

Self-initiated contact with police

Approximately half of both ATS users and non-users (ATS users=50.7%; non-users=46.8%) had initiated contact with police themselves. There was no significant difference between ATS users and non-users in regard to the number of times participants had made contact with police (z=-1.20, *ns*).

Most recent self-initiated contact with police

Participants who had made contact with police (*n*=216) were asked the reason for and location of their most recent self-initiated contact. The reasons for and locations of contact for both ATS users and non-users are presented in Table 4-1. No significant differences in reason for, or location of, the most recent self-initiated contact with police was found between ATS users and non-users.

Table 4-1 Reason for and location for most recent self-initiated contact with police, ATS users (*n*=137) vs non-users (*n*=79)

	ATS users % (*n*)	Non-users % (*n*)	χ^2 (ATS users vs non-users)
Reason for contact			3.63
Involved in traffic accident	9.49 (13)	16.46 (13)	
Victim of a crime	25.55 (35)	18.99 (15)	
Being threatened	9.49 (13)	6.33 (5)	
Required assistance	32.12 (44)	34.18 (27)	
Other	23.36 (32)	24.05 (19)	
Location of contact			1.57
Own residence/private dwelling	47.45 (65)	43.04 (34)	
On the street	19.71 (27)	17.72 (14)	
Other public setting[a]	10.22 (14)	10.13 (8)	
Other	22.63 (31)	29.11 (23)	

a: Other public setting includes: nightclub, pub/bar, music/dance festival, and while driving

Participants who made contact with police themselves were also asked a number of questions regarding their perceptions of their most recent self-initiated contact with regard to police fairness, police respect, police trustworthiness and participant compliance with police. Perceptions of police fairness, respect and trustworthiness have been identified as important factors in determining whether an encounter is procedurally just (Murphy 2009). Table 4-2 presents a comparison of scores for perceptions of the most recent self-initiated contact with police for ATS users and non-users.

There were no significant differences between ATS users and non-users on any of the scales measuring perceptions of the most recent contact. Of the individual scale items, the groups differed significantly on only one item ('I felt that the police officer was trustworthy'). ATS users reported lower agreement with this statement compared with non-users; this may be related to how ATS users view themselves as a group in relation to mainstream society. As illicit drug use conflicts with the norms and values of mainstream society, ATS users may perceive themselves to be part of an out-group rather than the in-group (ie mainstream society). Since police represent mainstream society, ATS users may not identify with police and, consequently, may be less trusting of them. As one ATS user stated: 'I don't really, I don't really trust people that don't do recreational drugs.'

Table 4-2 Mean scores for perceptions of most recent self-initiated contact with police (range 1–5), reporting scale total and item scores, ATS users (*n*=134) vs non-users (*n*=77)			
	ATS users Mean (Standard Deviation)	Non-users Mean (Standard Deviation)	*z*[a]
Perception of police fairness scale (total)	3.83 (0.84)	4.02 (0.81)	1.87
The police officer was fair	3.79 (0.95)	3.97 (0.99)	1.69
The police officer gave me the opportunity to express my views	3.72 (1.06)	3.96 (0.92)	1.52
The police officer listened to me during the encounter	3.97 (0.84)	4.12 (0.79)	1.34
Perception of police respect scale (total)	3.91 (0.90)	4.05 (0.91)	1.58
The police officer treated me with dignity and respect	3.84 (0.97)	4.03 (0.93)	1.49
The police officer was polite when dealing with me	3.98 (0.91)	4.08 (0.94)	1.08
Perception of police trustworthiness scale (total)	3.91 (0.97)	4.12 (0.86)	1.56
I felt that the police officer was trustworthy	3.98 (1.01)	4.26 (0.78)	1.99*
I had confidence that the police officer was doing the right thing	3.84 (1.03)	3.99 (1.04)	1.32
Perception of compliance scale (total)	4.00 (0.73)	4.12 (0.64)	1.05
I did as I was told by the police officer	4.24 (0.72)	4.31 (0.61)	0.48
I felt obligated to do as I was told	3.76 (0.98)	3.94 (0.91)	1.25

a: Two-sample Wilcoxon rank-sum (Mann-Whitney) test, reporting z scores

* $p<0.05$

Participants' satisfaction with their most recent self-initiated contact with police was measured by their level of agreement with four statements:

- I felt the police officer did a good job;
- I was satisfied with the way the police officer conducted the interaction;
- I was satisfied with how I was treated; and
- I was satisfied with the outcome.

Scores for participant satisfaction with the most recent police encounter, by group, are shown in Table 4-3. ATS users and non-users did not differ significantly in terms of satisfaction with their encounters.

Table 4-3 Mean scores for satisfaction with most recent self-initiated contact with police (range 1–5), reporting scale total and item scores, ATS users (*n*=137) vs non-users (*n*=77)			
	ATS users Mean (Standard Deviation)	Non-users Mean (Standard Deviation)	*z*[a]
Satisfaction with encounter scale (total)	3.51 (1.07)	3.76 (0.98)	1.85
I felt the police officer did a good job	3.54 (1.17)	3.84 (1.04)	1.82
I was satisfied with the way the police officer conducted the interaction	3.67 (1.17)	3.83 (1.12)	0.97
I was satisfied with how I was treated	3.76 (1.09)	3.95 (0.97)	1.20
I was satisfied with the outcome	3.06 (1.39)	3.42 (1.30)	1.85

a: Two-sample Wilcoxon rank-sum (Mann-Whitney) test, reporting *z* scores

Police-initiated contact

In contrast to self-initiated contact, there was a significant difference in the proportions of ATS users and non-users who had ever experienced non-intensive (ATS users=71.5%; non-users=61.5%; χ^2=4.70, p<0.05) and/or intensive substance-related police contact (ATS users=46.3%; non-users=10.7%; χ^2=60.13, p<0.001). Intensive substance-related police contact refers to contact initiated by the police or a third party in response to the participant's own drug or alcohol use, including occasions where the contact involved any of the following: being questioned or detained by police, being searched by police or checked by sniffer dogs, or being charged or arrested for a drug- or alcohol-related offence.

Levels of police-initiated contact and levels of ATS use

As shown above, young adult ATS users were more likely to have had non-intensive and/or intensive substance-related police contact than non-using young adults. To examine whether intensity of ATS use is associated with having had intensive substance-related police contact, Pearson chi-square analyses were conducted. To measure intensive ecstasy and methamphetamine use, intensive use was defined as weekly or more frequent use in the last 12 months at either baseline, 12-month follow-up or 4½-year follow up. Conversely, non-intensive use refers to using less than weekly at baseline, 12-month follow-up and 4½-year follow-up. The results are presented in Table 4-4. No significant associations were found between having had intensive substance-related police contact and intensive patterns of ecstasy or methamphetamine use.

Table 4-4 Intensive substance-related police contact, by intensity of ecstasy and methamphetamine use (n=261)

	Ecstasy use			Methamphetamine use		
	Intensive use[a] *n* (%)	Non-intensive use[b] *n* (%)	χ^2	Intensive use[a] *n* (%)	Non-intensive use[b] *n* (%)	χ^2
Intensive substance-related contact[c]			0.48			2.17
No	13 (48.2)	129 (55.1)		16 (43.2)	129 (55.1)	
Yes	14 (51.9)	105 (44.9)		21 (56.8)	98 (43.8)	

a: Intensive use refers to weekly or more frequent use in the last 12 months at baseline, 12-month follow-up, or 4½-year follow-up

b: Non-intensive use refers to less than weekly use at baseline, 12-month follow-up and 4½-year follow-up

c: Intensive substance-related contact refers to police contact initiated by the police or a third party related to the participant's own drug or alcohol use, including occasions such as: being questioned or detained by police, being search by police or checked by sniffer dogs, or being charged or arrested for a drug- or alcohol-related offence

To further examine possible associations between levels of ATS use and levels of police-initiated contact, two-sample Wilcoxon rank-sum tests were conducted to test for associations between intensity of ATS use and the number of intensive substance-related encounters with police. The results are shown in Table 4-5. No significant associations were found between the number of intensive substance-related encounters with police and intensity of ecstasy or methamphetamine use; that is, intensive patterns of ecstasy and methamphetamine use were not associated with greater intensive substance-related contact. However, the association with intensity of methamphetamine use was bordering on significance (p=0.08), suggesting that this association may be significant in a larger sample.

Table 4-5 ATS users' levels of intensive substance-related police contact, by intensity of ecstasy and methamphetamine use (*n*=261)

	Ecstasy use			Methamphetamine use		
	Intensive use[a] Mean (SD)	Non-intensive use[b] Mean (SD)	*Z*[c]	Intensive use[a] Mean (SD)	Non-intensive use[b] Mean (SD)	*Z*[c]
Number of intensive[d] substance-related contacts with police	1.63 (2.56)	2.17 (7.45)	-0.67	3.14 (5.79)	1.95 (7.29)	-1.73

a: Intensive use refers to weekly or more frequent use in the last 12 months at baseline, 12-month follow-up or 4½-year follow-up

b: Non intensive-use refers to less than weekly use at baseline, 12-month follow-up and 4½-year follow-up

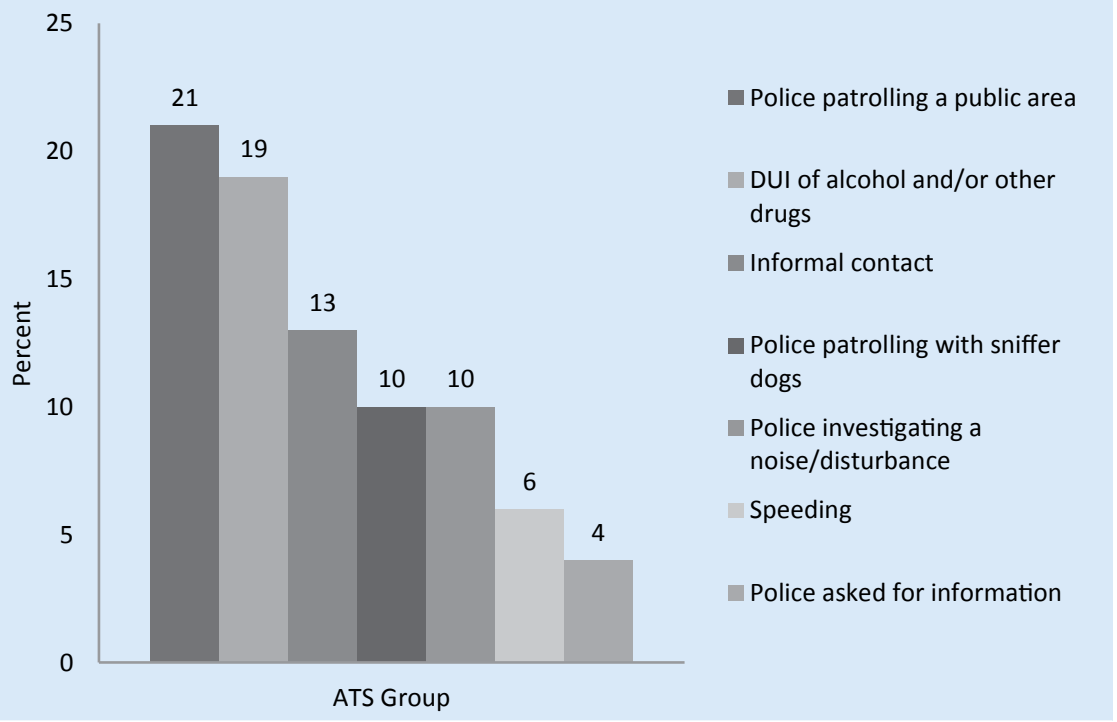
c: Two-sample Wilcoxon rank-sum (Mann-Whitney) test, reporting z scores

d: Intensive substance-related contact refers to police contact initiated by the police or a third party related to participant's own drug or alcohol use, including occasions such as: being questioned or detained by police, being search by police or checked by sniffer dogs, or being charged or arrested for a drug- or alcohol-related offence

Most recent substance-related police contact

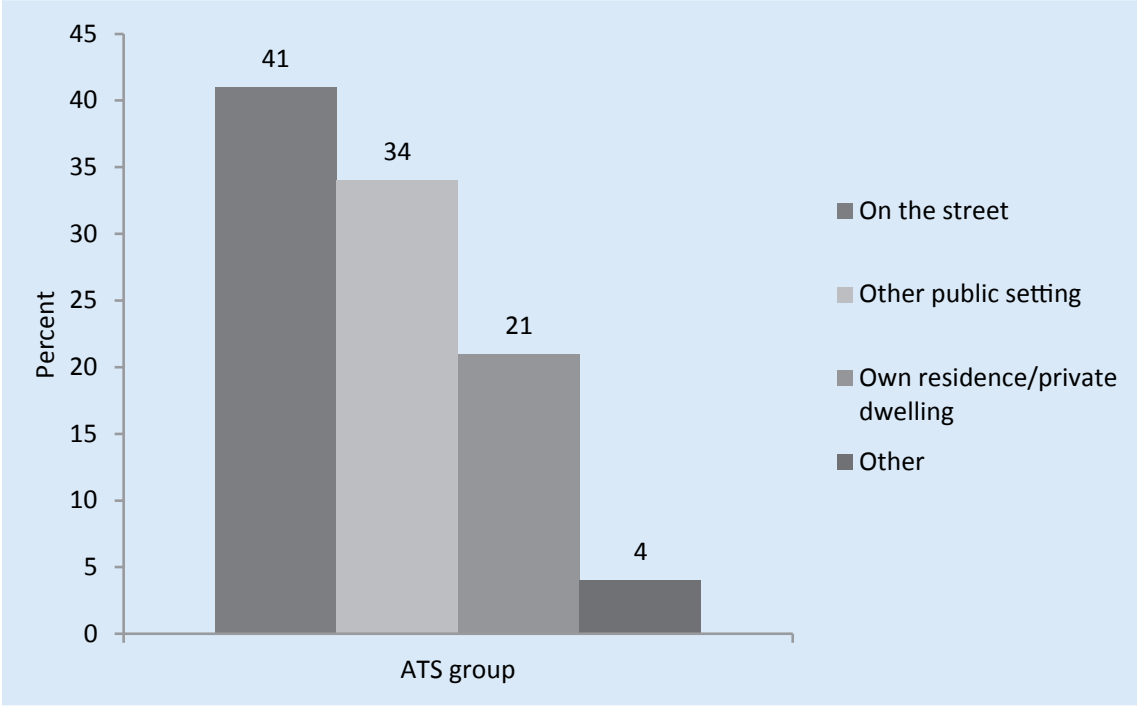
Participants who had ever experienced intensive substance-related police contact (*n*=144) were asked about the reason for and location of their most recent substance-related contact. For the non-users (*n*=18), reasons for contact included: police patrolling with sniffer dogs (27.8%); police patrolling a public area (22.2%); driving under the influence of alcohol or other drugs (22.2%); speeding (11.1%); police asking for information (5.6%); and other (5.6%). None of the non-users reported informal contact as the reason for their most recent contact. Location of most recent substance-related police contact for the non-users included: on the street (33.3%); other public setting (includes nightclub, pub/bar, dance/music festival, and while driving; 27.8%); own residence or a private dwelling (5.6%); and other (33.3%). For the ATS users (*n*=126), reasons for and location of most recent substance-related contact are presented in Figures 4-2 and 4-3.

Figure 4-2 Reason for most recent police-initiated contact among ATS users (%, *n*=126)



Note: Approximately 16% reported 'other' as the reason for most recent substance-related contact

Figure 4-3 Location of most recent police-initiated contact among ATS users (%, *n*=126)



Note: 'Other public setting' includes: nightclub, pub/bar, dance/music festival and while driving

In contrast to self-initiated contact, which generally took place in private settings, substance-related police contact largely occurred on the street or in other public settings patrolled by police. Public settings, particularly around licensed venues, were acknowledged as particularly difficult areas to police. As one female ATS user noted:

> So I see the position and the job of a police person, especially assigned to the beat of places like the [local entertainment precinct], must be incredibly hard. Um, and most of the time they're just doing their job, and dealing with jerks. So, you know, they do what they do. They have to do it. Sometimes they might seem unreasonable to a person that's drinking, but they're drinking, so.

A male ATS user, who had been glassed in a nightclub and then arrested by police, but later released with no charges, also noted the difficulty of policing in these settings:

> I think—sort of, I, I understand them [the police] in a sense, that, you know, what they did [arresting him] was probably wrong, but in the middle of the night there's all these people around, there's drunk people, there's fighting, there's bouncers, you know, and it's like a little miniature war zone in a sense. That, you kind of—So I, as much, as all of the negative feelings I have for them, I understand their job and what they go through and—you know, I feel sorry for them.

ATS users and non-users were asked a number of questions regarding their perceptions of their most recent substance-related police contact. The questions were the same as those used for assessing self-initiated contact—focusing on perceptions of police fairness, police respect, police trustworthiness, and participant compliance with police. Table 4-6 presents the scores for perceptions of the most recent substance-related police contact, comparing ATS users and non-users. There was a significant difference between ATS users and non-users on the perception of police respect and perception of police trustworthiness scales; that is, ATS users had significantly less positive perceptions of police respect and trustworthiness than non-users. In contrast, there were no significant differences between ATS users and non-users on the perception of police fairness and perception of compliance scales.

Table 4-6. Mean scores for perceptions of most recent police-initiated contact, reporting scale total and item scores, ATS users (*n*=125) vs non-users (*n*=17)			
	ATS users Mean (Standard Deviation)	Non-users Mean (Standard Deviation)	*Z*[a]
Perception of police fairness scale (total)	3.33 (0.91)	3.84 (0.90)	1.89
The police officer was fair	3.59 (1.02)	4.29 (0.77)	3.19**
The police officer gave me the opportunity to express my views	3.04 (1.09)	3.41 (1.28)	1.02
The police officer listened to me during the encounter	3.34 (1.02)	3.82 (1.07)	1.87
Perception of police respect scale (total)	3.27 (1.10)	4.03 (0.94)	2.84**
The police officer treated me with dignity and respect	3.29 (1.12)	4.18 (0.88)	3.20**
The police officer was polite when dealing with me	3.25 (1.18)	3.88 (1.05)	2.22*
Perception of police trustworthiness scale (total)	3.46 (1.07)	4.24 (0.85)	2.91**
I felt that the police officer was trustworthy	3.49 (1.16)	4.29 (0.85)	3.12**
I had confidence that the police officer was doing the right thing	3.48 (1.15)	4.18 (0.95)	2.46*
Perception of compliance scale (total)	4.06 (0.75)	4.26 (0.85)	1.35
I did as I was told by the police officer	4.12 (0.83)	4.29 (0.92)	1.71
I felt obligated to do as I was told	4.00 (0.84)	4.24 (0.90)	1.26

a: Two-sample Wilcoxon rank-sum (Mann-Whitney) test, reporting *z* scores

* $p<0.05$

** $p<0.01$

The mean scores for participant satisfaction with most recent substance-related police contact are presented in Table 4-7, comparing ATS users and non-users. ATS users were significantly less satisfied with their most recent encounter than were non-users.

Table 4-7 Mean scores for satisfaction with most recent police-initiated contact, reporting scale total and item scores, ATS users (*n*=127) vs non-users (*n*=18)			
	ATS users Mean (Standard Deviation)	Non-users Mean (Standard Deviation)	*Z*[a]
Satisfaction with encounter scale (total)	3.35 (0.98)	4.13 (0.80)	3.35***
I felt the police officer did a good job	3.36 (1.04)	4.12 (0.86)	2.95**
I was satisfied with the way the police officer conducted the interaction	3.38 (1.20)	4.12 (1.11)	2.75**
I was satisfied with how I was treated	3.34 (1.13)	4.06 (1.03)	2.68**
I was satisfied with the outcome	3.32 (1.13)	4.24 (0.97)	3.53***

a: Two-sample Wilcoxon rank-sum (Mann-Whitney) test, reporting *z* scores

** $p<0.01$

*** $p<0.001$

Compared with non-users, ATS users reported significantly lower perceptions of police respect and trustworthiness during their most recent substance-related police contact, and were significantly less satisfied with the encounter. Police-initiated encounters are likely to be inherently more negative than citizen-initiated encounters with police due to the circumstances that lead to the encounter. Research argues that individuals who experience police-initiated contact are generally less satisfied with the encounter than those who initiate

contact with the police themselves (Sced 2004a, 2004b; Skogan 2005). As shown above, ATS users were more likely to have had both non-intensive and intensive substance-related police contact compared with non-users (see *Police-initiated contact*). As such, less favourable perceptions of police-initiated encounters among ATS users, as compared with non-users, may be related to the types of police contact experienced by ATS users.

Patterns of ATS use do not appear to be linked to the types of police contact experienced by ATS users. No significant associations were found between intensive patterns of ecstasy or methamphetamine use (ie weekly use in the last 12 months at baseline, 12-month follow-up or 4½-year follow-up) and having ever had intensive substance-related police contact, nor in the number of substance-related encounters with police, compared with ATS users engaged in non-intensive patterns of use. This suggests that ATS users' less favourable perceptions of substance-related encounters with police, compared with those of non-users, may potentially be linked to ATS users' engagement with drug-use subcultures rather than particular patterns of drug use. Engagement with and acceptance of deviant subcultures such as drug-use subcultures has been associated with less positive perceptions of police and policing (Jang, Joo & Zhao 2010; Schuck 2013). It is likely that less favourable attitudes towards police are developed through both ATS-using young adults' own substance-related contact with police and that of their drug-using peers. As noted above, this police contact is likely to be inherently negative. Additionally, police behaviour in encounters with ATS users may be influenced by, or perceived to be influenced by, an individual's status as a drug user rather than their behaviour during the encounter. As one ATS user explained:

> Once they know what you're into—drugs or whatnot, their whole personality changes towards you. It's no more questions, it's telling. It's demanding.

Another ATS user discussed how his drug use made him feel negatively targeted by police:

> Um, well I guess I just don't see them [the police] as working for me, as now they're working against me, just because I like to smoke weed. It's like, now I'm, you know, public enemy number one…And it just seems pretty unfair, considering I'm not hurting anyone.

While the behaviour of police in encounters with the public undoubtedly influences perceptions of police and policing, relatively little research has examined the influence of general global perceptions of police and policing on interpretations of encounters with police (see Brandl, Frank, Worden & Bynum 1994; Hawdon 2008; Reisig & Chandek 2001). Some participants in the study appeared to draw a distinction between general perceptions of the police force as a whole and the behaviour of specific police officers.

> Um, I've got a lot of faith in them [the police]. I think everyone slips up, and everyone does wrong things, and the police force is big, and you know, some things aren't perfect. But overall I think they do a fairly good job. (Male non-user)

> Because, I mean, every police officer is different. And some have attitude problems, and others, you know, do wonderful things for the community. So it's very much on a case-by-case basis. I'd like to think that on the whole, the police in general, I view them favourably. (Male ATS user)

A number of researchers have proposed that an individual's general perception of police has a more significant impact on how that individual interprets their experience with police than the impact of specific experiences on the general perception of police (Brandl et al. 1994; Skogan 2006). That is, an individual with a positive general perception of police may view a negative encounter with police as an unusual, one-off occurrence and, as such, it may not impact on their general perception of the police (Bradford, Jackson & Stanko 2009). Conversely, for individuals whose perceptions of the police are generally negative, positive encounters with police may be viewed as one-off, unusual occurrences while negative encounters may reinforce these perceptions. As one ATS user responded when asked about the influence of an encounter with police on his attitudes towards police, in which the police officer was perceived to be disrespectful: 'It would've sort of reinforced an already negative sort of stereotype of police.'

Conclusions

This chapter examined the circumstances under which self-initiated and substance-related contact with police occurs and how the encounter with police is perceived, comparing ATS users and non-users. Contact with police was relatively common, with over half (64.8%) of ATS users and non-users having ever had self-initiated or substance-related contact with police. While similar proportions of ATS users and non-users had contacted police themselves, a significantly higher proportion of ATS users had experienced non-intensive and intensive substance-related contact compared with non-users. The context of police contact differed between most recent self-initiated police contact and most recent substance-related police contact. Self-initiated police contact most commonly occurred in participants' own residences or private dwellings and was related to requiring assistance from police or being the victim of a crime. In contrast, substance-related contact largely occurred on the street or in other public settings patrolled by police.

While ATS users and non-users did not differ in their perceptions of self-initiated police contact (ie police fairness, respect, trustworthiness, participant compliance and satisfaction with the encounter), ATS users reported less favourable perceptions of police respect and trustworthiness in their most recent substance-related encounter and were less satisfied with the encounter than non-users. These differences may be related to the greater levels of intensive substance-related police contact among ATS users and ATS users' engagement in drug-use subcultures. Compared with non-users, a significantly higher proportion of ATS users had had intensive substance-related police contact. Due to the circumstances leading to intensive substance-related police contact, these encounters with police are likely to be inherently negative and consequently may result in less favourable perceptions of future encounters. Intensive patterns of ATS use (ie at least weekly ecstasy or methamphetamine use in the last 12 months at baseline, 12 month follow-up and 4½-year follow-up) were not significantly associated with greater levels of intensive substance-related contact, suggesting that less favourable perceptions of encounters with police among ATS users may be related to engagement with drug use and drug-use subcultures more generally rather than particular patterns of drug use.

Individual encounters with police, and how these encounters are perceived, influence attitudes towards police and policing (Tyler 1990); consequently it is important to consider the implications of less favourable perceptions of police encounters. Contact with police that is perceived to be procedurally unjust is likely to negatively impact perceptions of police legitimacy and therefore decrease willingness to cooperate and comply with police (Mazerolle et al. 2013). The following chapter examines how ATS users and non-users perceive the police and how these perceptions affect their behaviour and attitudes in terms of their willingness to cooperate with police and their support for relevant activities.

Chapter 5: Perceptions of policing

Key points

- ATS users had lower levels of belief in procedural justice, police legitimacy and law legitimacy than non-users.
- ATS users reported significantly lower commitment to police, support for drug-law enforcement and willingness to cooperate with police than non-users.
- A strong belief in procedural justice and police legitimacy and a strong commitment to police were associated with greater willingness to cooperate with police among ATS users and non-users.
- A strong belief in procedural justice, and police and law legitimacy, and a strong commitment to police were associated with greater support for drug-law enforcement among both ATS users and non-users.
- A strong belief in police legitimacy was significantly associated with more favourable perceptions of police fairness, respect and trustworthiness, and increased participant compliance with police, during the most recent substance-related police contact among ATS users.
- A strong belief in procedural justice, and police and law legitimacy, and a strong commitment to police, were associated with greater satisfaction with the most recent substance-related contact among ATS users.
- In 59 semi-structured interviews with ATS users who had substance-related contact with police, just under half (40.7%) associated this contact with changes in their patterns of drug use.
- Of these ATS users who associated substance-related contact with changes in their patterns of drug use, 58.3 percent reported being more careful about their drug use to avoid further contact with police, while 41.7 percent reported reducing or ceasing drug use.

Introduction

The following section addresses how ATS users and non-users perceive police and policing and how these perceptions affect their behaviour and attitudes in terms of their willingness to cooperate with police and their support for relevant activities, particularly for drug-law enforcement. This chapter also explores the relationship between general and specific views of police and policing and examines potential outcomes of substance-related police contact for ATS users, focusing on contact leading to changes in patterns of drug use. Firstly, the chapter presents results from analyses comparing ATS users' and non-users' responses to survey questions measuring: perceptions of police legitimacy, law legitimacy, procedural justice and commitment to police; attitudes related to drug-law enforcement; and self-reported willingness to cooperate with the police. Secondly, the chapter examines the relationship between the general views of police and policing—that is, procedural justice, police legitimacy, law legitimacy and commitment to policy—and the willingness to cooperate with police and support for drug-law enforcement of both ATS users and non-users. Thirdly, the chapter presents the results of analyses examining the associations between general views of procedural justice, police legitimacy, law legitimacy and commitment to police and ATS users' perceptions of and satisfaction with their most recent substance-related police contact. Lastly, the potential outcomes of substance-related police contact for ATS users are explored, drawing on both quantitative data and semi-structured interviews with ATS users relating to contact with police.

General perceptions of police and policing scales

With the exception of the drug-law enforcement questions, the general perceptions of police and policing survey questions were drawn from procedural justice and police legitimacy research in Australia and the United States (Mazerolle et al. 2012; see also Murphy & Hinds 2007; Murphy, Hinds & Fleming 2008; Murphy, Murphy & Mearns 2010a; 2010b; Sunshine & Tyler 2003; Tyler 1990; Tyler & Huo 2002). For each of the survey questions, participants were asked to indicate, on a scale from one (strongly disagree) to five (strongly agree), how much they agreed with each statement. To create scales, a score was calculated for each participant by averaging their responses across the items included in the scale. For each scale, participants' scores ranged from one to five, with higher scores indicating more favourable perceptions.

Procedural justice, police legitimacy and law legitimacy

Effective policing is largely reliant on voluntary cooperation and support from members of the public (Murphy 2009). Research supports the proposal that belief in police legitimacy influences both cooperation with police and compliance with the law (Mazerolle, Bennett, Davis, Sargeant & Manning 2013). Jackson and colleagues define legitimacy as 'the belief that the law and agents of the law are rightful holders of authority; that they have the right to dictate appropriate behaviour and are entitled to be obeyed; and that laws should be obeyed simply because that is the right thing to do' (2012: 1,053). Numerous studies have shown that procedural justice, operationalised as police treatment of the public and the fairness of police decision-making, is a key pathway to promoting police legitimacy (Mazerolle et al. 2013). Table 5-1 displays mean scores for the belief in procedural justice, police legitimacy and law legitimacy scales comparing ATS users and non-users. Compared with non-users, ATS users had significantly lower belief in procedural justice, police legitimacy and law legitimacy.

Table 5-1. Mean scores for belief in procedural justice, police legitimacy and law legitimacy scales (range 1–5), reporting scale total and item scores, ATS users (n=268) vs non-users (n=165)

	ATS users Mean (Standard Deviation)	Non-users Mean (Standard Deviation)	z^a
Belief in procedural justice scale (total)	3.08 (0.73)	3.54 (0.60)	6.69***
Police try to be fair when making decisions	3.62 (0.86)	3.98 (0.62)	4.54***
Police treat people fairly	3.21 (0.96)	3.70 (0.73)	5.46***
Police treat people with dignity and respect	3.16 (0.93)	3.63 (0.73)	5.12***
Police are always polite when dealing with people	2.49 (0.89)	2.95 (0.92)	4.93***
Police listen to people before making decisions	2.89 (0.96)	3.41 (0.86)	5.37***
Police make decisions based upon facts, not their personal biases or opinions	2.91 (1.01)	3.42 (0.86)	5.08***
Police respect people's rights when decisions are made	3.25 (0.95)	3.71 (0.75)	5.07***
Belief in police legitimacy scale (total)	3.71 (0.70)	4.06 (0.56)	5.46***
Overall, I think the police are doing a good job in my community	3.66 (0.84)	3.99 (0.63)	4.46***
I trust the police in my community	3.55 (0.94)	3.96 (0.70)	4.86***
I have confidence in the police in my community	3.53 (0.93)	3.93 (0.74)	4.72***
Respect for police is an important value for people to have	4.08 (0.76)	4.28 (0.69)	2.77**
I feel a moral obligation to obey the police	3.72 (1.02)	4.14 (0.74)	4.11***
Belief in law legitimacy scale (total)	3.10 (0.80)	3.50 (0.70)	4.95***
You should always obey the law, even if it goes against what you think is right	3.08 (1.12)	3.51 (1.06)	3.78***
I feel a moral obligation to obey the law	3.60 (1.01)	4.12 (0.76)	5.38***
People should do what our laws tell them to do, even if they disagree with them	3.41 (1.00)	3.79 (0.88)	4.11***
Disobeying the law is sometimes justified[b]	2.30 (0.79)	2.59 (0.90)	3.34***

a: Two sample Wilcoxon rank-sum (Mann-Whitney) test, reporting z scores;

b: Variable is reverse coded** $p<0.01$

*** $p<0.001$

Less favourable perceptions of police and policing among ATS users compared with non-users may be linked to the types of police contact experienced. As shown in Chapter 4, significantly higher proportions of ATS users had experienced non-intensive (ATS users: 71.5%; non-users: 61.5%) and intensive (ATS users: 46.3%; non-users: 10.7%) substance (ie alcohol and other drugs)-related contact, compared with non-users. Research suggests that individuals who experience police-initiated contact are generally less satisfied with the encounter than those who initiate contact with the police themselves (Sced, 2004a; 2004b; Skogan, 2005). Additionally, many of the substance-related encounters ATS users have with police will be inherently negative due to the circumstances leading to the contact. Individuals in police-initiated encounters may feel unfairly targeted by the police, as described below by a male ATS user who was searched for drugs at a music festival:

> Um, I think it was more so that, I was like—what would you say, like I was the least sort of messed up person walking to that festival, and I got done, and I saw guys like, just throwing stuff around and being like, absolute messes, and they just walked straight past the police. And I was just with my friends, and they just like, I just got, yeah, done.

Further, some research argues that negative encounters with police are likely to have a greater impact on views of police and policing than positive encounters (Skogan 2006). A male ATS user who reported multiple negative encounters with police described the influence of these encounters on his attitude towards police:

> Oh, it, it gives me a, a great passionate hate for them [the police]! Definitely. Which is not good, you know what I mean, which is not good. They're supposed to look out for the community. But now I'm out of the, all the drug, you know, with my partner now, I look at it differently. But I still hate them.

Commitment, attitudes towards drug-law enforcement and willingness to cooperate

Braithwaite (2003) proposes that motivational posturing, which assesses the social distance that individuals place between themselves and an authority, reflects the liking an individual has for the authority or its rules. The motivational posture 'commitment' represents closer ties between an individual and an authority, and has been shown to be related to an individual's willingness to comply with the rules and decisions of an authority (Braithwaite 2003). Three questions drawn from the work of Murphy and colleagues (Murphy et al. 2010a; 2010b) measured participants' commitment to the police. As shown in Table 5-2, ATS users had significantly weaker commitment to the police than did non-users.

Table 5-2. Mean scores for commitment to police scale, attitudes toward drug-law enforcement and self-reported willingness to cooperate scale (range 1–5), reporting scale total and item scores, ATS users (*n*=268) vs non-users (*n*=165)

	ATS users Mean (Standard Deviation)	Non-users Mean (Standard Deviation)	z^a
Commitment to police scale (total)	3.63 (0.67)	3.99 (0.50)	5.91***
I obey the police with goodwill	3.87 (0.73)	4.15 (0.53)	3.85***
Obeying the police is the right thing to do	3.77 (0.73)	4.02 (0.61)	3.40***
I feel a strong commitment to help the police	3.25 (0.98)	3.82 (0.72)	6.03***
Attitudes toward drug-law enforcement items			
The activity of police related to the enforcement of drug laws is generally beneficial to the community	3.54 (1.04)	4.12 (0.64)	5.95***
The current drug laws are appropriate for safeguarding the community	3.21 (1.12)	3.76 (0.88)	5.13***
Self-reported willingness to cooperate scale (total)	3.96 (0.78)	4.20 (0.66)	3.23**
How likely would you be to:			
Call the police to report a crime	4.13 (0.91)	4.27 (0.87)	1.80
Help police find someone suspected of committing a crime by providing them with information	4.00 (1.00)	4.23 (0.74)	2.03*
Report dangerous or suspicious activities to police	3.65 (1.00)	3.87 (0.91)	2.13*
Willingly assist police if asked	4.09 (0.90)	4.42 (0.67)	3.96***

a: Two sample Wilcoxon rank-sum (Mann-Whitney) test, reporting z scores

* $p<0.05$

** $p<0.01$

*** $p<0.001$

Attitudes towards drug-law enforcement were measured by two questions in the survey which asked participants to rate on a five-point scale (1=strongly disagree; 5=strongly agree) how strongly they agreed with the following statements:

- 'The activity of police related to the enforcement of drug laws is generally beneficial to the community'; and
- 'The current drug laws are appropriate for safeguarding the community'.

Table 5-2 displays the mean scores for each statement, comparing ATS users and non-users. The results show statistically significant differences between ATS users and non-users for each statement. Compared with non-users, ATS users had lower levels of agreement to both statements. However, it is important to note that the mean scores for ATS users on the items measuring support for drug-law enforcement indicate some level of support for the police. Additionally, in the semi-structured interviews a number of ATS users discussed the importance of drug laws:

> Um, I think they're in place to keep people safe, and especially I think, keep others from coming to some sort of harm. Like I think, if that's someone's personal choice to take drugs, or you know, try them or whatever, then there should be some safeguards around other people whose choice it wasn't was—that it wasn't. If that makes sense. (Female ATS user)

What do you think is the best thing about police enforcing drug and alcohol laws? Did that make sense?

Yeah, um, probably the de—or not, um, the, like DUI and stuff.

Yep.

Tests, that's pretty good. That stops a lot of people from driving back from the [local entertainment precinct]. I know it stopped me from doing it. And there's a lot of people worse off than me. Driving home—it'd be a wave of people about six o'clock in the morning, driving back, and they're all on all sorts of things. So, that was probably a good thing they introduced, I reckon. The drug driving. Even though it doesn't work properly, but yeah. It's a good thing.

Ok. And how is that a good thing?

Gets them off the road.

Gets them off the road.

Yeah, 'cause all the other people driving back from, you know, work in the morning, it's pretty dangerous for them.

Keeping people safe.

Yeah. (Male ATS user)

Self-reported willingness to cooperate with police was measured by four questions. For each question, participants were asked to indicate how likely or unlikely they would be to engage in a particular form of cooperation on a scale from one (very unlikely) to five (very likely). The mean scores for the self-reported willingness to cooperate scale, by ATS users and non-users, are presented in Table 5-2. ATS users reported significantly lower levels of willingness to cooperate with police compared with non-users. Again, it is important to note that while levels of willingness to cooperate with police were lower among ATS users than among non-users, the mean score for willingness to cooperate with police among ATS users still approximates with 'agree' on the Likert scale (1=strongly disagree; 5=strongly agree).

Self-reported willingness to cooperate, support for drug-law enforcement and general perceptions of police and policing

To examine associations between general perceptions of police and policing (ie procedural justice, police legitimacy, law legitimacy and commitment to police) and willingness to cooperate with police and support for drug-law enforcement, dichotomous variables (weak/moderate belief vs strong belief) were created for the procedural justice, police legitimacy, law legitimacy and commitment to police scales. For the police legitimacy and commitment to police scales, participants who agreed or strongly agreed with all items in the respective scales were coded as 'strong belief'. A lower threshold was used in order to produce groups large enough for chi-square analysis for the procedural justice and law legitimacy scales. Participants who agreed or strongly agreed with at least six of the seven procedural justice scale items were coded as having a 'strong belief in procedural justice' and participants who agreed or strongly agreed with at least three of the four law legitimacy scale items were coded as having a 'strong belief in law legitimacy'. A standardised score variable was created for the self-reported willingness to cooperate with police scale. Scores for this variable ranged from 20 to 100, with a higher score representing greater willingness to cooperate.

Self-reported willingness to cooperate and general perceptions of police and policing

Table 5-3 presents the mean scores for self-reported willingness to cooperate with the police by levels of belief in procedural justice and police and law legitimacy, and commitment to police, for both ATS users and non-users. Among the ATS users, a strong belief in procedural justice, police legitimacy and law legitimacy, and a strong commitment to police, were all significantly associated with greater willingness to cooperate with police. The results are similar for non-users; a strong belief in procedural justice and police legitimacy and a strong commitment to police were both associated with greater willingness to cooperate. However, there was no significant association with levels of belief in law legitimacy.

Table 5-3. Mean scores for self-reported willingness to cooperate with police scale by levels of belief in procedural justice, police legitimacy and law legitimacy, and commitment to police, ATS users (*n*=268) vs non-users (*n*=165)

	Self-reported willingness to cooperate[a]			
	ATS group		Comparison group	
	Mean (Standard Deviation)	*Z*[b]	Mean (Standard Deviation)	*Z*[b]
Belief in procedural justice		-4.80***		-2.60**
Weak/Moderate	77.42 (15.95)		82.19 (14.31)	
Strong	88.56 (9.63)		87.92 (9.33)	
Belief in police legitimacy		-5.88***		-2.66**
Weak/Moderate	74.29 (17.37)		79.22 (17.42)	
Strong	85.37 (10.41)		86.18 (10.12)	
Belief in law legitimacy		-3.80***		-0.99 ns
Weak/Moderate	76.48 (16.40)		83.67 (12.20)	
Strong	83.39 (13.49)		84.33 (13.99)	
Commitment to police		-7.68***		-4.98***
Weak/moderate	73.54 (16.37)		77.68 (13.98)	
Strong	87.43 (9.93)		87.29 (11.50)	

a: Standardised score, range 20–100

b: Two sample Wilcoxon rank-sum (Mann-Whitney) test, reporting *z* scores

** $p<0.01$

*** $p<0.001$

Support for drug-law enforcement and general attitudes

Table 5-4 presents scores for attitudes toward drug-law enforcement, by levels of belief in procedural justice, police legitimacy and law legitimacy, and commitment to police, for ATS users and non-users. Attitudes towards drug-law enforcement were measured through two statements. For both statements, a strong belief in procedural justice, police legitimacy and law legitimacy, and a strong commitment to police, were each significantly associated with higher agreement with the statement among ATS users and non-users. These findings suggest that a strong commitment to police, and a belief in the just behaviour of the police and the legitimacy of the police and the law, is linked to increased support for the activity of police in enforcing drug laws and the role of those laws in protecting the community even among ATS users. Consequently, by increasing favourable views of police and law legitimacy, procedural justice-based policing may be an effective method of increasing support for laws and their enforcement even among individuals targeted by those laws.

Table 5-4. Mean scores of attitudes toward drug-law enforcement (range 1–5) by levels of belief in procedural justice, police legitimacy and law legitimacy, and commitment to police, ATS users (*n*=268) vs non-users (*n*=165)				
Attitudes towards drug laws				
Statement 1: The activity of police related to the enforcement of drug laws is generally beneficial to the community				
	ATS users		**Non-users**	
	Mean (Standard Deviation)	**z[a]**	**Mean (Standard Deviation)**	**z[a]**
Belief in procedural justice		-4.28***		-2.84**
Weak/Moderate	3.42 (3.28-3.56)		4.02 (3.89-4.14)	
Strong	4.13 (3.93-4.33)		4.32 (4.17-4.47)	
Belief in police legitimacy		-6.90***		-4.22***
Weak/Moderate	3.14 (2.96-3.32)		3.78 (3.58-3.99)	
Strong	4.02 (3.90-4.15)		4.26 (4.16-4.36)	
Belief in law legitimacy		-3.72***		-2.03*
Weak/Moderate	3.33 (3.15-3.50)		3.97 (3.80-4.15)	
Strong	3.84 (3.68-4.01)		4.23 (4.13-4.33)	
Commitment to police		-6.24***		-3.16**
Weak/Moderate	3.21 (3.04-3.38)		3.88 (3.68-4.07)	
Strong	4.00 (3.85-4.15)		4.24 (4.14-4.34)	
Statement 2: The current drug laws are appropriate for safeguarding the community				
	ATS users		**Non-users**	
	Mean (Standard Deviation)	**z[a]**	**Mean (Standard Deviation)**	**z[a]**
Belief in procedural justice		-4.67***		-3.54***
Weak/Moderate	3.07 (2.92-3.22)		3.61 (3.44-3.77)	
Strong	3.91 (3.66-4.17)		4.08 (3.85-4.30)	
Belief in police legitimacy		-6.69***		-4.37***
Weak/Moderate	2.80 (2.62-2.98)		3.29 (3.01-3.58)	
Strong	3.72 (3.56-3.88)		3.96 (3.83-4.10)	
Belief in law legitimacy		-4.57***		-3.77***
Weak/Moderate	2.96 (2.78-3.13)		3.48 (3.26-3.70)	
Strong	3.59 (3.39-3.78)		3.99 (3.83-4.14)	
Commitment to police		-5.11***		-2.59**
Weak/Moderate	2.92 (2.74-3.09)		3.52 (3.26-3.77)	
Strong	3.63 (3.44-3.82)		3.88 (3.72-4.04)	

a: Two sample Wilcoxon rank-sum (Mann-Whitney) test, reporting z scores

* $p<0.05$

** $p<0.01$

*** $p<0.001$

Most recent substance-related police contact and general perceptions of police and policing

As discussed in Chapter 4, ATS users and non-users who had ever had intensive substance-related police contact (ie police contact, initiated by the police or a third party, related to the participant's own drug or alcohol use and including occasions such as: being questioned or detained by police, being searched by police or checked by sniffer dogs, or being charged or arrested for a drug- or alcohol-related offence) were asked a number of questions regarding their perceptions of their most recent substance-related police contact. From these questions scales of police fairness, police respect, police trustworthiness, participant compliance and satisfaction with encounter were created. To examine the relationship between general views of police and policing (ie procedural justice, police legitimacy, law legitimacy and commitment to police) and specific perceptions of most recent substance-related contact (ie police fairness, respect, trustworthiness, compliance and satisfaction with encounter), standardised score variables were created for perceptions of most recent substance-related police contact. Scores for each variable ranged from 20 to 100. Dichotomous variables (weak/moderate belief vs strong belief) were created for the belief in police/policing scales (see sections on self-reported willingness to cooperate, support for drug-law enforcement, and general perceptions of police and policing above for description of coding). Due to the small number of non-users who had experienced intensive substance-related police contact (n=18), only ATS users (n=121) were included in these analyses.

Perceptions of most recent substance-related police contact and general views of police and policing

Table 5-5 displays the mean scores for perceptions of most recent substance-related police contact by levels of belief in procedural justice, police legitimacy and law legitimacy and commitment to police. A strong belief in procedural justice was associated with more positive perceptions of police trustworthiness in police-initiated contact, but not with perceptions of police fairness, respect or participant compliance. In contrast, a strong belief in police legitimacy was associated with more favourable perceptions of police fairness, respect and trustworthiness, and greater participant compliance. A strong belief in the legitimacy of the law was associated with more positive perceptions of police respect and trustworthiness, but not police fairness or participant compliance. Finally, a strong commitment to police was significantly associated with more positive perceptions of police fairness, respect and trustworthiness, but not greater participant compliance. Overall, these findings suggest that belief in police legitimacy may play a particularly important role not just in the interpretation of encounters with police but also in compliance during these encounters. While these results cannot determine the direction of the association between general views of police and policing and perceptions of specific encounters with police, pre-existing views and expectations of police and policing are likely to influence how encounters with police are interpreted and understood (see Brandl, Frank, Worden & Bynum 1994; Hawdon 2008; Reisig & Chandek 2001).

Table 5-5. Mean scores for perceptions of most recent substance-related police contact by levels of belief in procedural justice, police legitimacy and law legitimacy, and commitment to police, ATS users (*n*=121)

	Perception of fairness scale[a]		Perception of respect scale[a]		Perception of trustworthiness scale[a]		Perception of compliance scale[a]	
	Mean (Standard Deviation)	*z*[b]	Mean (Standard Deviation)	*z*[b]	Mean (Standard Deviation)	*z*[b]	Mean (Standard Deviation)	*z*[b]
Belief in procedural justice		-1.76		-1.94		-2.27*		-0.16
Weak/Moderate	65.42 (18.82)		64.02 (22.40)		67.41 (21.63)		81.07 (14.79)	
Strong	76.30 (5.88)		78.89 (11.67)		83.33 (8.66)		81.11 (17.64)	
Belief in police legitimacy		-3.26**		-2.90**		4.23***		-2.00*
Weak/Moderate	62.50 (19.05)		61.13 (22.89)		62.88 (21.65)		79.38 (14.78)	
Strong	73.50 (14.72)		72.93 (18.34)		79.76 (15.73)		84.39 (14.84)	
Belief in law legitimacy				-2.34*				
Weak/Moderate	64.81 (18.43)	-1.43	61.90 (21.49)		65.70 (20.55)	-2.54*	79.75 (14.05)	-1.79
Strong	68.89 (18.25)		71.19 (22.22)		74.05 (21.98)		83.57 (16.35)	
Commitment to police				-2.80**				
Weak/Moderate	63.61 (19.61)	-2.24*	61.53 (22.55)		64.59 (22.35)	-3.14**	79.65 (15.15)	-1.76
Strong	72.41 (13.44)		73.61 (18.69)		78.06 (15.27)		84.44 (14.03)	

a: Standardised score, range 20–100

b: Two sample Wilcoxon rank-sum (Mann-Whitney) test, reporting *z* scores

* $p<0.05$

** $p<0.01$

*** $p<0.001$

Satisfaction with most recent substance-related police contact and general perceptions of police and policing

Table 5-6 presents the scores for satisfaction with most recent substance-related police contact by levels of belief in procedural justice, police legitimacy and law legitimacy, and commitment to police, among ATS users. There were significant associations between a strong belief in procedural justice, police legitimacy and law legitimacy and a strong commitment to police, and greater satisfaction with the encounter. These findings support the large body of procedural justice and police legitimacy literature, which argues that procedurally just encounters increase satisfaction with encounters with police by promoting police legitimacy (Mazerolle et al. 2013).

Table 5-6. Mean scores for satisfaction with most recent substance-related police contact scale by levels of belief in procedural justice, police legitimacy and law legitimacy, and commitment to police, ATS users (*n*=121)		
	Satisfaction with encounter[a]	
	Mean (Standard Deviation)	*Z*[b]
Perception of procedural justice		-3.06**
Low/moderate	65.22 (19.85)	
High	82.78 (6.18)	
Perception of police legitimacy		-3.59***
Low/moderate	62.44 (19.90)	
High	74.51 (16.84)	
Perception of law legitimacy		-2.22*
Low/moderate	64.49 (18.42)	
High	70.36 (21.62)	
Perception of commitment		-3.00**
Low/moderate	63.24 (20.21)	
High	74.31 (16.22)	

a: Standardised score, range 20–100

b: Two sample Wilcoxon rank-sum (Mann-Whitney) test, reporting z score

* $p<0.05$

** $p<0.01$

*** $p<0.001$

Outcomes of substance-related police contact: Changing patterns of drug use

A potential outcome of substance-related police contact is a change in patterns of drug use. In order to explore changes in drug-use behaviour associated with contact with police, 95 semi-structured interviews with ATS users focusing on their experiences with police were examined. Over half (62.1%) of these ATS users had had substance-related police contact. From this group of ATS users, just under half (40.7%) associated substance-related police contact with changes to their patterns of drug use. For a number of these ATS users, their contact with police was seen as a wake-up call regarding their drug use and its potential impact on their lives.

> That, that experience was—really did actually make me think, man, I've just got to stop doing this. Um, um, and it's just—yeah. So yeah, I guess it is something that I look back on as, as sort of a bad time in my life, and something bad that was drug-related, at least. Um, so I guess it adds up to the many other things that made me want to stop doing a lot of thing that I was doing. So, yeah. (Male ATS user who had been detained by police)

> Yeah, changed my life. Made me grow up a little…I mean, yeah. I think if they hadn't caught me, and found me, I wouldn't have been caught, then I reckon maybe even today I'd still be young and—well, not young, but stupid of mind. So good on 'em [the police]. (Male ATS user who had been caught and charged with growing cannabis plants)

This wake-up call was often coupled with reduced drug use. Of the ATS users who associated changes in their patterns of drug use with their experiences of substance-related police contact, 41.7% (*n*=10) reported this led to reduced drug use or desisting from use.

> Oh, oh, I won't go anywhere near it [cannabis]. If someone smokes around me I'll leave. Um, yeah. Even alcohol, I mean, I used to drink quite an excessive bit. And now, yeah, it's—besides a buck's last

> weekend. But if I go out I only have three, four drinks. They're only mids. So I have two in the first hour, one every hour after that. And I drive home every night now, so. (Male ATS user who had been caught and charged with growing cannabis plants).
>
> It's [participant's drug use] cut back, a lot. And yeah, it's definitely made me more aware that my actions do have consequences, and I can't—do something without there being detriment. And just—yeah. I'm not nineteen anymore, I'm twenty-three, and I have to take responsibility for my actions. And I did something wrong, and I paid for it, and now it's just made me more aware that I can't do anything like that anymore. So it's just made me grow up a bit more, if that makes sense. (Female ATS user who had been detained by police)

In contrast, many ATS users did not view their contact with police as having any impact on their patterns of drug use in terms of frequency or quantity of use. However, over half (58.3%) of ATS users who associated changes in drug-use patterns with police contact discussed a need to be more careful about their drug use to avoid detection and further contact with police.

> *So in terms of your behaviour then, has this contact—or personal experience with the police changed your behaviour in any way? Like have you, has it impacted on the frequency of your drug or alcohol use, or—*
>
> My contact with police, not really. Um, I guess it would have influenced it as in it's—you know, I guess I would probably drink in public if there were no police around.
>
> *Ok, yep.*
>
> You know. Um, but I don't because I'd get in trouble.
>
> *Yep. Ok, no, that's great. Ummm, we've got a—*
>
> I'd probably smoke weed in public too.
>
> *Sorry?*
>
> I'd probably smoke weed in public too, if there weren't police around.
>
> *Ok. So given those incidents in the past, you would still smoke weed in public, and drink in public?*
>
> Oh, I guess…ah yeah, as long as I didn't, as I thought there were no cops going to be around, basically. (ATS user who had been caught smoking cannabis).
>
> Yeah, it has influenced my behaviour. More so just being cautious, and putting—trying not to be, yeah. What's the word…yeah, trying not to put myself, like, in the line of police, sort of thing. (ATS user who was found with drugs at a music festival).
>
> Uh, in the sense that you have to be more careful. 'Cause you know, like, you can get caught by police, and those sorts of things. But it doesn't really affect me in any other way, I couldn't think. (ATS user whose home was raided)

In some cases, being more cautious about drug use due to police contact resulted in reduced drug use, as described below by an ATS user talking about a friend whose home had been raided for drugs:

> Um, he still uses occasionally. But he's a lot more careful about who he, uh, buys from. He won't talk about it in public, he'll only talk about it to friends, no text messages, no phone calls, nothing like that. Because they [the police] did advise him that he would be watched now, for a period of time, so that's the—it's just made him a lot more cautious. Which, in terms of, has reduced his drug use anyway.

However, approximately half (50.8%) of ATS users who had substance-related contact with police did not believe that police contact changed their patterns of drug use. For some ATS users, changes in patterns of drug use were more closely linked to the idea of growing up:

> I think just from getting older, and having—becoming more mature, and I guess, studying—or not even just studying, but age-wise, that drug—well for me, and for my group of friends, taking drugs for recreational purposes is something that we used to do when we were younger, and we've grown out [of] it. (ATS user whose home was raided for drugs)

> The experience [police contact] itself doesn't, or hasn't, hasn't really had much of an effect on me. But just, sort of growing up a bit and looking around and seeing, you know, this shitty life that you're building for yourself. Sort of looking back on all the stupid things you've done. Um, it gives a bit of incentive to do something else. (ATS user who had multiple contacts with police)

To further explore whether police contact is associated with changes in patterns of drug use, quantitative data was used to examine ecstasy and methamphetamine use (use in the last 12 months vs no use in the last 12 months) at the 12-month, 30-month, and 4½-year follow-ups in relation to:

- police contact;
- having ever been charged with a drug-related offence; and
- contact with health services for a substance-related issue.

Police contact was categorised into three groups: no substance-related contact, non-intensive substance-related contact and intensive substance-related contact. Intensive substance-related contact refers to police contact initiated by the police or a third party related to the participant's own drug or alcohol use (eg being questioned or detained by police, or being charged or arrested for a drug-related offence). The results of Pearson chi-square analyses are presented in Tables 5-7 and 5-8.

Table 5-7. Ecstasy use at 12-month, 30-month and 4½-year follow-ups, by police contact, having ever been charged with a drug-related offence, and contact with health services for a substance-related issue (*n*=247)

	Ecstasy use at 12-month follow-up		Ecstasy use at 30-month follow-up		Ecstasy use at 4½-year follow-up	
	Used in the last 12 months *n* (%)	χ^2	Used in the last 12 months *n* (%)	χ^2	Used in the last 12 months *n* (%)	χ^2
Police contact[a]		4.59		1.17		2.20
No substance-related contact (*n*=69)	56 (81.2)		43 (62.3)		31 (44.9)	
Non-intensive substance-related contact[b] (*n*=64)	46 (71.9)		34 (53.1)		26 (40.6)	
Intensive substance-related contact[c] (*n*=114)	97 (85.1)		67 (58.8)		59 (51.8)	
Ever charged with a drug-related offence[a]		0.13		2.73		0.05
No (*n*=210)	170 (81.0)		127 (60.5)		98 (46.7)	
Yes (*n*=37)	29 (78.4)		17 (46.0)		18 (48.7)	
Contact with health service for a substance- (i.e., alcohol, tobacco, or other drug) related health issue[d]		0.00		1.45		2.83
No (*n*=150)	121 (80.7)		92 (61.3)		64 (42.7)	
Yes (*n*=97)	78 (80.4)		52 (53.6)		52 (53.6)	

a: Measured at 4½-year follow-up

b: Non-intensive substance-related contact with police (ie contact initiated by the police or a third party related to the participant's own drug or alcohol use, such as a random breath test)

c: Intensive substance-related contact with police (ie contact initiated by the police or a third party related to the participant's own drug or alcohol use and including occasions such as: being questioned or detained by police, being searched by police or checked by sniffer dogs, or being charged or arrested for a drug- or alcohol-related offence)

d: Measured at baseline and 12-month follow-up

Table 5-8. Methamphetamine use at 12-month, 30-month, and 4½-year follow-ups, by police contact, having ever been charged with a drug-related offence and contact with health services for a substance-related issue (*n*=232)

	Methamphetamine use at 12-month follow-up		Methamphetamine use at 30-month follow-up		Methamphetamine use at 4½-year follow-up	
	Used in the last 12 months *n* (%)	χ^2	Used in the last 12 months *n* (%)	χ^2	Used in the last 12 months *n* (%)	χ^2
Police contact[a]		1.04		5.47		3.22
No substance-related contact (*n*=62)	31 (50.0)		22 (35.5)		15 (24.2)	
Non-intensive substance-related contact[b] (*n*=59)	26 (44.1)		16 (27.1)		12 (20.3)	
Intensive substance-related contact[c] (*n*=111)	58 (52.3)		50 (45.1)		26 (32.4)	
Ever charged with a drug-related offence[a]		2.79		3.37		0.62
No (*n*=195)	92 (47.2)		69 (35.4)		51 (26.2)	
Yes (*n*=37)	23 (62.2)		19 (51.4)		12 (32.4)	
Contact with health service for a substance (i.e., alcohol, tobacco, or other drug)-related health issued		0.26		3.45		2.04
No (*n*=139)	67 (48.2)		46 (33.1)		33 (23.7)	
Yes (*n*=93)	48 (51.6)		42 (45.2)		30 (32.3)	

a: Measured at 4½-year follow-up

b: Non-intensive substance-related contact with police (ie incidental contact initiated by the police or a third party related to the participant's drug or alcohol use, such as a random breath test)

c: Intensive substance-related contact with police (ie contact initiated by the police or a third party related to the participant's own drug or alcohol use and including occasions such as: being questioned or detained by police, being searched by police or checked by sniffer dogs, or being charged or arrested for a drug- or alcohol-related offence)

d: Measured at baseline and 12-month follow-up

No significant associations were found between ecstasy or methamphetamine use at the 12-month, 30-month, or 4½-year follow-up (used in the last 12 months vs no use in the last 12 months) and police contact, having ever been charged with a drug-related offence or contact with health services for drug-related issues. Pearson chi-square analyses were also used to test the association between the number of intensive substance-related police contacts (ie no intensive substance-related contact, 1 occasion of intensive substance-related contact and >1 occasion of intensive substance-related contact) and frequency of ecstasy and methamphetamine use at the 4½-year follow-up (ie use in the last 12 months: no use, once or twice, and every few months or more). A strong association was found with methamphetamine use, with a significantly higher proportion of those reporting more than one occasion of intensive contact using methamphetamine every few months or more frequently at the 4½-year follow-up (21.9%, compared with 19.4% of those with only one contact and 11.4% of those with no contact; $\chi^2(4)=13.9$, $p<0.01$). A similar pattern was found for ecstasy use. Approximately one quarter (25.3%) of ecstasy users who reported more than one occasion of intensive contact were using ecstasy at least every few months compared with 19.1 percent of those who reported one occasion of contact and 12.1 percent of those who reported no contact. However, this association was not significant ($\chi^2(4)=8.7$, $p=0.069$). These findings suggest there may be an association between greater frequency of ATS use and increased intensive substance-related contact with police, and that greater contact with police is not necessarily associated with reduced ATS use.

These findings suggest that there may not be a systematic association between substance-related police contact and changes in patterns of ecstasy and methamphetamine use. However, as illustrated above, the semi-structured interviews provide support for a link between substance-related contact and changes in drug-use behaviour. The differing results drawn from the qualitative and quantitative data may reflect the fact that the qualitative data measured ATS users' subjective perceptions of, and intentions to reduce or cease, drug use rather than their actual behaviour. Further, while the quantitative analyses did not find any associations between police contact and changes in patterns of ecstasy and methamphetamine use, police contact may be associated with changes in patterns of other drug use.

The majority of ecstasy users appear to mature out of ecstasy use or reduce their levels of use throughout young adulthood (Smirnov et al. 2013). There are clearly many varied factors that influence changes in patterns of drug use, such as social-recreational goals and the subjective effects of ecstasy use (Smirnov et al. 2013). However, police contact may potentially be an important context for helping to trigger pathways away from drug use. Police could play a role in alerting ATS users to, and directing them towards, available health and treatment services. ATS users may not be aware of the services available to them, as discussed by the ATS user below:

> I tried to search for help, like I went last year, I was getting pretty bad on speed, and I recognised it. Um, and I would sit here, off my head. Online, I rang Helpline, I rang all these things, nobody can help you on Helpline. They can't. It's just somebody saying the same things that I don't need to hear. "Ok, the first step is that you've admitted it"—I get that. I just need—what do I do, you know? Where do I go? There was one really good website that I found, I mean this took a lot of sourcing, it just wasn't just easy—you can just walk to [local treatment agency]. And I'd—I mean they are there, and they are trying to help, but you obviously need—there's not enough money put into actually helping people, rather than just, f*** it, arrest them and put them in jail.

Further, young adult ATS users may not feel that the substance treatment services available are appropriate for their needs. There is a need to focus on developing novel treatment services that are appropriate for young adult ATS-users, including services that are accessible outside of mainstream specialist treatment services (Tait et al. 2012). Low-threshold treatment services, which have the potential to increase accessibility for a large range of individuals by lowering admission thresholds (UNODC 2008), may be an effective strategy for increasing treatment service access for ATS users.

Conclusions

This chapter explored how ATS users and non-users view police and policing and how these perceptions affect their attitudes and behaviour, and examined the relationship between general views of police and policing and specific encounters with police. The findings highlight significant differences between ATS users and non-users in regard to general views of police and policing, attitudes toward drug-law enforcement and willingness to cooperate with the police. Compared with non-users, ATS users had less favourable perceptions of police and policing (ie procedural justice, police legitimacy and law legitimacy) and weaker commitment to police, reported lower levels of support for drug-law enforcement and were less willing to cooperate with the police. However, it is important to note that ATS users were still generally supportive of police and the enforcement of drug laws.

Looking more closely at the relationship between general views of police and the law, and willingness to cooperate with police, the study found that a strong belief in procedural justice and police legitimacy and a strong commitment to police were associated with a greater willingness to cooperate with police among ATS users and non-users. A strong belief in procedural justice and police and law legitimacy, and a strong commitment to police, were also associated with greater support for drug law enforcement across ATS users and non-users. The findings suggest that among both ATS users and non-users, individuals with more favourable views of police and policing are more likely to support, and more willing to cooperate with, the police. This provides further support for the role of procedural justice-based policing in promoting police legitimacy and increasing support for, and willingness to cooperate with, police.

The importance of belief in police legitimacy was highlighted in our findings concerning associations between general views of police and policing and perceptions of ATS users' most recent substance-related police contact. A strong belief in police legitimacy was linked to more favourable perceptions of police fairness, police respect and police trustworthiness in the most recent encounter with police. Additionally, police legitimacy was the only factor associated with greater participant compliance. In regards to satisfaction with most recent substance-related police contact, a strong belief in procedural justice and police and law legitimacy, and a strong commitment to police, were each associated with greater satisfaction with the encounter.

Less favourable views of police and policing (ie procedural justice, police legitimacy and law legitimacy) have important implications for policing. Police legitimacy has been shown to have a significant role in encouraging voluntary cooperation and compliance with police and the law, both of which are heavily relied upon for effective policing (Mazerolle et al. 2013). Conversely, as the results show, less favourable attitudes towards police and policing are associated with reduced willingness to cooperate with police. However, the findings provide some support for the use of procedural justice in promoting police legitimacy and increasing willingness to cooperate with police, with a strong belief in both procedural justice and police legitimacy associated with a greater willingness to cooperate among both ATS users and non-users. Compared with older people, young adults are more likely to have contact with police as victims and perpetrators of crime, and are also at the peak age for harmful levels of alcohol and other drug use (Skogan 2006; Stone, Becker, Huber & Catalano 2012). As the findings highlight, significantly higher proportions of ATS users had non-intensive and intensive substance-related police contact than non-users. This suggests that young adult ATS users may be at particularly increased risk for police contact and, as such, may be an important target group for procedural justice-based policing.

Lastly, the study examined changes in patterns of drug use as a potential outcome of substance-related police contact. A number of ATS users described substance-related police contact as a wake-up call regarding their patterns of drug use. The semi-structured interviews showed that just under half (40.7%) of ATS users who had substance-related contact with police associated this contact with changes in their drug-use behaviour. Of these ATS users, 41.7 percent of ATS users associated substance-related contact with reduced patterns of drug use, while 58.3 percent reported being more careful with their drug use in order to avoid detection and further contact with police. In contrast, quantitative analysis showed no significant associations between desistance from ecstasy use and substance-related police contact. However, the findings from the semi-structured interviews suggest that contact with police may potentially be an important context for helping trigger pathways toward reduced drug use or away from drug use.

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