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Ecstasy and the Concomitant Use of Pharmaceuticals

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ECSTASY AND THE CONCOMITANT USE OF PHARMACEUTICALS

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EXECUTIVE SUMMARY

In Australia ecstasy is the third-most popular illicit substance (after cannabis and amphetamines, with patterns of increasing use compared with other illicit drugs over the last 5 years. Recent anecdotal evidence suggests that it is becoming increasingly popular among ecstasy users to attempt to negate certain side-effects through the concomitant use of pharmaceutical drugs or supplements. This is of concern, as some of these ecstasy-pharmaceutical combinations can have potentially serious health consequences.

This study recruited 216 ecstasy users, the majority of whom were from the Sydney metropolitan area. Generally, this sample was young, well educated, and likely to be in some form of paid employment. Males were slightly overrepresented within the sample. Consistent with similar recent studies, the average frequency of ecstasy use for this group was about ten days in the last six months, although this ranged from one day in the last six months to four days per week. About one quarter of the sample had deliberately taken a pharmaceutical substance for its putative effects on the euphoric effects or recovery from ecstasy use. Viagra and benzodiazepines were the most commonly used pharmaceutical substances, the former almost always used for sexual purposes and the latter usually for its calming properties. Anti-depressant medication was also common amongst this sub-group of people, as it was purportedly beneficial in increasing the strength of the ecstasy 'high' and in assisting with the 'comedown' period.

Among those reporting symptoms associated with concomitant use of ecstasy and antidepressants were more likely than those using ecstasy alone to report potentially serious effects such as muscle rigidity; nystagmus; dizziness; headache; and profuse sweating. Those who reported using pharmaceuticals were significantly more likely to be male, had more 'apparent' years of use and were more likely to have injected party drugs. This suggests the need for particular harm reduction messages around serotonin syndrome for this high risk group. The use of a large range of pharmaceuticals, in a variety of combinations for contradictory purposes suggests that there is a need for harm reduction information for ecstasy users regarding the risks associated with the mixture of ecstasy and other "party drugs" with pharmaceuticals and supplements. Particular attention should be paid to informing users of the potentially fatal serotonin syndrome that is likely to arise from combining ecstasy with the SSRI and MAOI groups of antidepressants or these antidepressant groups with each other. In addition, given the early stage of the research on the products that may have a role in protecting users from the neurotoxic effects of ecstasy use the harm reduction messages should contain techniques for minimising the harms that do not involve the use of other drugs or products.

The most common source of these pharmaceuticals was from friends and this study has raised a number of concerns for primary health care practitioners and pharmacists, particularly education on how and why ecstasy and pharmaceutical are used by this group and to question young males in particular on their need for Viagra, antidepressants and sedative-hypnotics. Accurate information from medical practitioners and pharmacists to ecstasy users may reduce this diversion and unsafe use of pharmaceuticals; improve screening for ecstasy-related symptoms; and reduce the likelihood of the additional health risk of mixing ecstasy with other illicit drugs; anti-depressants and products that affect the serotinergic pathways. The public health issues in driving while intoxicated and high risk sexual behaviours should also be addressed.

INTRODUCTION

'Ecstasy' (3,4-methylenedioxymethamphetamine or MDMA) was originally synthesized in 1914, but has recently gained popularity as a drug often associated with the nightclub and dance party scene.

In Australia, the 2001 National Drug Strategy Household Survey (NDSHS) found that ecstasy was the third-most popular illicit substance (after cannabis and amphetamines). Of all people aged over 14 years, 6% had ever used ecstasy, where males exhibited a slightly higher prevalence rate than females (AIHW 2002). About half of this proportion (3%) had used ecstasy within the last 12 months. Ecstasy was most popular among the 20 to 29 year age group (22%).

In the early 1990s, some postulated that ecstasy use was merely a 'fad' and would be replaced by another drug (Solowij, Hall et al. 1992). The prevalence of ecstasy use, however, has been steadily increasing since that time. In 1995, the NDSHS reported that 1.7% of Australians aged over 14 had used ecstasy, whereas this rate had increased to 4.9% in 1998 and to 5.9% in 2001 (AIHW 2002) defying the trend for most other drugs.

In reality, drugs sold and consumed as ecstasy could contain any combination of a number of substances that may or may not be related to MDMA. For the purposes of this report, the term ecstasy is used on the understanding that drugs consumed as such may not be MDMA or even one of its analogues.

Ecstasy use has been associated with a number of socio-demographic factors. When compared to other illicit drug users, ecstasy users are more likely to be younger, have fewer children, regular employment, a higher income, higher levels of education and little criminal history (Topp, Hando et al. 1997; Topp, Hando et al. 2000; Brecht and von Mayrhauser 2002; Topp, Barker et al. in press; Topp, Breen et al. in press).

Pharmacologically, MDMA acts principally upon the serotonergic neurotransmitter system. MDMA liberates serotonin from serotonergic neurones and prevents its reuptake. There has been evidence that MDMA can deplete serotonin levels, reduce the number of serotonin transporters and cause the loss of serotonin uptake sites in animals (McKenna and Peroutka 1990; McCann, Szabo et al. 1998; NIDA 2003). However, many studies involving human subjects have been flawed due to the lack of adequate controls and the confounding effects of other drug use. Conclusions drawn about the effect of MDMA upon the serotonergic system are unclear, but studies to date suggest that it is highly likely that MDMA induces neurological changes.

Ecstasy users often report a rapidly developing tolerance to the drug, and attempting to offset this by consuming larger doses on subsequent usage occasions (Topp, Hando et al. 1997; Topp, Hando et al. 2000). This practice could result in an abundance of negative side-effects, which may incline many to discontinue their use.

Ecstasy users often use a variety of other drugs in conjunction with their drug of choice. A study conducted for the Australian Government Department of Health and Ageing, the Party Drug Initiative (PDI), monitors party drug markets across all states and territories of the country. In the 2003 NSW PDI survey ecstasy users were characterised as extensive polydrug users, half of whom nominated ecstasy as their favourite or preferred drug (White, Breen & Degenhardt; 2004). On average, participants had used

ten drugs in their lifetime and had used seven in the preceding six months. Almost all reported lifetime use of alcohol, cannabis, tobacco and methamphetamine powder (speed).

The prevalence and frequency of use of other party drugs such as ketamine, GHB and MDA stabilised in 2003 which may suggest that while substantial minorities continue to report recent and lifetime use of these drugs, there are relatively few regular users who have access to these drugs. They may not be as widely or consistently available as ecstasy and therefore the use of these drugs may be opportunistic in nature. This was reflected in the relatively low frequency of use of these drugs with most recent users report using less than monthly.

Ecstasy use can bring about a range of negative physical side-effects whilst under the influence of the drug and during the 'comedown' period, such as weight loss, nausea, fatigue, loss of appetite, tachycardia, tremors and jaw-clenching (Darke, Ross *et al.* 2000; Parrott, Buchanan *et al.* 2002; Topp, Kaye *et al.* 2002). In the days following ecstasy use, a person is likely have lowered levels of serotonin, which is associated with a variety of problems such as depression and anxiety and sleeping difficulties.

Recent anecdotal evidence suggests that it is becoming increasingly popular among ecstasy users to attempt to negate certain side-effects through the concomitant use of pharmaceutical drugs or supplements. This is of concern, as some of these ecstasy-pharmaceutical combinations can have potentially serious health consequences.

This evidence suggests that a variety of pharmaceutical drugs and supplements are being employed for a range of reasons related to ecstasy use. Descriptions of the pharmaceutical substances often used in conjunction with ecstasy and the likely reasons for their use are provided below.

Anti-depressant medications

The impact of antidepressant medication is poorly researched and widely debated in the electronic media. Early work by well known Johns Hopkins University researchers reported that in pre-clinical trials that serotonin reuptake inhibitors block MDMA-induced serotonin release and MDMA neurotoxicity without blocking their subjective effects (McCann and Ricaurte, 1993). While there has been no further such reports, a variety of websites including http://dir.salon.com/health discuss these putative protective effects of antidepressants on ecstasy use and include direct quotations from researchers. That posting also discusses a Finnish rodent study that was said to demonstrate that an SSRI given within six hours of ecstasy use protected against damage to the serotonin nerve cells.

There are also examples of case history reports in the literature of individuals reporting that SSRIs prolong the psychoactive effects of ecstasy and reduce the comedown (Singh and Catalan, 2000).

It is hardly surprising, therefore, that ecstasy users are confused regarding the use of antidepressants. Anti-depressant medication is likely to be taken by ecstasy users attempting to counter any unwanted effects resulting from less than optimal levels of serotonin. For example, users may take anti-depressants in an attempt to prevent any potential neurological damage, which results from depleted serotonin levels due to

ecstasy use. Alternatively, anti-depressants may be taken while under the effects of ecstasy, in order to strengthen or lengthen the ecstasy 'high'.

In Australia, the most popular prescribed anti-depressant medication is the selective serotonin reuptake inhibitor (SSRI). This substance assists in increasing the amount of serotonin in the synaptic space by blocking the transporter responsible for its reuptake. Popular SSRI anti-depressants include fluoxetine, venlaflaxine and sertraline (sold under the trade names *Prozac, Effexor XR* and *Zoloft*, respectively).

Another popular form of prescribed anti-depressant medication are the monoamine oxidase inhibitors (MAOI). This drug prevents enzymes within the serotonergic neuron from breaking down any serotonin, thus leading to heightened serotonin levels. MAOIs are considered to be very effective, however they can cause adverse side effects if mixed with certain foods, such as citrus fruits, yeast, bananas, red wine and cheese. In Australia, the most commonly prescribed MAOI anti-depressant is moclobemide (often sold under the trade name *Aurorix*).

Other less popular prescribed anti-depressant medications include lithium, tricyclic anti-depressants and non-prescribed herbal preparations such as hypericum perforatum (St. John's Wort).

In the last five years, St John's Wort (SJW) has become one of the most popular herbal remedies in Australia, available as pills, liquid and a tea. Some internet sites have labelled it the natural Prozac and it is currently one of the most popular 'pick-me-up' herbs available. It has been used for centuries and has proven to be an effective anti-depressant. A greater number of severity of side-effects, however, are now being reported. It has been reported that SJW can cause major reductions in blood levels of the anti-HIV drug Indinavir (Piscitelli et al., 2000). The report warned that SJW may theoretically affect blood levels of the anti-HIV drugs saquinavir, nelfinavir, efavirenz and nevirapine. There have also been case reports of HIV-! protease inhibitors themselves prolonging the effects of ecstasy and having near fatal interactions with gamma hydroxybutyrate (Harrington et al., 1999).

Unexpected toxicity may occur when St John's Wort is taken with serotonin reuptake blockers such as ecstasy (Vincenti, 2001). This has caused concern in the UK where there is a growing trend by party-drug users to 'preload'. Preloading is when a combination of minerals, vitamins and other 'health-related' products are taken before going out and using drugs such as ecstasy in the hope of reducing negative consequences. In the case of SJW, ecstasy users believe that it can increase the serotonin held in the brain, thus increasing the 'ecstasy effect'.

5-hydroxytryptophan (5-HTP)

5-HTP is a popular dietary supplement as a putative aid to ameliorate depression, to improve the debilitating symptoms of fibromyalgia, to aid weight loss, lower blood pressure, prevent headaches and relieve insonia (Das *et al.*, 2004). 5-HTP is the immediate precursor in the biosynthesis of 5-hydroxy-tryptamine (5-HT; serotonin) from the essential amino acid L-tryptophan (Das *et al.*, 2004). This action is distinct from that

of SSRI and MAOI anti-depressants, which merely assist in raising the level of serotonin within the synaptic space, without actually facilitating its production. The commercially available 5-HTP is extracted from an African medicinal plant called Griffonia simplicifolia.

While the use of 5-HTP is becoming increasingly popular amongst, including among some recreational drug users, particularly over the internet there is little information on its effectiveness even in depression (Shaw, Turner and Del Mar, 2002). As previously discussed, use of ecstasy depletes the brain's own supply of serotonin and it is believed that 5-HTP enhances its replenishment. Typically, 5-hydroxytryptophan (5-HTP) is taken to relieve problems associated with low serotonin levels, such as sleeping difficulties and problems with appetite. Since 5-HTP assists in raising serotonin levels, ecstasy users are likely to use it in similar ways to anti-depressant medication. In their review of the safety of 5-HTP Das and colleagues do not comment on ecstasy use but warn that the use of SSRIs or any other serotonin affecting drug with 5-HTP is unwise (Das *et al.,* 2004).

5-HTP is not available in Australia. And is not prohibited under the Customs (Prohibited Imports) Regulations 1956 but is a prescription medicine. This means that it can be personally imported but a prescription must be first obtained from an Australian registered medical practitioner. It should be noted, however, that it is illegal to supply goods imported under the personal import scheme exemption to persons outside the importer's immediate family. Under the personal import scheme exemption, an individual may import three months supply per import and, no more than fifteen months supply per twelve-month period (http://www.tga.gov.au/docs/html/bringmed/persimp.htm). 5-HTP is sold from a number of online health stores found simply by searching the internet. Typical costs for 5-HTP are of the order of AUD$60 for a bottle of 100 capsules, each containing extract of griffonia simplicifolia equivalent to 100mg of 5-HTP.

The concomitant use of ecstasy and other serotonin-enhancing substances is of concern, as this practice can result in dangerously high levels of serotonin and bring about the potentially fatal condition known as 'serotonin syndrome' (Sternbach 1991). This syndrome typically occurs after the concomitant ingestion of two or more serotonin-enhancing substances. Such substances include ecstasy, 5-HTP, and SSRI or MAOI anti-depressant medication, as well as other substances including LSD and pseudoephedrine.

The drugs which we know most frequently contribute to this condition are the combination of MAOIs with *Prozac,* however, this any SSRIs or other drugs that have a powerful effect upon serotonin could be implicated e.g., clomipramine (*Anafranil*) or trazadone (*Deseryl*). The combination of lithium with these selective serotonergic agents has been implicated in enhancing the serotonin syndrome. The tricyclic antidepressants, lithium, MAOIs, and SSRIs all enhance serotonin neurotransmission and can contribute to this syndrome. Anything which will raise the level of serotonin, including ecstasy, can bring on this state.

Serotonin syndrome is a toxic condition which we need to be more aware of in order to prevent, recognize, and treat the condition promptly. Promptness is vital because the serotonin syndrome can be fatal and death from this side effect can occur very rapidly. The syndrome's rate of incidence is unknown, but appears to be on the rise, particularly

since the 1960s when a larger range of drugs directly affecting serotonin, usually those drugs which are used to treat depression, began to be used more often.

The symptoms of the serotonin syndrome are: euphoria, drowsiness, sustained rapid eye movement, overreaction of the reflexes, rapid muscle contraction and relaxation in the ankle causing abnormal movements of the foot, clumsiness, restlessness, feeling drunk and dizzy, muscle contraction and relaxation in the jaw, sweating, intoxication, muscle twitching, rigidity, high body temperature, mental status changes were frequent (including confusion and hypomania - a "happy drunk" state), shivering, diarrhoea, loss of consciousness and death (Sternbach, 1991).

5-HTP itself is considered to have a good safety profile with no definitive cases of toxicity documented in the literature (Das *et al.*, 2004).

Attention Deficit Hyperactivity Disorder (ADHD) Medication

Attention Deficit Hyperactivity Disorder (ADHD) is defined by the American Psychiatric Association as a persistent pattern of inattentive behaviour and/or hyperactivity/impulsivity that is more frequent and severe than is typically observed in individuals of the same developmental level (APA, 1994). At this time no cause has been found although the condition is thought to be neuro-psychological in origin.

By far the best known form of ADHD treatment is medical intervention with psychostimulants. While there are a range of other medications available in the United States, the two products most widely used in Australia are dextroamphetamine (also known as
'dexamphetamine' or 'dex') and methylphenidate (also known as *Ritalin*).
Dextroamphetamine is currently listed on the Commonwealth Pharmaceutical Benefits Scheme.

One of the concerns about ADHD in Australia is the growth in the use of medication to treat the condition. From 1984 to 2000 there was a 26% increase per year in the total rate of prescribed consumption of dexamphetamine and methylphenidate per year in Australia with a 8.5 fold increase from 1994 to 2000 (Berbatis, Sunderland and Bulsara, 2002). Australia and New Zealand rank third in the world on the use of these drugs

Dextroamphetamine (Dexedrine) is an amphetamine used to treat narcolepsy and ADHD. Amphetamines increase attention and decrease restlessness in patients who are overactive, unable to concentrate for very long or are easily distracted, and have unstable emotions. These medicines are used as part of a total treatment program that also includes social, educational, and psychological treatment.

Ritalin is a central nervous system (CNS) stimulant. It has effects similar to, but more potent than, caffeine but less potent than amphetamines. It has a notably calming effect on hyperactive children and a "focusing" effect on those with ADHD. Because of its stimulant properties, however, in recent years there have been reports of abuse of methylphenidate by people for whom it is not a medication. Some individuals abuse it for its stimulant effects: appetite suppression, wakefulness, increased focus/attentiveness, and euphoria.

Ecstasy users may be attracted to these stimulant qualities of ADHD medication to either prevent fatigue or increase euphoria during the ecstasy 'high'.

Sildenafil Citrate (Viagra)

The wide availability of sildenafil citrate (*Viagra)* in past five uears has a significant impact on the field of sexual health (Burnett, 2004). In addition to the quality of life effects for males with erectile dysfunction it has also been implicated in the increasing rates of sexually transmitted disease among middle aged men in the USA (Kaflovsky, Lebed and Mydlo, 2004). Its use in conjunction with ecstasy has been described as "sextasy" in the popular media (Breslau, 2002) and associated with increase sexual risk taking among gay and bisexual men who take part in "circuit parties" in the USA (Colfax *et al.,* 2001). In a study of 76 ecstasy users, Buffum and Moser (1986) found that 70% of subjects had engaged in sexual activity while intoxicated on ecstasy. The majority of this group reported that the sensuality of the sexual experience was enhanced during intoxication. However, men commonly reported difficulty attaining an erection and 62% found it difficult to achieve orgasm.

Sildenafil Citrate (sold under the brand name Viagra) can be used to counter this side-effect of ecstasy use. Viagra is a prescription drug used to treat erection difficulties, such as erectile dysfunction (ED). Viagra works by increasing blood flow to the penis. It is a phosphodiesterase-5 (PDE5) inhibitor, therefore not a hormone or an aphrodisiac (Burnett, 2004). Its onset of action is around 30 minutes and lasts for 4 hours. It first became available in 1998 and since that time it is believed the drug has been used by about 16 million men around the world (www.viagra.com).

The consumption of Viagra causes a mild, temporary lowering of blood pressure, and any concomitant use with party drugs could potentially result in serious cardiac problems. Some users have reported feeling faint, black-outs, unconsciousness and in extreme cases, coma. Other less serious side effects include headaches, facial flushing and redness and sight problems. Pfizer, the manufacturer of the drug, have also highlighted the risk of 'priapism'; a prolonged and painful erection which can damage the blood vessels in the penis. This may need surgery to correct in some cases.

Pfizer states that if Viagra is taken with any nitrate medicine or recreational drug containing nitrates, the user's blood pressure could suddenly drop to an unsafe level. The user could get dizzy, faint, or even have a heart attack or stroke. Nitrates are found in many prescription medicines that are used to treat angina (chest pain due to heart disease) such as:

- nitroglycerin (sprays, ointments, skin patches or pastes, and tablets that are swallowed or dissolved in the mouth)
- isosorbide mononitrate and isosorbide dinitrate (tablets that are swallowed, chewed, or dissolved in the mouth)

Nitrates are also found in recreational drugs such as amyl nitrate or nitrite ("poppers"), a drug regularly used by some ecstasy users. Both drugs have a similar effect, opening blood vessels and allowing greater blood flow. At the same time, blood pressure falls. When used in combination, blood pressure may fall to a critical point although there has

been no definitive reports of excess mortality due to myocardial infarction among *Viagra* users (Wysowski, Farinas and Swartz, 2002). There have been reports, however, of fatal *Viagra* overdose (Tracqui *et al.,* 2002).

Benzodiazepines

Benzodiazepines (sometimes called 'benzos') are also referred to as 'minor tranquillisers' and hypno-sedatives. They work by slowing down the activity of the central nervous system. They slow the messages going to and from the brain to the body, including physical, mental and emotional responses. The benzodiazepine group contains more than twenty-four specific drugs. Each of these has a chemical or 'generic' name, and each drug is sold under one or more brand names.

Commonly used benzodiazepines include diazepam, temazepam and oxazepam (usually sold under the brand names *Valium, Normison* and *Serepax* respectively). These drugs would likely to be used to manage insomnia following ecstasy use to counteract prolonged stimulant effects. Almost half (48%) of the participants in the 2003 Party Drug Initiative sample reported having ever tried benzodiazepines and approximately one third (33%) had used benzodiazepines in the six months preceding the interview. These rates are similar to those of previous years (White, Breen and Degenhardt, 2004*).* Small proportions (7%) of the 2003 sample reported the use of benzodiazepines during the acute recovery phase or 'come down' period after party drug use. While this was lower than 2002 (13%) and 2001 (15%) reports, it was comparable to the proportion of the 2000 sample (4%) that reported using benzodiazepines following the use of ecstasy and other party drugs (White, etal., 2004*).*

Regular use of benzodiazepines to assist with the comedown from substances such as ecstasy can place one at particularly risk of falling into repeated stimulant-depressant use cycles. These cycles have been associated with considerable harm (Williamson, Gossop *et al.* 1997), and can affect any heavy stimulant user.

Study aims

The aims of this study were to examine the practice of the deliberate use of pharmaceuticals for any reason related to ecstasy and other party drug use. The incidental use of pharmaceuticals with ecstasy or other party drugs was not included in the study.

Specifically, this report aimed to examine:

- the range of pharmaceutical substances used by ecstasy or party drug users concomitantly;
- the reasons and expected effects related to these combinations;
- where pharmaceutical drugs are obtained; and
- the health consequences of potentially dangerous combinations

In addition, this report will examine the characteristics of ecstasy users, their patterns of ecstasy and other drug use, the context of initial and usual ecstasy use, the nature and extent of ecstasy-related harms and their perceptions of risk.

METHOD

Participants

The sample consisted of 216 adults who had used ecstasy at least once in the previous six months. Participants were considered eligible for the interview if they were aged over 18 years and spoke adequate English. Participants were recruited from the greater Sydney metropolitan area through snowball sampling and via advertisements placed in street press publications, on radio programmes and on ecstasy-related internet sites.

Procedure

The interview comprised quantitative and qualitative questions relating to the user's experiences of ecstasy and pharmaceuticals. Ethics approval was received from the University of New South Wales Human Ethics Committee for all aspects of the study.

Participants either responded to advertisements for the study or were approached by the researcher directly. Participants were screened for eligibility and assured that any information provided would be kept strictly confidential. If participants were eligible, they were informed that the study would involve either a face-to-face or telephone interview, or self-completion of a questionnaire that would take approximately 45 minutes in duration. Interviews either took place at a public location convenient to the participant or at the research centre. A small number (9%) were surveyed by telephone. All participants were reimbursed with AU$25 at the completion of the interview for travel and related expenses.

Measures

The structured interview assessed the following areas:

1. **Demographics**: including the participant's suburb or town of residence, their age, gender, ethnicity, education, sexual preference, and employment status
2. **Patterns of other drug use**: this section examined any other drugs used, the frequency of their use, and any concomitant use with ecstasy
3. **Patterns of ecstasy use**: this section included ecstasy use history, frequency of use, quantity of use and route of administration history
4. **Severity of dependence scale (SDS)**: participants who had used ecstasy on an average of more than 3 occasions per week in the preceding six months were assessed with the SDS
5. **Context and motivation for ecstasy use**: this section examined the age and context of initial ecstasy use, the user's reasons for initial use and their usual context of ecstasy use
6. **History of pharmaceutical use**: examined pharmaceutical use history (both prescribed and non-prescribed), history of pharmaceutical use, concomitant use with ecstasy and any reasons for this. This section also examined where the participant obtained pharmaceuticals and if they had ever sold pharmaceuticals to others
7. **Side effects**: participants were asked if they had experienced a range of physical and psychological side effects which may have resulted from the use of ecstasy or

pharmaceuticals (both short-term and long-term). This section examined whether ecstasy use had ever resulted in participants seeking medical help. Participants were also asked if their ecstasy use had ever caused any potentially dangerous situations to arise, where they had put themselves or others at great risk of harm. Participants were specifically asked if ecstasy use had resulted in engaging in high-risk sexual activity, becoming the victim of a drink 'spiking' or driving while under the influence

8. **Perception of ecstasy-related risks**: this section assessed participants' perceptions of the risks associated with ecstasy (both personally and in general)
9. **Factors influencing ecstasy use**: participants were asked to name the three most important factors which contribute to their decision about whether to use ecstasy
10. **Information sources**: participants were asked to identify which sources of information they had ever used or usually used in order to learn about ecstasy. From a range of information sources provided, participants were also asked to rate i) how accessible they felt each source was, ii) how comfortable they were receiving information from that source and iii) how credible they believed the source was.
11. **Views on the dissemination of ecstasy information**: participants were asked for their opinion of ecstasy information campaigns and to express their views on its content and timing.[1]

[1] Results of sections 10 and 11 can be found in Dillon, Copeland & Gascoigne (2004) *The Use of Ecstasy Information Sources*

RESULTS

Demographics

This sample consisted of 216 participants. The mean age of this group was approximately 26 years (SD 5.2) with a range of 19 to 39 years. From Table 1, it can be seen that over half of the sample (63%) was male and a similar proportion lived with friends or their partner. The majority (93%) indicated that English was their preferred language, and a small minority (2%) were of Aboriginal or Torres Strait Islander descent. Almost two-thirds (68%) had completed year 12 at school, and a slightly smaller proportion (58%) had gained a qualification from a university or college. About one quarter (23%) were unemployed and about two thirds of the participants (69%) indicated that they were heterosexual.

Table 1: Demographic characteristics of participants

N = 216	**%**
Mean age	26.33 (SD 5.2)
Male	63
Live with friends or partner	60
Aboriginal/Torres Strait Islander Descent	2
English as preferred language	93
Unemployed	23
Finished school in year 12	68
Completed University/College qualification	58
Heterosexual	69

The majority of the sample (88%) resided within the Sydney metropolitan area, while a small number were from regional areas of NSW or other states. About two-fifths of the participants (39%) were from the eastern suburbs of Sydney, and about one-fifth (21%) were from the inner west. The remainder of the sample mainly resided on the north shore or in the northern beaches area. Details on participants' areas of residence can be found in Table 2.

Table 2: Participant regions of residence

Eastern Suburbs	79 (39%)	Liverpool/Fairfield	5 (3%)
Inner West	43 (21%)	Macarthur/Camden	2 (1%)
Upper North Shore	8 (4%)	Western Sydney	1 (1%)
Lower North Shore	10 (5%)	Northern Rivers	3 (2%)
Northern Beaches	15 (7%)	Riverina	2 (1%)
St. George & Sutherland	10 (4%)	Wollongong & Illawarra	2 (1%)
Northern Districts	3 (2%)	Lower Hunter Valley	5 (3%)
Sydney City	3 (2%)	Victoria	5 (3%)
Canterbury Bankstown	1 (1%)	Queensland	2 (1%)
Parramatta	3 (2%)	Tasmania	1 (1%)

Note: 13 participants (6%) did not provide data

Ecstasy use history

Information relating to the age of initial ecstasy use and the reasons for initial use is contained within Table 3. The mean age at which participants had first tried ecstasy was approximately 20 years, and an average period of about seven years had elapsed since their first use occasion. Participants reported an average of about 11 days of ecstasy use in the last 6 months, and an average of about two ecstasy pills per use occasion. No participants had taken enough ecstasy to warrant an assessment of their dependence with the Severity of Dependence Scale (SDS).

Table 3: Ecstasy use history

Mean age of first use	19.8 (SD 3.9)
Mean apparent years of use	6.7 (SD 3.8)
Mean number of ecstasy pills usually taken	2.1 (SD 1.3)
Mean number of ecstasy days in last 6 months	10.56 (SD 11.48)

Initial use

The vast majority (93%) of participants initially used ecstasy in the company of their friends or partner. Curiosity was the most commonly-cited reason for initially using ecstasy. Few people initially used ecstasy alone (less than 1%). Details on the context of initial ecstasy use can be found within Table 4.

Table 4: Context of initial ecstasy use

Who were you with when you used ecstasy the first time?	%	*Reasons for first use*	%
Alone	1	Curiosity	78
Partner	12	Others Pressured	8
Friends	81	To enhance raving/clubbing	7
Relatives	2	To feel good	3
Strangers	1	Other	4
Others	1		

In order to understand the context in which participants typically use ecstasy, all participants were asked questions regarding their usual place of use. The findings from these questions are presented in Table 5. Most subjects had used ecstasy in clubs (86%) and parties (81%), and to a lesser extent at home (64%) and at raves (53%). Almost three-quarters of the sample identified clubs as their usual place of ecstasy use (72%). Participants were also most likely to have last used ecstasy at a nightclub.

Almost all participants (97%) reported having swallowed ecstasy pills, while a substantial proportion (59%) reported using intranasal routes of administration and one-fifth (20%) had administered ecstasy anally. A minority of participants (8%) had ever injected ecstasy.

Table 5: Lifetime and usual ecstasy use locations & route of administration history

Places of use	% Ever Used	% Usually Use	*Routes of administration*	%
Clubs	86	72	Injected	8
Raves	53	27	Snorted	59
Parties	81	44	Swallowed	97
Home	64	21	Smoke	8
Movies	10	1	Inserted anally	20
Beach	26	2		
Park or other public place	39	3		
Pub	14	2		

Other drugs

Participants were asked to report on their lifetime use of a variety of other drugs. Almost the entire sample had used alcohol (94%), and the majority of the sample also reported use of amphetamines (85%), cannabis (81%) and tobacco (80%). Other commonly used drugs included cocaine (61%), LSD (57%) and ketamine (44%). A smaller number reported the use of GHB (25%) or heroin (16%). These data and the list of drugs which participants were presented with are contained in Table 6.

Tobacco, alcohol and cannabis were the most frequently used substances during the preceding six-month period. Apart from ecstasy, amphetamine was the most frequently used club drug, followed by amyl nitrite and various forms of methamphetamine.

Table 6: Lifetime and recent use of other drugs

Drug	*% Ever Used*	*Days in last 6 months*	**Drug**	*% Ever Used*	*Days in last 6 months*
Alcohol	94	63	Crystal Meth	40	7
Amphetamine	85	9	Amyl Nitrite	39	7
Cannabis	81	46	Methamphetamine	35	7
Tobacco	80	91	Nitrous Oxide	31	3
Cocaine	61	4	GHB	25	4
LSD	57	1	Sleeping aids	18	14
MDA	46	1	Heroin	16	16
Ketamine	44	4	Inhalants	14	2
Benzodiazepines	40	20			

Participants were asked if any of these substances were routinely used in conjunction with ecstasy. Data from these questions are presented in Table 7. About half of the sample (ranging from 45% to 54%) indicated that they regularly used alcohol either before or during ecstasy use, while one-third used alcohol after ecstasy use. Cannabis was the most popular drug taken after ecstasy use, as almost one in two participants (47%) indicated that they usually engaged in this practice. Markedly smaller proportions indicated that they used cannabis before or during the ecstasy high (14% and 22%

respectively). Over half of the sample (55%) usually smoked tobacco during the ecstasy high, while substantial minorities of the sample also routinely used tobacco before and after taking ecstasy (35% and 40% respectively). Comparatively smaller proportions routinely used cocaine or benzodiazepines with ecstasy. Cocaine was more likely to be used before or during ecstasy use, while the use of benzodiazepines was likely to be reserved for the 'comedown' period.

Participants that used tobacco reported smoking an average of 11 cigarettes a day, but would smoke an average of 19 cigarettes when taking ecstasy. This increase in smoking behaviour was usually explained by a greater craving for tobacco during the ecstasy 'high'. Participants who consumed alcohol reported having an average of four drinks per alcohol use occasion, irrespective of ecstasy use.

Table 7: Timing of concomitant use of ecstasy and other drugs

	Alcohol (%)	Cannabis (%)	Tobacco (%)	Amphet amines (%)	Cocaine (%)	Benzo diazepines (%)
Usually use before ecstasy use	54	14	35	34	13	4
Usually use during ecstasy use	45	22	55	30	11	1
Usually use after ecstasy use	33	47	40	17	6	8

Side effects

In assessing the short-term and long-term negative effects of ecstasy, each participant was presented with a list of symptoms and asked to indicate which effect they had experienced as a direct result of using ecstasy. No time-frame was specified, therefore participants were asked to consider each symptom in either its long-term or short-term context. The data from this section are presented in Table 8.

Overall, participants were more likely to report having experienced symptoms clustered within the 'General' category, such as poor appetite (39%), fatigue/energy loss (45%) and sleeping difficulties (39%).

Aside from these general symptoms, the most common side-effects were memory lapses and muscular aches (both 26%), joint pains/stiffness (24%) and tremors/shakes (23%). The most common psychological side-effects were depression (44%), anxiety (31%), confusion and irritability (both 29%). About 10% of these participants reported experiencing suicidal thoughts as a result of ecstasy use and a small number had attempted suicide (6%).

Table 8: Negative Physical and Psychological Effects

General	%	**Muscular**	%
Profuse Sweating	28	Muscular Aches	26
Hot/Cold Flushes	28	Joint pains/Stiffness	24
Weight Loss	24	Difficulty with reflexes	9
Trouble sleeping	39	**Gastrological**	
Eye/Vision Problems	20	Vomiting	19
Poor Appetite	39	Stomach Pains	20
Fatigue/Energy Loss	45	Diarrhoea	12
Injecting-related		**Psychological**	
Abscesses/Infections	4	Paranoia	28
Overdose	4	Depression	44
Hepatitis B/C	3	Suicidal thoughts	10
Neurological		Suicide attempts	6
Tremors/Shakes	23	Confusion	29
Fainting/Pass Out	9	Irritability	29
Fits/Seizures	6	Flashbacks	10
Memory Lapse/Black Out	26	Anxiety	31
Numbness/Tingling	16	Panic attacks	12
Headaches	21	**Respiratory**	
Dizziness	19	Shortness of breath	14
Tics	7	Chest Pains	9
Sex-related			
Loss of sex urge	14		

About one in seven participants (15%) had sought medical assistance as a result of ecstasy use. The majority of these people (65%) had sought assistance by either calling an ambulance, visiting a hospital emergency room, a medical centre, or a doctor's surgery. About one-third of these people (29%) had consulted a counsellor, psychologist or psychiatrist about ecstasy-related problems. The remaining minority (2%) had consulted a dentist for assistance, either to help with jaw problems or chipped teeth.

Symptoms likely to prompt the seeking of professional medical assistance included depression (22% of people who sought attention), passing out (19%), headaches (19%), paranoia (11%) and overdose (7%).

About one in five participants (22%) reported having engaged in high-risk sexual behaviour as a result of ecstasy use, and roughly the same proportion (21%) reported experiencing sexual regret after ecstasy use. A similar proportion (20%) believed that they had been a victim of a drink 'spiking' on at least one occasion. When asked to justify their suspicion, subjects often indicated that they felt unusually drowsy after a small number of beverages. About three-quarters of these participants (74%) indicated that these alleged drink 'spikings' occurred within a nightclub.

About half of the sample (49%) admitted to having driven a motor vehicle shortly after ecstasy use, and half of this subgroup (49%) believed that the drug had a detrimental influence on driving ability. A substantial minority felt that ecstasy had no influence on their ability to drive (38%), while the remainder (12%) felt that ecstasy increased their

ability to drive. A small number of participants (3%) had actually experienced a road accident shortly after ecstasy use, where they were the driver at fault.

Factors influencing use of ecstasy

All participants were asked to identify the most important risk factor that would influence their decision regarding whether to use ecstasy. These reasons are presented in Table 9. The risk of developing emotional and mood problems was the most commonly cited risk factor (31%), followed by the risk of financial difficulty (19%) and the risk of impact on school or work performance (16%). Factors that were rarely cited as an important risk included the risk of losing motivation after ecstasy use and the risk of starting to use 'hard' drugs regularly (both less than 1%).

Table 9: Factors influencing use of ecstasy

Factor	%	**Factor**	%
Emotional/mood problems	31	Finding it hard to stop using	4
Financial/money problems	19	Problems with relationships	4
Impact on school/work performance	16	Accidents when stoned	2
Physical health problems	13	Lack of motivation	1
Legal/police problems	7	Starting to use 'hard' drugs regularly	1
Physically addicted/dependence	4		

About two-thirds of the sample (65%) indicated that they had never or rarely worried about any risks that might be associated with their ecstasy use. The remaining third of the sample had worried 'often' or 'a lot' about these risks.
Participants were also asked to indicate the extent to which they believed ecstasy posed a risk of influencing a variety of events or problems. These results are presented in Table 10.

The majority (82%) of participants believed that there was little to no risk of their current ecstasy consumption rate causing harm to themselves personally. A similar proportion (79%) believed that any risk of harm from monthly ecstasy use was small or non-existent. However, most participants (81%) believed that weekly ecstasy use posed a moderate or great risk in causing emotional problems.

About two-thirds of participants felt that weekly ecstasy use carried a moderate or great risk in causing harm to the user (62%), in generating financial problems (62%), relationship problems (67%), and in finding it hard to stop using ecstasy (65%). Similar proportions felt there was a moderate to great risk of ecstasy influencing the likelihood of sexual contact with someone else, increasing the chances of having a car accident and in causing harm if taken concomitantly with alcohol (all 66%).

Participants were more or less evenly divided when assessing the risk of weekly ecstasy use on addiction problems, legal problems and in the risk of ecstasy influencing unsafe sex practices.

Table 10: Perception of ecstasy risks

Risk	No risk or slight risk	Moderate or great risk
The risk to people in harming themselves from occasional ecstasy use (once per month)	79	21
The risk to people in harming themselves from regular ecstasy use (once per week/fortnight)	38	62
The risk to people in harming themselves if they take ecstasy at the frequency you currently take it	68	32
The risk to people in harming themselves if they take ecstasy and drink alcohol at the same time	34	66
The risk in harming yourself if you take ecstasy at the frequency which you currently take it	82	18
The risk to people in having legal/police problems if they take ecstasy at least once per week	56	44
The risk to people in having financial/money problems if they take ecstasy at least once per week	38	62
The risk to people in having emotional/mood problems if they take ecstasy at least once per week	19	81
The risk to people in having physical addiction with ecstasy if they take it at least once per week	46	54
The risk to people in finding it hard to stop using ecstasy if they take it at least once per week	35	65
The risk to people in having relationship problems if they take ecstasy at least once per week	33	67
The risk to people in performing worse than they would otherwise at school or work if they take ecstasy at least once per week	26	74
The risk to people in starting to use heroin or cocaine regularly if they take ecstasy at least once per week	66	34
The risk to people in having accidents while intoxicated that they may not have had otherwise, if they take ecstasy at least once per week	58	42
The risk of ecstasy increasing the likelihood of a young person having sexual contact with someone else	34	66
The risk of ecstasy in increasing the chances of having a road accident whilst driving	34	66
The risk of ecstasy in increasing the likelihood of having unsafe sex	48	52

Knowledge of potential ecstasy harms

Participants' knowledge of the potential side effects of ecstasy was also assessed. For a series of side-effects, participants were asked to indicate whether they believed ecstasy either i) increased, ii) decreased, iii) both increased and decreased or iv) had no effect on the average person. No time frame was specified, therefore subjects were asked to consider these symptoms in both short-term and long-term contexts. The results of subjects' responses are presented in Table 10.

Most subjects believed that ecstasy generally decreased one's appetite (89%), memory performance (88%), ability to sleep (77%) and concentrate (72%). A substantial number of subjects indicated that they believed ecstasy increased one's tendency to behave impulsively (66%), weight loss (59%) and depression (55%).

About three-quarters (74%) of participants believed that they knew "a lot" or an average amount about the risks and effects of ecstasy.

Table 11: Knowledge of potential ecstasy harms

	Increases (%)	Decreases (%)	Both (%)	Neither (%)
Stress Levels	35	32	10	23
Sex Drive	51	18	17	14
Concentration	13	72	6	9
Appetite	3	89	2	6
Memory	4	88	2	6
Impulsive Behaviour	66	8	5	21
Ability to sleep	8	77	4	12
Anxiety Levels	52	22	8	18
Depression	55	20	12	12
Weight Loss	59	22	2	18

In addition to assessing knowledge of the effects of ecstasy on the above symptoms, participants were also asked to estimate their personal susceptibility to each of these symptoms from ecstasy use. Within Table 11 are the proportions of participants who believed they are at risk of experiencing each symptom if they were to use ecstasy. Participants were most likely to indicate that they were personally at risk of ecstasy affecting their concentration (85%), appetite (84%) or memory (83%).

Table 12: Proportion of participants who believe they are personally at risk of experiencing particular symptoms from ecstasy use

Symptom	%
Weight	67
Impulsive behaviour	69
Anxiety	73
Sleep disturbance	77
Depression	79

Pharmaceutical use

The participant's history of pharmaceutical use was assessed, and the findings are presented in Tables 12 and 13. Anti-depressants were the most popular pharmaceuticals among the sample, having ever been taken by 37% of participants, however a much smaller proportion of the sample (8%) indicated that they were currently using antidepressants. One quarter of the sample had had anti-depressants prescribed to them. The specific anti-depressants taken by the subjects are listed in Table 13.

ADHD medication and *Viagra* had both been taken by similar proportions (22% and 19% reporting lifetime use, respectively), but few participants indicated that they were currently taking these drugs or that they had ever been prescribed to them. The use of Ritalin was slightly more common than Dexamphetamine (29 versus 19 participants,

respectively). The most popular manner of accessing *Viagra* was "simply asking the doctor for it".

About one-fifth of the sample indicated that they had used other pharmaceuticals, and about one in seven (14%) had one of these pharmaceuticals prescribed to them. These pharmaceuticals are also listed in Table 13.

Table 13: Pharmaceutical use history, current use and prescription status

Drug	Ever taken (%)	Currently taking (%)	Ever been prescribed (%)
Anti-depressants	37	8	25
ADHD medication	22	1	4
Viagra (Sildenafil Citrate)	19	3	6
Others	20	7	14

Table 14: Type of anti-depressants, benzodiazepines and other pharmaceuticals used

Anti-Depressants	**N**	*Others*	**n**
Zoloft (sertraline)	14	Xanax (alprazolam)	18
Cipramil (citalopram)	11	Valium (diazepam)	9
Effexor XR (venlaflaxine)	9	Duromine (phentermine)	3
Prozac (fluoxetine)	9	Zyprexa (olanzapine)	3
Aurorix (moclobemide)	8	Normison (temazepam)	2
Aropax (paroxetine)	6	Clopixol (zuclopenthixol)	2
Luvox (fluvoxamine)	6	Largactil (chlorpromazine)	1
Avanza (mirtazapine)	4	Respiradone	1
Lithium	3	MS Contin	1
Lovan (fluoxetine)	2	Rivotril (clonazepam)	1
Prothiaden (tricyclic)	1	Zyban (bupropion)	1
Tryptanol (tricyclic)	1	Tegretol (carbamazepine)	1
Other SSRI	1	Rohypnol (flunitrazepam)	1
		Ducene (diazepam)	1

About one in ten participants (11%) had used anti-depressants or benzodiazepines and about 8% ADHD drugs in conjunction with ecstasy. Participants had used anti-depressants on an average of six occasions and reported an average of 14 doses when using with ecstasy. Effexor XR and Zoloft were the most commonly used anti-depressants; and Valium and Xanax were the most commonly used benzodiazepines with ecstasy. Participants reported using these benzodiazepines on an average of twenty occasions and took an average of four doses when using with ecstasy.

Those that had used ADHD drugs with ecstasy had done so on an average of about eight occasions, and would take an average of four doses when using in this way. Ritalin was the most commonly ADHD drug used with ecstasy.

About one-sixth of the sample (15%) indicated that they had sold or passed on their pharmaceutical drugs to others, and reported an average selling price of about eight dollars. Benzodiazepines were the most likely pharmaceuticals to be passed on to others (by 10% of the sample), followed by Viagra (5%) and anti-depressants (3%).

Friends were the most popular source for acquiring non-prescribed pharmaceuticals, as 19% indicated that they had used their friends, while only 6% had used the internet or a doctor.

Concomitant use of ecstasy and pharmaceutical substances

Over a quarter of the sample (28%) had used a pharmaceutical substance in order to achieve an effect that was somehow related to the use of party drugs. Each reported party drug/pharmaceutical combination is listed in Table 14.

Benzodiazepines and Viagra were the most common pharmaceuticals taken in conjunction with party drugs. When participants were asked to mention which party drug/pharmaceutical combinations they had taken, these pharmaceuticals were both mentioned 34 times each. SSRI and MAOI anti-depressants were reported 19 times, while 5-HTP was reported on nine occasions. Most of these pharmaceutical substances (83%) were combined with ecstasy, although the remaining combinations involved the use of amphetamines, ketamine, crystal meth or GHB.

Of the 27 people who had taken Ecstasy & Viagra, nine of these indicated that this would be the only context in which they would take Viagra.

Table 15: Reported party drug & pharmaceutical combinations

Combination	n	%	Combination	n	%
Ecstasy & Viagra	27	22	*Ecstasy with ATS*		
			Ecstasy & Ritalin	1	1
Ecstasy & Anti-Depressants	4	3	Ecstasy & Duramine	4	3
Ecstasy & Prozac	4	3	Ecstasy & Pseudoephedrine	1	1
Ecstasy & Zoloft	2	2			
Ecstasy & Cipramil	3	2	*Other Combinations & Ecstasy*		
Ecstasy & Paroxetine	1	1	Amphetamines & 5-HTP	1	1
Ecstasy & Moclobemide	5	4	Amphetamines & Zoloft	1	1
			Amphetamine & Dexamphetamine	1	1
Ecstasy & Benzodiazepines	3	2			
Ecstasy & Valium	8	6	Crystal & Methadone	1	1
Ecstasy & Ducene	2	2	Crystal & Xanax	1	1
Ecstasy & Normison	4	3	Crystal & Zoloft	1	1
Ecstasy & Xanax	11	9	Crystal Meth & Viagra	2	2
Ecstasy & Rohypnol	2	2			
			Ketamine & Serepax	1	1
Others with Ecstasy			Ketamine & Viagra	1	1
Ecstasy & 5-HTP	9	7	Ketamine & Aurorix	1	1
Ecstasy & Amino Acids	1	1	Ketamine & Viagra	4	3
Ecstasy & L-Tryptophan	1	1	Cocaine & Xanax	1	1
Ecstasy & Vitamin Preparations	5	4	GHB & Viagra	3	2
Ecstasy & Clopixol	1	1			
Ecstasy & Zyprexa	1	1			
Ecstasy & Ritonavir	1	1			
Ecstasy & Magnesium	3	1			
Ecstasy & MS Contin	1	1			

In addition to providing information on the ordering of pharmaceutical consumption when taking party drugs, participants were also asked to give their reasons for combining these drugs. Data relevant to this question are contained in Table 16. Viagra was most likely to be used in order to gain or maintain an erection (by 77% of those that had taken this combination), although smaller proportions used the pharmaceutical for its perceived aphrodisiac qualities.

Almost equal proportions of participants reported using 5-HTP to either prevent potential neurotoxic ecstasy effects (36%), to avoid the negative effects associated with the ecstasy 'comedown' period (36%), or to increase the strength of the ecstasy 'high'.

Anti-depressant medication was also used in a similar fashion to 5-HTP, although some participants also used them to extend the duration of the ecstasy 'high' (13%) or as a sleeping aid (4%).

The use of ADHD drugs seemed to be restricted to the improvement of the ecstasy 'high' period, whereas benzodiazepines were primarily taken to assist with the after effects of ecstasy, although a minority used them during the 'high' period.

Table 16: Reasons for using pharmaceutical substance

Drug	Reason	%
Viagra	Gain or maintain erection	77
	Aphrodisiac	20
	Stimulant effect	3
5-HTP	Help avoid negative effects of 'comedown'	36
	Prevent neurotoxic effects	36
	Increase strength of ecstasy 'high'	28
Anti-Depressants	Increase strength of ecstasy 'high'	35
	To avoid negative effects of 'comedown'	26
	Prevent neurotoxic effects	22
	Increase length of ecstasy 'high'	13
	Help sleep	4
Ritalin & Dexamphetamine	Increase length of ecstasy 'high'	40
	Stimulant effect	40
	Increase strength of ecstasy 'high'	20
Benzodiazepines	Help sleep	30
	Calm down during ecstasy 'high'	27
	To avoid negative effects of 'comedown'	24
	Increase strength of ecstasy 'high'	12
	Increase length of ecstasy 'high'	6

Information relating to the timing of pharmaceutical consumption, relative to other party drug consumption, is contained within Table 16. With the exception of ADHD drugs, pharmaceuticals were most likely to be taken after ecstasy use. ADHD drugs were more likely to be taken before ecstasy consumption, and unlikely to be used during the ecstasy high.

Table 17: Timing of pharmaceutical consumption, relative to ecstasy consumption

Drug	Before Ecstasy Use %	During Ecstasy Use %	After Ecstasy Use %
Anti-Depressants	35	30	60
5-HTP	55	27	81
ADHD Drugs	80	20	40
Benzodiazepines	14	31	66
Viagra	8	35	81

Note: Participants may have taken a pharmaceutical at more than one point in time

The symptoms reported to have arisen from the concomitant use of ecstasy and either Viagra or anti-depressants are contained in Table 17. Participants who had mixed ecstasy with anti-depressants were especially likely to have experienced shivering (90%) and euphoria (76%) and the presence of other symptoms was comparatively in higher levels than amongst those who used ecstasy alone.

Those that had mixed Viagra with ecstasy were almost certainly likely to have experienced a prolonged erection and very likely to have reported having experienced a flushing of the face (85%).

Table 18: Symptoms experienced after concomitant use of ecstasy and either anti-depressants or Viagra

Symptoms from Ecstasy & Anti-depressants	%	*Symptoms from Ecstasy & Viagra*	%
Euphoria	76	headache	62
Drowsiness	53	flushing of the face	85
rapid eye movement	33	upset stomach	44
overreaction of the reflexes	25	temporary distortions in colour vision	44
rapid muscle contraction	31	eyes more sensitive to light	25
abnormal movement of the foot	44	experience blurred vision	60
Clumsiness	50	experience irregular heart beats	30
Restlessness	41	prolonged erection	100
feeling drunk and dizzy	47		
muscle contraction/relaxation in jaw	47		
Sweating	53		
Intoxication	56		
muscle twitching	60		
Rigidity	45		
high body temperature	22		
Shivering	90		
Diarrhea	20		

Comparison of pharmaceutical users and non-pharmaceutical users

The characteristics of the 61 people who had deliberately mixed ecstasy with a pharmaceutical were compared to the remaining 155 participants who had never engaged in this practice. The data from these comparisons are contained in Table 18. Pharmaceutical 'mixers' were more likely to be male (74% vs 59%), and were more likely to have had a longer period of time elapse since their initial use of ecstasy. Those that had used pharmaceuticals with ecstasy were also more likely to have injected ecstasy (13% vs 5%) or any other party drug (31% vs 17%).

Table 19: Comparison of pharmaceutical-using and non-pharmaceutical using ecstasy users

	Non-mixers (n = 155) Mean (SD)	**Mixers (n = 61) Mean (SD)**
Age	25.2 (4.8)	29.2 (5.2)
% Male	58.7	73.8*
Age of initial ecstasy use	19 (3.6)	21 (4.2)
Apparent years of ecstasy use	6.2 (3.5)	8.0* (4.2)
Mean ecstasy days in last 6 months	9.7 (12.1)	12.4 (9.7)
Mean usual ecstasy amount	1.9 (1.2)	2.5 (1.3)
Mean maximum ecstasy amount	4.3 (3.3)	6.4 (3.8)
% Ever injected ecstasy	5.2	13.1*
% Ever injected any party drug	17.4	31.1*

$p < .05$

DISCUSSION

This study recruited 216 ecstasy users, the majority of whom were from the Sydney metropolitan area. Generally, this sample was young, well educated, and likely to be in some form of paid employment. Males were slightly overrepresented within the sample, and a small minority were of Aboriginal or Torres Strait Islander descent. The majority of the sample resided either in the eastern suburbs or inner west areas of Sydney. This profile is similar to that of the participants in the 2003 NSW Party Drug Initiative (PDI) interviews (White et al., 2004*).*

Participants were likely to have first used ecstasy at around age 20 and were likely to have done so out of curiosity. The initial usage occasion was most likely to have been in the company of their friends or partner.

Similar to the NSW (PDI) interviews the average frequency of ecstasy use for this group was about ten days in the last six months, although this ranged from one day in the last six months to four days per week (White et al.., 2004*).* This rate of use is slightly less than that found in a similar study conducted on Sydney ecstasy users in 1997 (12 days in the last six months) (Topp et al.., 1997). Users reported taking an average of two ecstasy pills per use occasion, which is slightly higher than the average amount of 1.5 pills found by Topp et al., (1997).

These findings suggest that the average rate of consumption by Sydney ecstasy users may have declined, but the average usual quantity of ecstasy taken may have increased slightly. However, the possibility of these differences simply being due to the biases inherent in snowball-sampling recruitment methods cannot be ruled out.

The data pertaining to ecstasy routes of administration was consistent with those found in previous studies of Sydney ecstasy users (Solowij, et al., 1992; Topp et al.,. 1997; White et al.., 2004*).* Ecstasy was most likely to be taken orally, while a smaller proportion reported intranasal administration and even fewer reported anal administration. The prevalence of ecstasy injection behaviour appears to have decreased, when compared to the earlier study by Topp et al (1997) (down from 13% to 8%).

Clubs were the most popular usual venue for ecstasy use, although the data from this study suggest that ecstasy is also taken in a variety of other settings such as parks, beaches and other public places. This is consistent with evidence found in earlier studies (Topp et al.,. 1997; White et al., 2004).

Alcohol, tobacco, cannabis and amphetamines were the most popular other drugs taken by participants within this sample, and these were also the drugs that were most likely to be used in conjunction with ecstasy. Cannabis was likely to be used during the 'comedown' period, whereas the other drugs were primarily taken during the ecstasy 'high'.

The most commonly reported negative side-effects from ecstasy use included depression, anxiety, muscular aches, joint pains and tremors. Few participants reported attempting suicide as a result of ecstasy use. About a fifth of users reported engaging in high–risk sexual behaviour, and about half had driven a motor vehicle shortly after ecstasy use. A minority of the sample reported seeking any form of medical assistance as a result of

ecstasy use. The role of ecstasy, particularly in combination with other pharmaceuticals, on sexual and driving risk-taking behaviours is a potential public health risk and is deserving of further research.

Similar to the 2003 NSW PDI sample (White et al., 2004*)* the risk of developing emotional or affective problems was the most commonly cited risk factor that would be of most importance when considering whether or not to use ecstasy. This is in contrast to the results found by Solowij (1992) and Topp (1997), where the cost of ecstasy and the 'comedown' period was found to be the worst thing about the drug. This change may reflect the ubiquitous community and scientific concern regarding the long-term neurological effects of ecstasy. It may also be related to greater experience and longer exposure to the drug since these earlier studies. A study of 66 former ecstasy users who had abstained for at least a year reported that there were two main reasons given for this change, mental health concerns and individual circumstances. Around half of those who quit for mental health reasons scored in the range of clinical depression and their current levels of depression and anxiety were correlated to their cumulative exposure to ecstasy in the preceding years. These findings suggest that some users may be more susceptible to the adverse effects of ecstasy on mood or that a pre-existing mood disorder led them to self-medicate with ecstasy (Verheyden, Maidment & Curran, 2003). While only 17 episodes of care in NSW in 2001-2002 were primarily for ecstasy related concerns, given that there is no accepted ecstasy use disorder and no trials of interventions for ecstasy related concerns this is unsurprisingly low (AIHW, 2003).

When asked to assess their personal risk, rather than risk in general, participants reported impaired concentration, appetite, memory and depression. These may be useful aspects to focus on in public health campaigns rather than the more controversial harms such as "brain damage" or dependence.

Participants believed that their current rate of ecstasy use was unlikely to cause them significant harm, however, most acknowledge that weekly ecstasy use could be moderately or very harmful in a number of ways. These included emotional, financial and relationship problems; finding it hard to stop use; increase the likelihood to sexual contact and car accidents. There appears to be a degree of consensus among current ecstasy users that weekly use is associated with a high probability of experiencing a range of health and social harms.

About one quarter of the sample had deliberately taken a pharmaceutical substance for its putative effects on the euphoric effects or recovery from ecstasy use. Viagra and benzodiazepines were the most commonly used pharmaceutical substances, the former almost always used for sexual purposes and the latter usually for its calming properties. Anti-depressant medication was also common amongst this sub-group of people, as it was purportedly beneficial in increasing the strength of the ecstasy 'high' and in assisting with the 'comedown' period.

Ecstasy users who also used pharmaceuticals were no more likely, in number, to report experiencing physical or psychological side-effects than those who did not use pharmaceuticals. Those reporting symptoms associated with concomitant use of ecstasy and antidepressants, however, were more likely than those using ecstasy alone to report potentially serious effects such as muscle rigidity (0% Versus 45%); nystagmus (0% versus 33%); dizziness (19% versus 42%); headache (21% versus 62%); and profuse sweating (28% versus 53%). Those who reported using pharmaceuticals were more likely

to be male, had more 'apparent' years of use and were more likely to have injected party drugs. This suggests the need for particular harm reduction messages around serotonin syndrome for this high risk group.

The use of a large range of pharmaceuticals, in a variety of combinations for contradictory purposes suggests that there is a need for harm reduction information for ecstasy users regarding the risks associated with the mixture of ecstasy and other "party drugs" with pharmaceuticals and supplements. Particular attention should be paid to informing users of the potentially fatal serotonin syndrome that is likely to arise from combining ecstasy with the SSRI and MAOI groups of antidepressants or these antidepressant groups with each other. In addition, given the early stage of the research on the products that may have a role in protecting users from the neurotoxic effects of ecstasy use the harm reduction messages should contain techniques for minimising the harms that do not involve the use of other drugs or products.

This study has raised a number of concerns for primary health care practitioners and pharmacists. The participants in this study who had used other prescribed medication with ecstasy were either using antidepressants prescribed for them in an "off label" manner or obtaining them from friends. For example while 37% had used antidepressants in this way only 25% had ever been prescribed this drug class. Similarly, Viagra had only been prescribed for 6% but used by 19% and the ADHD medication Ritalin has only been prescribed for 4% but used by 22% of the sample. While 15% of the participants in this study admitted to selling or passing on their prescription medication to friends for use with ecstasy, this is clearly the most common source of supply with low rates of internet purchase reported. While the prescription rates are low it appears that primary health acre practitioners would benefit from education on how and why ecstasy and pharmaceutical are used by this group and to question young males in particular on their need for Viagra, antidepressants and sedative-hypnotics. Accurate information from medical practitioners and pharmacists to ecstasy users may reduce this diversion and unsafe use of pharmaceuticals.

It is of note in this young sample that 15% had sought assistance for concerns related to their ecstasy use with the majority (65%) for medical related problems, particularly one in five for depression with 2% seeking dental assistance for damage to their teeth. Information to medical and other health care practitioners should include screening for ecstasy-related symptoms and information on the additional health risk of mixing ecstasy with other illicit drugs; anti-depressants and products that affect the serotinergic pathways.

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APPENDIX A: STRUCTURED QUESTIONNAIRE USED IN STUDY

Participant ID Number: |___|___|___|___|

Date of interview: ___/___/___

Interviewer: |___|___|___|

PATTERNS OF USE AND EXPERIENCES OF PARTY DRUG USERS

2003

QUESTIONNAIRE

The studies 'Patterns of use and experiences of recreational pharmaceutical drug use amongst 'party drug' users' and 'Drug information needs, sources and credibility among 'party drug' users' are funded by the
Australian Government Department of Health & Ageing

DEMOGRAPHICS

1. Gender

Male	Female
1	2

2. Date of birth …….

3. Were you born in Australia?

Yes ...……1 No ...…….0

4. [IF NO] Where were you born?……

5. Were both of your parents born in Australia?

Yes ….. 1 No ...…. 0

i. [IF NO] Where were they born? Mother:……
Father:…….

6. What is your preferred language?……..…….

7. Are you of Aboriginal (AB)/ Torres Strait Islander (TSI) origin?

Yes, AB …..1 Yes, TSI…..2 Yes, ATSI …..3 No..…. 0

8. Which suburb do you live in? ……..……

9. Who do you usually live with?

Alone	……	1
Spouse/partner	……	2
Alone with child/ren	……	3
Spouse/partner & child/ren	……	4
Parent(s)	……	5
Other relative/s	……	6
Friend/s	……	7
Other (specify)	……	8
Not stated/known	……	99

10. In what grade did you finish school?

Grade…….

11. Have you completed any courses since leaving school?

No……....	0
Yes, trade/technical…….	1
Yes, university/college…….……..……..	2

Specify Qualification(s)……..

12. What is your current employment situation?

Full-time employed……..…….	1
Part-time/casually employed……..…..……	2
Unemployed……..	3
Studying full-time……..…….	4
Studying part-time……	5
Sex Industry……..	6
Other……..	7

13. Which of the following describes your sexual identity?

Heterosexual	……	1
Gay Male	……	2
Lesbian	……	3
Bisexual	……	4
Other	……	5

OTHER DRUG USE

14. Have you ever used other drugs apart from ecstasy?*

15. How often have you used these in the last 6 months?

If you take these drugs in conjunction with ecstasy, please specify whether, over your entire lifetime, you have usually taken these drugs:
i) before, **ii) during** and/or **iii) after** using ecstasy.

	Tick (✓)	How many **days** during last 6 months? or **days/week** or **days/month**	Do you usually use **before** ecstasy use? **Tick (✓)**	Do you usually use **during** ecstasy use? **Tick (✓)**	Do you usually use **after** ecstasy use? **Tick (✓)**
Tobacco					
Alcohol					
Cannabis					
Amphetamines					
Cocaine					
Heroin/Opiates					
Benzodiazepines Eg Valium, Normison, Rohypnol, Hypnodorm					
Inhalants					
Sleeping aids Eg Stilnox, Valerian					
Other Eg 5-HTP (specify)……					

15. If you use tobacco, how many cigarettes would you typically consume per day (or per week)?

……per day ……per week NONE ☐

16. If you smoke whilst taking ecstasy, or whilst under the influence of ecstasy, how many cigarettes would you smoke **during that time**?

None	……		0
Fewer cigarettes than you would otherwise	Specify ……	amount	1
More cigarettes than you would otherwise	Specify ……	amount	2
Same amount as you normally would	Specify ……	amount	3

17. If you smoke more or less than you otherwise would whilst taking ecstasy, or whilst under the influence of ecstasy please give a reason for this change in behaviour::

……...……

……..

18. If you drink alcohol, how many drinks would you typically consume per day (or per week)?

……per day ……per week NONE ☐

19. If you drink alcohol whilst taking ecstasy, or whilst under the influence of ecstasy, do you usually drink:

None	……		0
Less alcohol than you would otherwise	Specify ……	amount	1
More alcohol than you would otherwise	Specify ……	amount	2

20. If you drink more or less than you otherwise would whilst taking ecstasy, or whilst under the influence of ecstasy please give a reason for this change in behaviour::

……...……

……..

21. Which alcoholic beverages do you usually consume when taking ecstasy?

None	……	1
Beer	……	2
Spirits	……	3
Wine	……	4
Pre-mixed drinks	……	5
Other	……	6

ECSTASY & OTHER PARTY DRUG USE

22. Which of the following party drugs have you intentionally used?*

Please indicate the various routes of administration you have employed for each drug by ticking (✔) the appropriate column(s).

Also, indicate how many **days** you have used this drug in the last 6 months (or the average number of **days per week** or **days per month**)

DRUG	**Ever Used** (✔)	Inject (✔)	Snort (✔)	Swallow (✔)	Smoke (✔)	Shaft (✔)	How many **days** in last 6 months	When using, how many doses do you **usually** take?	What is the highest number of doses do you **have** ever taken?
1.Ecstasy							*	Pills	Pills
2.Amphetamines (speed/goey/whiz)								Lines Grams	Lines Grams
3.Methamphetamine (paste/base/pure)								Lines Grams	Lines Grams
4.Crystal Meth (ice/shabu)								Pipes Points Grams	Pipes Points Grams
5.Cocaine								Lines Grams	Lines Grams
6.GHB								mLs Vials	mLs Vials
7.MDA								Caps	Caps
8.Ketamine								Bumps	Bumps
9.Amyl Nitrate								Snorts	Snorts
10.Nitrous Oxide								Bulbs	Bulbs
11.LSD								Tabs	Tabs
12.Other Specify…… ….....									

*If ecstasy use is more than **2 days/week, 8 days/month** or **48 days/6 months** complete the following SDS.

Severity of Dependence (SDS) Scale

23. During the past 3 months did you ever think your use of ecstasy was out of control?

Never or almost never	☐	0
Sometimes	☐	1
Often	☐	2
Always or nearly always	☐	3

24. During the past 3 months did the prospect of missing ecstasy make you very anxious or worried?

Never or almost never	☐	0
Sometimes	☐	1
Often	☐	2
Always or nearly always	☐	3

25. During the past 3 months did you worry about your use of ecstasy?

Not at all	☐	0
A little	☐	1
Quite a lot	☐	2
A great deal	☐	3

26. Do you wish you could stop using ecstasy?

Never or almost never	☐	0
Sometimes	☐	1
Often	☐	2
Always or nearly always	☐	3

27. How difficult would you find it to stop or go without ecstasy?

Not difficult	☐	0
Quite difficult	☐	1
Very difficult	☐	2
Impossible	☐	3

SDS SCORE _/15

28. How old were you when you first tried ecstasy? …….yrs

29. How did you use it the first time?

Injected		……	1
Snorted		……	2
Swallowed		……	3
Shelved/Shafted		……	4
Other	Specify	……	5

30. Who were you with?

Alone		……	1
Partner		……	2
Friends		……	3
Relatives		……	4
Strangers		……	5
Other		……	6
Don't remember		……	99

31. Why did you use ecstasy the first time?

Curiosity		……	1
Others pressured you		……	2
Peer pressure		……	3
To enhance raving/clubbing		……	4
To feel good		……	5
Other	Specify	……	6

32. Please tell me the sorts of situations in which you are most likely to use ecstasy.

<u>I am more likely to use…….</u> When I feel… When I'm with… (prompt friends or alone)

33. In what places have you used ecstasy?

Clubs		……	1
Raves		……	2
Parties		……	3
Home		……	4
Movies		……	5
Beach		……	6
Park or other public place		……	7
Other	Specify	……	8

34. Where do you usually use ecstasy?

Clubs		……	1
Raves		……	2
Parties		……	3
Home		……	4
Movies		……	5
Beach		……	6
Park or other public place		……	7
Other	Specify	……	8

35. Where did you use ecstasy **last**?

Clubs		……	1
Raves		……	2
Parties		……	3
Home		……	4
Movies		……	5
Beach		……	6
Park or other public place		……	7
Other	Specify	……	8

PHARMACEUTICAL DRUG USE

36. Did you regularly take protease inhibitors (eg Norvir [Ritonavir], nelfinavir [Viracept], indivar [Crixivan] or saquinavir [Fortovase]) or any other anti-HIV medication (eg efavirenz, nevirapine) over the last 6 months?

Yes ....……1 No ....…….0

If so, please specify the medication……

37. When taking anti-HIV medication with ecstasy, do you find that it increases or decreases the effect of ecstasy?

Increase ..... …1 Decrease ....…. 2 No change …… 3 Not applicable… 4

38. Have you ever taken any of the following pharmaceutical drugs?*

Were any of these drugs prescribed?

[IF SUBJECT HAS NEVER TAKEN A PHARMACEUTICAL DRUG, GO TO QUESTION 50]

	Ever Taken (✓)	Currently Taking (✓)	Specify Drug(s)	Was this drug prescribed to you? (✓)
Anti-Depressants Prompt names: Prozac, Luvox, Xanax				
ADHD Medication Prompt names: Ritalin/Dexamphetamine				
Sildenafil Citrate (Viagra)				
Other (specify) …….. Eg Anti-Psychotic Agents Anti-Anxiety Agents Anti-Parkinsonian				

39. If you have been prescribed Viagra, please specify why you were originally given this prescription?

……

……

40. Which of the following pharmaceutical drugs have you ever used in ways other than those prescribed?*

How often have you used this drug other than as prescribed?

What were the average amounts you took, when misusing these drugs?
[THIS DOES NOT INCLUDE MIXING WITH OTHER LICIT OR ILLICIT DRUGS]

	Tick (✓)	Specify Drug(s)	On how many occasions?	How many tablets/capsules would you take, on average?
Anti-Depressants				
ADHD Medication				
Sildenafil Citrate (Viagra)				
Other (specify) …….. Eg Anti-Anxiety Agents				

41. Which party drugs have you deliberately taken with pharmaceuticals?*

[NB: THIS DOES **NOT** INCLUDE THE INCIDENTAL CONSUMPTION OF PHARMACEUTICAL DRUGS FOR PRESCRIPTION PURPOSES]

Please specify the pharmaceutical(s) you usually take with each party drug. Please specify whether you usually take this pharmaceutical:

i) before party drug use
ii) whilst under the influence of party drugs
iii) whilst coming down.

Also, please specify the **number of pharmaceutical tablets/capsules** usually taken at each time period, per party drug dose.

Party Drug	Which Pharmaceutical Drug(s) usually mixed with? Eg Anti-Depressants Viagra	Do you usually take this pharmaceutical **i) before**, **ii) during** or **iii) after** party drug use? Also, specify amount of pharmaceutical usually taken per party drug dose		
		Before	**During**	**After**

42. What effect(s) were you expecting from these drug combinations?

Drug Combination	**Expected Effect(s)**

43. If you have taken Viagra with Ecstasy, please state whether this is the only context in which you would take Viagra.

Yes ..... …1 No ..... 0 N/A…… ..9

44. If you take non-prescription pharmaceutical drugs, where do you usually obtain them from?

Friends		……	1
Clubs		……	2
Dealers		……	3
Internet		……	4
Doctor		……	5
Vet		……	6
Medical Supplier		……	7
Other	Specify	……	8
Not applicable		……	9

45. Have you ever sold or given your pharmaceutical drugs to anyone?
[IF NO, GO TO QUESTION 48]

Yes ..... …1 No ....… 0

46. If so, which drugs were they and how much did you charge?

Drug	**Amount Charged (none if given)**

PHYSICAL, PSYCHOLOGICAL AND SOCIAL EFFECTS

47. If you have ever taken anti-depressant drugs with ecstasy did you experience any of the following symptoms?

Not Applicable (✓)	

Symptom	Tick (✓)
euphoria	
drowsiness	
'jumpy' vision	
overreaction of the reflexes	
Rapid muscle contraction	
abnormal movements of the foot	
clumsiness	
restlessness	
feeling drunk and dizzy	
muscle contraction and relaxation in the jaw	
Rapid heart rate	
sweating	
intoxication	
muscle twitching	
rigidity	
hot flushes	
shivering	
diarrhea	

48. If you have ever taken Viagra with ecstasy, did you experience any of the following symptoms?

Not Applicable (✓)	
Symptom	Tick (✓)
headache	
flushing of the face	
upset stomach	
temporary distortions in colour vision	
eyes being more sensitive to light	
blurred vision	
Irregular heart beats	
prolonged erection (ie longer than 2 hours)	

49. What negative effects have you experienced from your ecstasy use that would alter the way you take these drugs next time?*

[FIRST, DO NOT PROMPT SUBJECT. THEN, PROMPT RESPONDENT WITH EACH ITEM]

SYMPTOM	UNPROMPTED (✓)	PROMPTED (✓)
General		
Profuse Sweating		
Hot/Cold Flushes (circle)		
Weight Loss		
Trouble sleeping		
Eye/Vision Problems		
Poor Appetite		
Fatigue/Energy Loss		
Respiratory		
Shortness of breath		
Chest Pains		
Injecting-related		
Abscesses/Infections		
Overdose		
Hepatitis B/C		
Neurological		
Tremors/Shakes		
Fainting/Pass Out		
Fits/Seizures		
Memory Lapse/Black Out		
Numbness/Tingling		
Headaches		
Dizziness		
Tics		
Muscular		
Muscular Aches		
Joint pains/Stiffness		
Difficulty with reflexes		
Gastro		
Vomiting		
Stomach Pains		
Diarrhoea		
Sex-related		
Loss of sex urge		
Psychological		
Paranoia		
Depression		
Suicidal thoughts		
Suicide attempts		
Confusion		
Irritability		
Flashbacks		
Anxiety		
Panic Attacks		
Other		

50. Have you ever sought medical help because of a symptom experienced due to your party drug usage?

Yes ..... …1 No 0
Go to Q.54

If so, through what channels?

Ambulance		.....	1
Hospital Emergency Room		.....	2
Counsellor		.....	3
Psychologist		.....	4
Psychiatrist		.....	5
Other	Specify	.....	6

51. What were your symptoms on these occasions?

……

……

52. Have you ever engaged in high-risk sexual behaviour (eg engaging in unprotected sex) or experienced sexual regret (eg after having sex with someone that you would not have otherwise) as a consequence of your behaviour whilst using ecstasy and/or pharmaceuticals?

No	.....	0
High-Risk Sexual Behaviour	.....	1
Experienced Sexual Regret	.....	2

53. Have you ever driven a vehicle soon after taking ecstasy?

Yes ..... …1 No 0

54. Did this drug increase or decrease your ability to drive?

Increase ..... …1 Decrease ..... 2 No change ……
3

55. Have you ever experienced a road accident soon after taking ecstasy, where you were the driver at fault?

Yes ..... …1 No 0

56. Do you think you have ever had one of your drinks spiked?

Yes ..... …1 No 0
GO TO Q. 62

57. What makes you think your drink had been spiked?

……

58. Where did this occur?

Clubs		……	1
Raves		……	2
Parties		……	3
Home		……	4
Movies		……	5
Beach		……	6
Park or other public place		……	7
Other	Specify	……	8

59. What happened as a result of this?

……

……

RISK PERCEPTION

60. Below is a table listing some long-term and short-term effects that people say might be associated with ecstasy use.

For ecstasy users in general, please place an "up-arrow" (↑) if you think ecstasy use increases this effect or improves it, a "down-arrow" (↓) if you think ecstasy use decreases this effect or makes it worse, or write 'both' or 'neither'.

Finally, please indicate how much you believe that you are **PERSONALLY** at risk of experiencing these symptoms due to your ecstasy use.

Effect	**(for ecstasy users in general)** **↑** **or** **↓** **both or neither**	**How much are you personally at risk of experiencing this symptom?** **1=No risk** **2=Slight risk** **3=Moderate Risk** **4=Great Risk**
Stress levels		
Sex drive		
Concentration		
Appetite		
Memory		
Impulsive Behaviour		
Ability to sleep		
Anxiety levels		
Depression		
Weight Loss		

[INTERVIEWER: ASK SUBJECT TO COMPLETE QUESTIONS 63 TO 82]

61. How often have you **worried** about any risks that might be associated with your ecstasy use?

Never	Rarely	Often	A lot
0	1	2	3

62. How much do you think people risk harming themselves physically or in other ways if they take ecstasy *occasionally (once per month)*?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

63. How much do you think people risk harming themselves physically or in other ways if they take ecstasy *regularly (once per week, once per fortnight)*?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

64. How much do you think people risk harming themselves physically or in other ways if they take ecstasy *at the frequency you currently take it*?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

65. How much do you think people risk harming themselves physically or in other ways if they take **ecstasy and drink alcohol** at the same time?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

66. How much risk is there of **you** harming ***yourself*** physically or in other ways if you take ecstasy *at the frequency you currently take it*?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

67. How much do people of your age risk having **legal or police problems** if they take ecstasy at least once per week?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

68. How much do people of your age risk having **financial/money problems** if they take ecstasy at least once per week?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

69. How much do you think people of your age risk having **emotional / mood problems** if they take ecstasy at least once per week?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

70. How much do people of your age risk becoming **physically addicted or dependent on** ecstasy if they take it at least once per week?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

71. How much do you think people of your age risk finding it **hard to stop using** ecstasy if they take it at least once per week?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

72. How much do you think people of your age risk **having problems with their relationships** (friends, parents, partners) if they take ecstasy at least once per week?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

73. How much do you think people of your age risk performing worse than they would otherwise at **school or work** if they take ecstasy at least once per week?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

74. How much do you think people of your age risk starting to use **heroin and/or cocaine regularly** if they take ecstasy at least once per week?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

75. How much do you think people of your age **risk having accidents when they have taken ecstasy** that they may not have had otherwise, if they take it at least once per week?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

76. Do you think taking ecstasy increases the chances that a young person will have sexual contact with someone else?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

77. How much do you think ecstasy increases the risk of causing you to have a road accident whilst driving?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

78. Do you think that taking ecstasy increases the risk of having unsafe sex?

No risk	Slight risk	Moderate risk	Great risk
0	1	2	3

79. How much do you think you know about the effects and risks of using ecstasy?

Nothing	A little	Average amount	A lot	Everything
0	1	2	3	4

80. Please rank **up to three risks** which might be most important to you in making your decisions about whether or not/how frequently you take ecstasy.*

If you believe there are risks involved, place a "1" next to the most important risk. If you believe that there are other lesser risks, place a "2" next to the second-most important risk and a "3" next to the third-most important risk (if applicable).

- ❑ Financial / money problems
- ❑ Legal / police problems
- ❑ Physical health problems
- ❑ Emotional / mood problems
- ❑ Physically addicted / physically dependent
- ❑ Finding it hard to stop using
- ❑ Lack of motivation
- ❑ Problems with relationships
- ❑ Impact on school / uni / work performance
- ❑ Accidents when under the influence
- ❑ Other (specify):

  ……

SOURCES OF INFORMATION

81. Where do you find your information on the effects of party drugs?*

Please tick (✓) each source that you **usually use** or have **ever used** and briefly describe the information given.

Source	Ever used ✓	Usually use ✓	**What was the information?** Eg Side Effects Information Purity Information
Friends			
Dealer/Supplier			
Siblings			
Parents			
Drug counselling phone line			
School Teachers			
School Counsellors			
Doctor			
Television Specify channel and program ……			
Radio Specify channel and programme ……			
Print Media Specify newspaper or magazine ……			
Video/Movies			
Local/School library			
Internet/Chat room Specify site(s) ……			
Chemist			
Police			
Government Eg How will you feel tomorrow			
Other (specify) ……			

RESPONDENT TO FILL OUT THE FOLLOWING LIST

82. Using the following scales, please rate:

i) the **accessibility** to each of these sources

ii) how **comfortable** you would be in acquiring information from these sources, and

iii) the **credibility** of the information from each of these sources

Also, please indicate if you would consider using each of these sources.

	1	**2**	**3**	**4**	**5**
Credibility	Very incredible	Incredible	Neutral	Credible	Very credible
	1	**2**	**3**	**4**	**5**
Comfort	Very uncomfortable	Uncomfortable	Neutral	Comfortable	Very comfortable
	1	**2**	**3**	**4**	**5**
Accessibility	Very difficult to access	Difficult to access	Neutral	Easy to access	Very easy to access

Source	**Would you consider using?** If Yes, tick (✓)	**Accessibility** circle one number	**Comfort** circle one number	**Credibility** circle one number
Friends		1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Dealer/Supplier		1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Siblings		1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Parents		1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Drug counselling phone line		1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
School Teachers		1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Counsellors		1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Doctors		1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Television Specify channel and program ……		1 2 3 4 5 Or rate each program 1 2 3 4 5		1 2 3 4 5 Or rate each program 1 2 3 4 5
Radio Specify channel and program ……		1 2 3 4 5 Or rate each program 1 2 3 4 5		1 2 3 4 5 Or rate each program 1 2 3 4 5
Print Media Specify publication ……		1 2 3 4 5 Or rate each source		1 2 3 4 5 Or rate each source

		1 2 3 4 5		1 2 3 4 5
Video/Movies		1 2 3 4 5		1 2 3 4 5
Local/School library		1 2 3 4 5		1 2 3 4 5
Internet/Chat Rooms Specify site ……		1 2 3 4 5 Or rate each site 1 2 3 4 5 1 2 3 4 5		1 2 3 4 5 Or rate each site 1 2 3 4 5 1 2 3 4 5
Police		1 2 3 4 5		1 2 3 4 5
Government Eg How will you feel tomorrow		1 2 3 4 5		1 2 3 4 5
Other (specify) ……		1 2 3 4 5		1 2 3 4 5

83. Which information sources do you **not believe**?

……

……

84. Why?

……

……

Ideas for Future Ecstasy Education

85. What role do you think the Government should have in educating the community on ecstasy?

……

……

86. Where should this information be presented? (eg specifically targeting young people, or the entire community)

……

……

87. How should the dissemination of this information be conducted (e.g., confronting dramatizations, information booklets, discussions)?

……

……

88. When and how often should this information be presented (e.g., several times per week, once a fortnight, only before NYE)?

……

89. What should people be taught about ecstasy, and what do you think the main ecstasy education message should be?

……

……

90. At what age do you think people should be targeted with ecstasy information? [Prompt: Should it vary according to the age of the person? How?]

……

……

91. Should the approach for ecstasy education be different than that for alcohol and tobacco?

……

……

92. Did you receive school ecstasy education? If so, did it have any influence on your use of ecstasy? How?

……

……

93. Are you satisfied with your level of knowledge regarding ecstasy? If not, what would you like to know?

……

……

94. Do you have any other comments?

……

……

THANK & PAY RESPONDENT. GIVE ECSTASY BOOKLET AND CONTACT DETAILS