EDRS

ECSTASY AND RELATED DRUGS REPORTING SYSTEM
DRUG TRENDS BULLETIN
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Contamination or excess? stimulant overdose in regular psychostimulant users

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KEY FINDINGS

- Past year and lifetime experience of stimulant overdose has significantly increased since monitoring began in 2007
- Those that had a recent stimulant overdose were more likely to report bingeing behaviour, were more likely to report having used a higher number of drug classes, were more likely to score a severity of dependence score of four and above for ecstasy and also more likely to score above eight in the Alcohol Use Disorders Identification Test
- Ecstasy was the main drug attributed to stimulant overdose
- Sixty percent of this sample reported their most recent stimulant OD to consuming too much of a substance, 14% reported that it was due to consuming a bad/adulterated pill and 15% reported that it was due to both of the above
- For comparison purposes participants were grouped into those who considered their overdose due to a 'bad pill' group versus 'other reason for overdose' group
- Those who believed they consumed a bad/adulterated pill were over five times more likely to experience their overdose in a nightclub
- The vast majority of those who had experienced stimulant overdose received no formal treatment
- Participants who believed they overdosed on a bad pill were four times more likely to have looked on pill reports either before, after or at both times after their stimulant overdose experience
- These findings highlight the need to continue harm reduction strategies aimed at minimising risk of stimulant overdose and raising awareness of the risks of ecstasy impurity.

INTRODUCTION

This bulletin will discuss the prevalence of stimulant overdose (Stim OD) in a sample of EDRS participants, that is, a group of regular (at least monthly) recreational psychostimulant consumers over the past six month period, with a focus on results from the most recent EDRS 2013 survey. The definition of a stimulant overdose are considered to be one or more of the following symptoms (which are outside the normal drug experience for that consumer): nausea and vomiting, chest pain, tremors, increased body temperature, increased heart rate, seizure, extreme paranoia, extreme anxiety, panic, extreme agitation, hallucinations and excited delirium. As some of these symptoms are normal reactions to stimulant drug use, it is important to highlight that we are referring to highly unpleasant symptoms that are beyond the consumers normal experience, or where professional assistance would have been helpful. Also note that we are looking more specifically at accidental overdoses, not overdoses that were intentional, such as attempted suicide.

Nationally, the prevalence of ecstasy and related drug use have decreased across the population in recent years (AIHW, 2011), however, in certain sub-groups such as GLBT group, use of recreational drugs remains common (Holt et al., 2011; Hull et al., 2013; Sindicich & Burns, 2014). Particularly with a use of regular ecstasy/psychostimulants, (as in the EDRS sample) users are more likely to report having engaged in risky behaviours, one of which is polydrug use and binge use (use of substances for 48 hours or more without sleep (Ovendon & Loxley, 1996). It is often during these 'heavier' sessions of use that stimulant overdoses are likely to occur. In the EDRS sample of participants, it appeared that this risk behaviour has increased over time with past year and lifetime experience of a stimulant overdose having significantly increased since monitoring began in 2007 (six year period), (past year stim OD 2007: 10% vs. 2013:26%, $p<0.05$; lifetime stim OD 2007:17% vs. 2013: 30%, $p<0.05$; see Figure 1).

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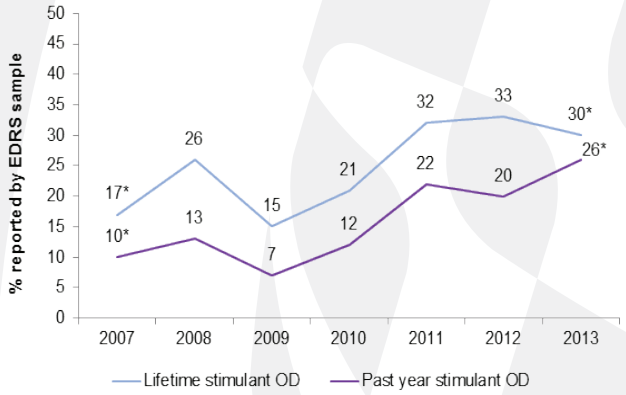
Figure 1: Past year and Lifetime stimulant overdose rates, self-reported by EDRS participants, 2007-2013



Source: EDRS participant interviews, 2013
* $p<0.05$ significant difference

While there is evidence to suggest that these overdoses occurred during heavier sessions of use, there have been reports by some EDRS participants that it is a particular 'bad/adulterated' pill that is responsible for stimulant overdoses. It is common knowledge that tablets sold as ecstasy often contain substances other than MDMA, such as methamphetamine, ketamine, MDA, MDEA and PMA (Quinn et al., 2004; Hall & Henry, 2006) however, to date there is little research on the consumer perspective on a 'bad/adulterated' pills versus 'consuming too much' resulting in a stimulant overdose.

Information related to behavioural practices of information seeking and treatment around pill taking and overdoses has not been explored in depth. There is evidence to suggest that a large amount of trust and confidence in the purity and quality of pills is placed on the relationship between the buyer and seller, of which most buyers say they purchase their drugs from friends or acquaintances (Van de winjngaart et al., 1999). Related to this, friends followed by non-government website (forums), drug treatment services and physicians are the information sources reported by ecstasy users to gain information about ecstasy (Falck et al., 2004). Little is actually known about the investigative activities taken by ecstasy users before they take pills or if there are recourse activities should the pill experience be a negative one. In 2013, EDRS participants were asked specific questions related to their last stimulant overdose and their actions as a consequence of that overdose. Given that stimulant overdose has increased overtime, correlates of participants that had recently had a stimulant overdose were explored. Results are below.

METHODS

The Ecstasy and Related Drugs Reporting System (EDRS) is an Australian national monitoring study aimed at detecting emerging trends in the markets for ecstasy and related drugs. Methodology is described in full elsewhere (Topp, Breen et al. 2004). Participants were recruited through advertisements in entertainment publications in print and online, interviewer contacts, and through 'snowball' procedures (Biernacki & Waldorf 1981). All respondents were volunteers who were reimbursed AUD$40 for their participation.

Face-to-face interviews were conducted with current regular psychostimulant users, a non-probability sample of consumers who were selected on the basis of their at least monthly use of ecstasy and related drugs including methamphetamine, cocaine, ketamine, new psychoactive substances (such as 2C-I, DMT and mephedrone) in the six months prior to interview. The interview schedule measures; demographic characteristics; lifetime and past six-month licit and illicit substance use; Severity of Dependence Scale for Ecstasy (Bruno et al., 2009), Alcohol Use and Disorders Identification Test (AUDIT) (Babor et al., 2003; Saunders et al., 1993), Kessler 10 Psychological Distress Scale (K10) (Kessler et al., 2002; Kessler et al., 2003; Andrews & Slade, 2001), level of engagement in risk behaviours such as unsafe sexual practices, criminal activity, injecting drug use and help-seeking behaviour in relation to drug use. In 2013 all participants were asked if they had ever experienced a stimulant overdose and if this had occurred in the previous 12 month period. Twenty-six percent of the 2013 EDRS sample (n=184) reported having experienced at least one stimulant overdose in the past year preceding interview.

RESULTS

Demographics

Six hundred and eighty-six EDRS participants were interviewed in 2013 across Australia (NSW n= 100, ACT n=77, VIC n= 100, TAS n= 75, SA n=100, WA n=100, NT n=45 and QLD n=88), reflecting predetermined quotas. The characteristics have been reported elsewhere (Sindicich & Burns, 2014). Briefly, 67% were male with a mean age of 23 years (SD 6.1); 97% were of English speaking background, 44% were tertiary qualified, 26% were currently employed and 15% were full-time students. Very few (3%) identified being in drug treatment or having a prison history (3%).

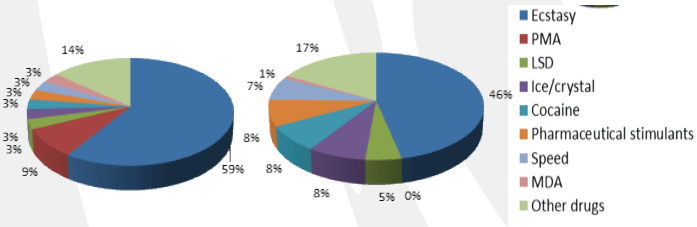
Recent overdose

This section was only asked of those who had experienced a recent (past year) overdose (n=184). Sixty percent of this sample reported that they attributed their most recent stimulant OD to consuming too much, 13.7% reported that it was due to consuming a bad/ adulterated pill, 14.5% reported that it was due to both of the above reasons and 11.3% reported that it was due to other reasons. Participants were split into the 'bad pill group' (those that reported they had recently overdosed due to a bad/adulterated pill (n=35)) versus 'other reason for overdose' which included having consumed too much (n=89).

Main Drug attributed to stimulant overdose

There were no significant differences in the main drug attributed to stimulant overdose on the last overdose between the bad pill group and the other reason for overdose group. The highest proportions were reported for ecstasy, other drugs, PMA, cocaine and ice/crystal methamphetamine (see figure 1).

Figure 2: Main drug participants attribute to last stimulant overdose, bad pill overdose (left) vs. other reason overdose (right), 2013

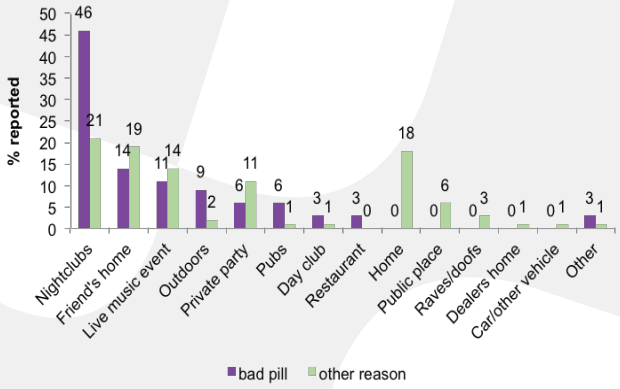


NB: Data provided by Victoria Police Forensic Services Department, showed of all illicit tablets seized in Victoria from July 2012 to June 2013 forensic analysis shows that MDMA or MDA, what is predominantly classed as ecstasy, was only prevalent in 31% of seizures. The drug most prevalent (52%) was methorphan[1], also present in smaller amounts was methylamphetamine (7%), other drugs (7%) and a small number of cases had no drug detected (4%).

Location of stimulant overdose

Those who consumed a bad/adulterated pill were over five times more likely to experience that overdose in a nightclub, than those who overdosed by consuming too much or another reason (46% vs. 13%, [OR 5.63 95%OR 2.48-12.79]). Most other locations had similar numbers reporting stimulant overdoses in those locations (see figure 2). Interestingly, those who reported a stimulant overdose for another reason were more likely to report that this overdose occurred in a private area such as at home, friend's home or a private party.

Figure 3: Location of last stimulant overdose, by group 2013



Source: EDRS participant interviews, 2013

Symptoms experienced at overdose

There were no differences experienced between groups in relation to symptoms experienced. The main symptoms reported were nausea, increased body temperature, increased heart rate, extreme anxiety, dizziness, chest pain, panic, delirium/confusion and paranoia.

Treatment at the time of the stimulant overdose

When participants were asked if there was somebody sober/a professional (e.g. health worker, security guard, hospitality/bar staff) to assist at the time of the overdose, there were no differences between groups with a high proportion of both groups reporting that was the case (bad pill: 60% vs. other reason: 49%; not significant). Despite the finding above of there being assistance available, high proportions of each group reported not receiving treatment at the time of the stimulant overdose (bad pills: 51% vs. other reason: 40%, not significant). Of those that did receive treatment, in the bad pill group the only treatment reported was being monitored or watched by friends (40%) and one participant reported visiting a GP. In the other reason group, small numbers reported that they received an ambulance attendance (6%) or went to the hospital emergency department (5%). Larger numbers in this group also reported being monitored or watched by friends (44%).

Treatment sought after the stimulant overdose

EDRS participants who overdosed on a bad pill were four times more likely to have looked on pill reports either before, after or at both times after their stimulant overdose experience (bad pill: 40% vs. other reason:

1 Methorphan comes in two isomeric forms of Dextromethorphan (DXM) present in over-the-counter cough suppressants, in higher doses it may have a dissociative effect and; Levomethorphan is an opioid analgesic.

14%; [OR 4.20 95%CI 1.84-9.58], p=0.000). Pillreports[2] is a website forum which is a harm reduction service that provides user reports of the effects of particular pills that are sold as 'ecstasy' or other (typically) pills sold in its class e.g. MDA, MDEA.

Behaviour changes after the stimulant overdose on bad/adulterated pill

Of those that reported having consumed a bad/adulterated pill, they were asked if they had altered their drug using behaviour due to the experience to which just under half (46%) reported that it had no impact on their behaviour. Of those that reported that the stimulant OD had impacted on their drug using behaviour, 29% reported that it had increased their vigilance and they were now more likely to take precautions such as find out more about the pill before taking it and take less to begin with and 9% reported that they used drugs/pills less frequently. Smaller numbers reported that their behaviour changes included: using less pills in a session (7%), some initially changed their behaviour after the stim OD but have now reverted back to old behaviours (2%) and some report changing the types of drugs they use (2%).

Comparison of those who did and did not report a stimulant overdose

Given the significant increase over time in reports of stimulant overdose, risk behaviours for those that have had (Stim OD group, n=184) and had not (No stim OD, n=505) reported a recent stimulant overdose in the past 12 months were compared.

Demographics

There were no significant differences found in demographics between those that had experienced a recent overdose and those who had not in relation to gender, age, ethnicity, sexuality, marital status and employment.

Risk behaviours

In relation to risk behaviours (see table 1), there were some significant differences between those who reported a recent stimulant overdose and those that did not. Those who reported an overdose were more likely to report bingeing behaviour (48% vs. 37%, p<0.05), and to have used a higher number of drug classes (7 vs. 6, p<0.05). They were also more likely to score a severity of dependence score of four and above for ecstasy (17% v. 9%, p<0.05) and to score above eight in the Alcohol Use Disorders Identification Test (AUDIT) which is an indicator of hazardous and harmful alcohol use as well as possible alcohol dependence (88% vs. 75%, p<0.05). They were also more likely to report a recent (past year) depressant overdose, of which alcohol is one of the depressant drugs asked about. No differences were found for self reported mental health issues (37% vs. 28%, p>0.05) however, those in the stim OD group were 1.5 times more likely to score in the high to very high distress category with the K10 [OR 1.5 (95%CI 1.07-2.19)]. Other risk behaviours investigated included unsafe sexual practices of not wearing a barrier with a casual partner, which was not significant. Past month criminal activity in accordance with the Opiate Treatment Index (OTI) found that participants in the Stim OD group were more likely than the No stim OD group to report committing a property, fraud, dealing or violent offence (40% vs. 32%, p<0.05).

Table 1: Risk behaviours in recent stimulant overdose participants, 2013

Variable	Stim OD (n=187)	No Stim OD (n=505)	OR 95%CI	p-value
Bingeing (%)	48	37	1.6 (1.12-2.22)	0.009*
No. of drug classes used recently (Mean, SD)	7 (2.2)	6 (2.4)	t_{684}=1.217	0.004*
Depressant OD (%)	29	19	1.7 (1.13-2.47)	0.009*
Severity of Dependence Scale Ecstasy (%)	17	9	2.1 (1.29-3.46)	0.003*
AUDIT (score 8+) (%)	88	75	2.4 (1.46-3.88)	0.000*
Mental Health problem (%)	34	29	1.3 (0.89-1.85)	0.173
K10 (high distress) (%)	37	28	1.5 (1.07-2.19)	0.019*
No sexual protection under influence (%)	50	54	0.9(0.55-1.33)	0.479
Criminal activity (%)	40	32	1.4 (1.01-2.04)	0.043*

Source: EDRS participant interviews, 2013
* p<0.05 significant difference

2 Pillreports is a global database of "Ecstasy" pills based on both subjective user reports and scientific analysis. "Ecstasy" is traditionally the name for MDMA based pills, however here we also include closely related substances such as MDA, MDEA, MBDB. Pills sold as "Ecstasy" often include other, potentially more dangerous, substances such as methamphetamine, ketamine and PMA. By identifying dangerous adulterants, Pillreports performs a vital harm reduction service that can prevent many of the problems associated with "Ecstasy" use before they happen. www.pillreports.com Please Note: Pillreports.com exists as a harm reduction tool and does not condemn or condone ecstasy use.

DISCUSSION AND SUMMARY

This bulletin raises the important issue of the increasing nature of stimulant overdoses. The EDRS has been monitoring self-reported overdose for a number of years and has found stimulant overdose to have more than doubled in the past six years. Given this finding, enhancing our understanding of why these overdoses occur is critical in helping to inform harm reduction strategies aimed at minimising risk. The high rate of these overdoses may be linked to high rates of partying, drug bingeing and polydrug use behaviours, and reflective of the increasingly diverse nature of pills available. Findings suggested that a number of recent participants attributed their overdose to a bad/ adulterated pill, as opposed to consuming too much. Data from Victoria Forensic Police Services support this finding, noting only a third of tablets seized from the July 2012-June 2013 period contained ecstasy-type substances. Given that ecstasy pills contain a wide variety of potentially harmful adulterants, it is important to continue highlighting this risk in harm reduction strategies directed at people who continue to use ecstasy, as well as those working in frontline treatment services.

The finding that those who attributed their overdose to a bad pill were more likely report being in a nightclub at the time, presents implications for the placement of targeted messages within night venues. Placing messages in conspicuous places, such as on the back of the nightclub toilet doors where the person may go when feeling unwell, or outside the nightclub pertaining directly to contacting services if they feel they are having a negative reaction to a substance, could be considered a harm reduction strategy for stimulant overdose. Training nightclub personal in identify signs of stimulant overdose could also be considered.

CONCLUSION

Given the importance of this issue, it remains critical that we keep collecting information on the content of illicit ecstasy-type substances, as well as supporting harm minimisation services and forums that have the potential to save lives and prevent stimulant overdoses in the future.

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