



Authors: Sheena Arora and Lucy Burns, National Drug and Alcohol Research Centre, University of New South Wales

Suggested citation: Arora, S. & Burns, L. (2011). Alcohol use disorders amongst a group of regular ecstasy users. EDRS Drug Trends Bulletin, April 2011. Sydney: National Drug and Alcohol Research Centre, University of New South Wales.

Funded by the Australian Government Department of Health and Ageing

Medicine

National Drug and Alcohol Research Centre

## Key findings

- Almost all participants reported consuming alcohol in the previous six months
- On their last occasion of ecstasy use, 84% of participants also consumed alcohol on this occasion, indicating a high prevalence of polydrug use
- The average number of drinks consumed in a session was nine drinks
- 84% of the sample indicating drinking patterns that were indicative of hazardous or harmful alcohol use
- Those in the higher categories of alcohol use disorders were more likely to use ecstasy more frequently
- Psychological distress was more prevalent amongst this sample of regular ecstasy users than in the general population. There was a significant association between psychological distress and risky drinking patterns amongst this group.
- Those with alcohol use disorders were more likely to experience social, legal, risk and responsibility related problems than those with less hazardous patterns of drinking. However those with alcohol use disorders were also more likely to have seen a mental health professional for their alcohol/drug use in the previous six months.
- This group is at an increased risk of experiencing alcohol related harms as well as harms associated with polydrug use, in particular psychological distress

## Alcohol use disorders amongst a group of regular ecstasy users

### Introduction

Alcohol remains the most widely used drug in Australia. Data from the 2007 National Drug Strategy Household Survey shows that 84% of Australians aged 14 or over consumed alcohol in the previous 12 months (Australian Institute of Health and Welfare, 2008). Australia currently consumes 10.02L of pure alcohol per capita, per year (those aged 15 and over). This compares to the worldwide mean of 6.13 litres of pure alcohol, placing Australia 36<sup>th</sup> in alcohol consumption amongst 162 of the member states of the World Health Organisation (WHO) (World Health Organisation, 2011). According to the WHO alcohol is the largest risk factor for premature mortality, disability and loss of health in the Western Pacific region (including Australia). Alcohol is also associated with significant social and developmental issues, including violence, child neglect and abuse, accidents and suicide.

Data from the 2007 National Drug Strategy Household Survey shows ecstasy to be the second most commonly used illicit drug in the past 12 months (after cannabis). Prior research has shown ecstasy users to commonly be polydrug users (Schifano et.al. 1998). Within this framework of polydrug use this paper will examine patterns of alcohol use and explore the relationship between alcohol use disorders and psychological distress amongst a sample of regular ecstasy users. The association between alcohol use disorders and other illicit drug use, help seeking behaviour and self-reported problems will also be examined.

### Method

The Ecstasy and Related Drug Reporting System (EDRS) is an annual monitoring study, designed to monitor emerging trends in the ecstasy and related drug market. The project includes surveys with regular ecstasy users (REU), interviews with key experts, and analysis of indicator data from health and

law enforcement sectors. The study is conducted across each capital city in Australia. In 2010, 693 regular ecstasy users participated in the study. Participants were asked questions about their drug use as well as questions about their physical and mental health.

### Patterns of alcohol use amongst regular ecstasy users

Prevalence of alcohol use amongst our sample of REU was common. As can be seen in Table 1, all participants in the sample reported having used alcohol at some point in their lives and almost all (97%) reported using alcohol in the past six months. The median age of first use was 14 years.

On their last occasion of ecstasy use, 84% of participants consumed alcohol on the same occasion. On this occasion of ecstasy use 70% of all participants consumed more than five standard drinks. Participants were also asked if they had used alcohol to help them come down from ecstasy. On their last occasion of ecstasy use 20% of all participants had used alcohol to help them with the come down associated with ecstasy.

**Table 1: Prevalence and patterns of alcohol use amongst REU**

	n=693
Ever used alcohol (%)	100
Used alcohol in the past 6 months (%)	97
Alcohol as drug of choice (%)	12
Median age of first use	14
Use with ecstasy (%)	84
Use >5 standard drinks with ecstasy (%)	70
Use to come down from ecstasy (%)	20
Use >5 standard drinks to come down from ecstasy (%)	10

Source: EDRS REU interviews, 2010

**Table 2: Frequency of alcohol use amongst REU who had drunk alcohol in the previous six months**

	n=673
Less than monthly (%)	2
Monthly to fortnightly (%)	3
Fortnightly to weekly (%)	6
Between weekly and 3 times a week (%)	42
3 times a week or more (%)	48

Source: EDRS REU interviews, 2010

Participants were asked about their frequency of use of alcohol in the previous six months. The vast majority (90%) of those who had drunk alcohol in the previous six months, reported drinking weekly or more often (Table 2). Approximately 1 in 10 (9%) reported consuming alcohol daily.

### Alcohol Quantity, Frequency and Variability Assessment (AQFV) amongst regular ecstasy users

Participants of the EDRS were administered the Alcohol Quantity, Frequency and Variability Assessment (AQFV), as a way of more accurately measuring the quantity and frequency of alcohol use while taking into account variability of drinking patterns. The AQFV is a self-report measure which examines alcohol use using three categories: (a) typical drinking; (b) regular changes, e.g. weekends; and (c) occasional changes, e.g. festivals, parties.

Using the information obtained from the AQFV assessment, the number of days that each participant consumed alcohol over the course of a year and the amount of alcohol consumed on each drinking day was computed. Each drinking day was then defined as either (a) low risk (up to six drinks for men or four for women); (b) risky (from seven to 10 drinks for men or five to six for women); or (c) high risk (11 drinks and above for men or seven and above for women). The categories have been derived based on the National Alcohol Strategy 2006-2011.

Table 3 presents the frequency and quantity of alcohol consumption for participating REU. Participants reported drinking at low risk quantities on a median of 52 days over the course of a year. The median number of days drinking in the risky category was seven days. The median number of drinking days that were in the high risk category was 39 days (29 days for males and 39 days for females). This represents 40% of all drinking days in the year, indicating that people in this group often drink at high risk levels.

The average number of drinks per session for all participants was nine drinks. This supports the finding that people in this group are often drinking at high risk levels. When separated by gender, males are found to report a significantly higher number of average drinks per session than females (9.3 versus 7.4)  $t_{(630.5)} = 4.365, p = 0.000$ .

**Table 3: Median number of drinking days, by risk level, amongst REU**

	Category definition: no. of drinks	Males; median no. of drinking days/year	Category definition: no. of drinks	Females; median no. of drinking days/year	All median no. of drinking days/year
Low risk	<6	52	<4	35	52
Risky	7-10	7	5-6	6	7
High risk	>=11	29	>=7	52	39
Average no. drinks /session		9		7	9

Source: EDRS REU interviews, 2010, National Alcohol Strategy 2006-2011

### Alcohol Use Disorders Identification Test (AUDIT) amongst regular ecstasy users

Participants were also asked to complete the Alcohol Use Disorders Identification Test (AUDIT) (Saunders et al., 1993). The AUDIT was designed by the WHO as a brief screening scale to identify individuals with alcohol problems. It is a 10-item scale, designed to assess three conceptual domains: alcohol intake; dependence; and adverse consequences (Reinert and Allen, 2002). Total scores of eight or more are recommended as indicators of hazardous and harmful alcohol use and may also indicate alcohol dependence (Babor et al., 1992). Higher scores indicate greater likelihood of hazardous and harmful drinking; such scores may also reflect greater severity of alcohol problems and dependence, as well as a greater need for more intensive treatment (Babor and Higgins-Biddle, 2000).

The overall sample mean score on the AUDIT was 14.8. There was a significant difference in female and male AUDIT scores, with males having the significantly higher scores (13.61 vs. 15.56;  $t_{(672)} = -3.606, p < 0.05$ ). Eighty-four percent of the total sample scored eight or more; these are levels at which alcohol intake may be considered hazardous.

The total AUDIT score places respondents into one of four 'zones' or risk levels. Sixteen percent of participants scored in Zone 1 (low-risk drinking or abstinence), 39% scored in Zone 2 (alcohol use in excess of low-risk guidelines), 20% scored in Zone 3 (harmful or hazardous drinking) and 26% scored in Zone 4 (those in this zone may be referred to evaluation and possible treatment for alcohol dependence).

**Table 4: AUDIT total scores and proportion of REU scoring above recommended levels indicative of hazardous alcohol intake**

	Male	Female	Total
Mean AUDIT total score	15.6	13.6	14.8
Score 8 or above (%)	87	81	84
Zone 1: Low risk/abstinence (<8)	13	19	16
Zone 2: Excess of low risk guidelines (8-15)	37	42	39
Zone 3: Harmful or hazardous (16-19)	21	18	20
Zone 4: Possible alcohol dependence (>20)	29	21	26

Source: EDRS REU interviews, 2010

### Alcohol use disorders and other illicit drug use amongst regular ecstasy users

Table 5 presents the association between participants' AUDIT scores and their frequency of use of illicit drugs. Using the one-way ANOVA test the frequency of ecstasy use differed significantly across the four AUDIT Zones. ( $F(3,669) = 4.85, p = 0.002$ ). Post-hoc comparisons of the four groups indicated that those scoring in Zone 4 of the AUDIT ( $M = 16.8, 95\% \text{ CI } [12.6, 21.0]$ ) had significantly more frequent use of ecstasy than those scoring in Zone 2 ( $M = 15.6, 95\% \text{ CI } [14.0, 17.1], p = 0.003$ ) or Zone 3 ( $M = 15.2, 95\% \text{ CI } [13.4, 16.9], p = 0.009$ ) of the AUDIT.

It should be noted that causality cannot be inferred from the association between alcohol use disorders and frequency of ecstasy use. To establish the direction of causality, whether the relationship is bidirectional or whether the relationship is due to confounding, further research is required. Regardless of the direction of the relationship, this has important implications when considering the harms associated with polydrug use and potential education and health considerations

The frequency of use of other illicit drugs did not differ significantly across the four AUDIT zones.

**Table 5: Days used illicit drugs grouped by AUDIT Zone amongst REU**

Number of days used	AUDIT Zone			
	1	2	3	4
Ecstasy *	16.7	15.6	15.2	20.7
Cannabis	53.3	44.5	48.6	47.0
Speed	5.8	3.0	4.7	4.1
Base	1.4	1.6	0.6	1.4
Ice/crystal	1.3	0.9	1.2	1.2
Cocaine	2.0	2.9	3.1	3.4
LSD	1.4	2.0	2.3	2.3

Source: EDRS REU interviews, 2010

\*Significant at  $p < 0.005$

### Psychological distress amongst regular ecstasy users

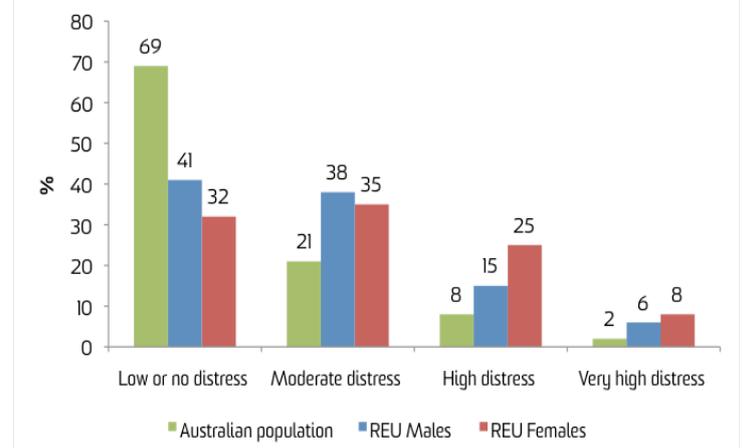
The Kessler Psychological Distress Scale 10 (K10) is a 10-item standardised measure used to identify clinical levels of psychological distress. Four categories were used to describe the degree of distress experienced; low or no distress (10-15), moderate distress (16-21), high distress (22-29) and very high distress (30-50) (Kessler et. al., 2002)

As can be seen from Figure 1 below, both males and females in our sample of REU reported experiencing higher levels of distress than the general population (Australian Institute of Health and Welfare, 2008). Thirty-seven percent of all respondents reported experiencing no or low levels of distress, compared to 69% of the general population. More than a quarter (26%) of participants reported experiencing high or very high distress, with 19% scoring in the high distress range and 7% scoring in the very high distress range. This compares to 10% of the Australian population reporting high or very high levels of distress (Australian Institute of Health and Welfare, 2008).

### Psychological distress and alcohol use disorders amongst regular ecstasy users

We also examined the association between psychological distress, as measured by the K10 and alcohol use disorders. Table 6 shows that there was an association between psychological distress and harmful/risky drinking with those scoring in the higher zones of the AUDIT being more likely to report higher levels of distress. This relationship was significant at  $X^2(9) = 28.1$ ,  $p < 0.001$ .

**Figure 1: Levels of psychological distress experienced by REU compared to levels experienced by the Australian population**



Source: EDRS REU interviews, 2010; Australian Institute of Health and Welfare, 2008

**Table 6: Psychological distress experienced by REU, grouped by AUDIT Zone**

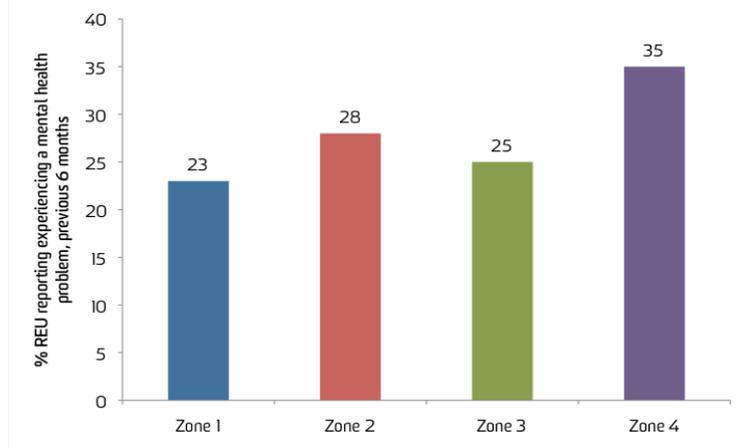
	Low or no distress	Moderate distress	High distress	Very high distress
Zone 1 (Low risk/abstinence)	48	31	17	4
Zone 2 (In excess of low risk guidelines)	40	42	13	5
Zone 3 (Harmful/ hazardous drinking)	31	40	21	7
Zone 4 (High risk, possible dependence)	32	31	27	11

Source: EDRS REU interviews, 2010

### Self reported mental health and alcohol use disorders amongst regular ecstasy users

Participants were also asked to self-report if they had experienced any mental health problems in the previous six months. This included issues that they had not spoken to a health professional about. Of those that responded ( $n=672$ ), 28% reported experiencing a mental health problem in the previous six months. There was no significant association between alcohol use disorders and experience of a mental health disorder.

**Figure 2: Proportion of participants reporting experiencing a mental health problem in the previous six months, grouped by AUDIT Zone**

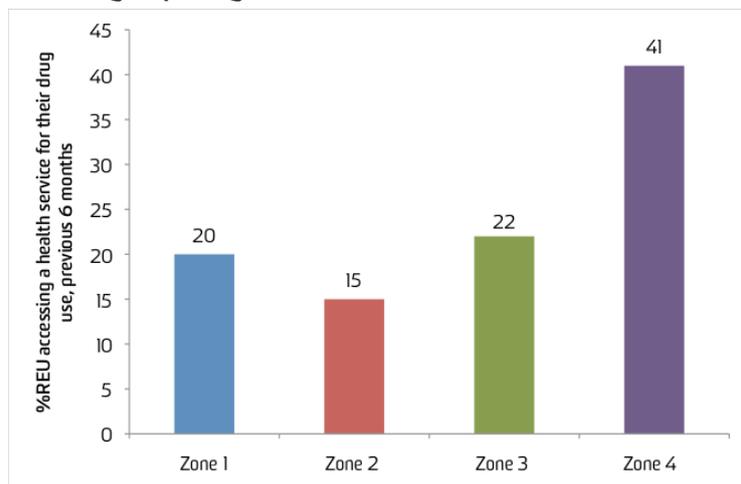


Source: EDRS REU interviews, 2010

## Help seeking behaviour and alcohol use disorders amongst regular ecstasy users

Participants were asked if they had accessed any medical or health services in the previous six months. Of those that responded (n=667), 24% had accessed a medical or health service in the previous six months. There was a significant ( $X^2(3) = 39.4, p < 0.001$ ) relationship between alcohol use disorders and whether or not participants accessed a medical or health service. Of those in Zone 1 of the AUDIT, 20% had accessed a medical or health service in the previous six months, compared to 41% of those scoring in Zone 4 of the AUDIT. More participants scoring in Zone 4 of the AUDIT accessed a medical or health service than would be expected.

**Figure 3: Proportion of participants reporting attending a health service for their drug or alcohol use in the previous six months, grouped by AUDIT Zone**

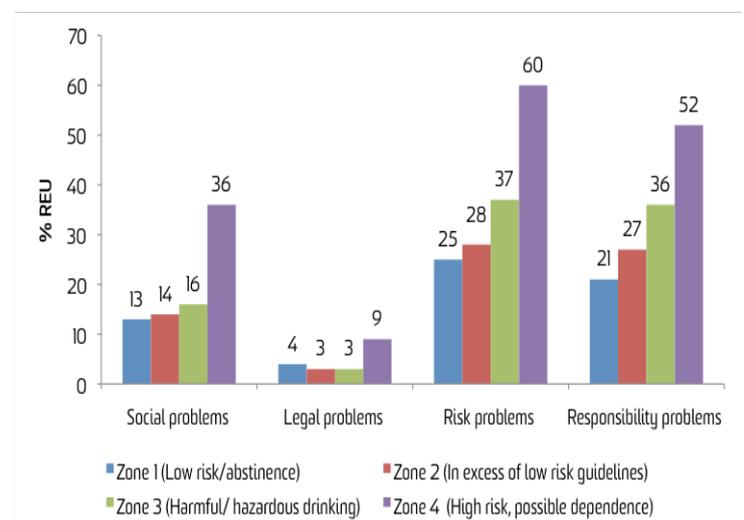


Source: EDRS REU interviews, 2010

## Self reported problems and alcohol use disorders amongst regular ecstasy users

Participants were asked to self report if their drug/alcohol use has caused them repeated problems in the previous six months, across four groups of problems; social problems, legal problems, problems relating to risk and interference with responsibilities. Figure 4 below shows the proportion of REU reporting experiencing problems as a function of AUDIT category.

**Figure 4: Proportion of REU self-reporting problems by AUDIT zone**



Source: EDRS REU interviews, 2010

### Social problems

There was a significant ( $X^2(3) = 38.3, p < 0.001$ ) association between alcohol use disorders, (as measured by the AUDIT), and social problems (problems with family, friends or people at work or school). Overall, 20% of participants reported experiencing a social problem as a result of their drug use. Of those scoring in Zone 4 of the AUDIT, 36% reported having experienced recurrent social problems as a result of their drug use. More participants scoring in Zone 4 of the AUDIT reported experiencing problems with family, friends or people at work/school than expected.

### Legal problems

Only 5% of participants reported experiencing recurrent legal problems as a result of their drug use. The proportion of participants reporting legal problems was significantly associated with alcohol use disorders ( $X^2(3) = 9.7, p < 0.05$ ). Of those scoring in Zone 4 of the AUDIT 9% reported having experienced recurrent legal problems in the previous six months. This is more than would be expected.

### *Risk-related problems*

Of those that responded, 38% reported experiencing risk-related problems (finding themselves in situations where they or others could have been hurt). This was very significantly associated with alcohol use disorders ( $X^2(3) = 54.5, p < 0.001$ ). Those scoring in the higher zones of the AUDIT were more likely to have experienced risk related problems in the previous six months. Those scoring in Zone 4 of the AUDIT reported finding themselves in situations where they or others could have been hurt, more than expected. Those scoring in Zone 1 and two reported finding themselves in risky situations less often than expected.

### *Responsibilities at work, home or school*

When participants were asked if their use of drugs had recurrently interfered with their responsibilities at home, work or school in the past six months, 34% reported experiencing responsibility problems. There was a significant association between AUDIT score and experiencing responsibility problems ( $X^2(3) = 39.7, p < 0.001$ ). More participants scoring in Zone 4 of the AUDIT reported experiencing problems with family, friends or people at work/school more than expected. Those scoring in Zone 4 of the AUDIT reported that drug/alcohol use had recurrently interfered with their responsibilities more than expected. Those scoring in Zone 1 and 2 reported finding themselves in risky situations less often than expected.

## **Conclusions and Implications**

Recent alcohol use in this sample of REU was almost universal with 96% of participants reporting using alcohol in the past six months. Participants reported drinking an average of nine standard drinks per session, and drinking at high risk levels on a median of 39 days in a year (once every nine days). Using the AUDIT to screen for alcohol use disorders 84% of participants scored at levels at which alcohol intake may be considered hazardous. Polydrug use involving ecstasy and alcohol was common, with 84% of participants reporting using alcohol in combination with ecstasy, and 70% reporting using more than five standard drinks with ecstasy.

Further, those scoring in Zone 4 of the AUDIT (possible dependence and should be referred for further evaluation and possibly treatment) had significantly more frequent use of ecstasy in the previous six months.

The high prevalence of alcohol consumption at risky levels places this group not only at increased risk of alcohol related harms, but exposes them to the risks associated with polydrug use. Polydrug use has been linked to psychiatric and psychobiological problems: depression, anxiety, sleep disturbance, drug dependence, decreased cognitive functioning, criminal activity, violence, overdose and death (Parrot et. Al.,

2001 Fox et. Al. 2001, Campbell 2001).

Previous research has shown an association between alcohol use disorders and mental health issues. Previous research has also linked ecstasy use to mental health issues. We examined levels of psychological distress amongst our sample of regular ecstasy users. We then tested for an association between psychological distress and alcohol use disorders.

This sample of regular ecstasy users reported higher levels of psychological distress, as measured by the K10, than the general population, with 26% of participants reporting experiencing high or very high distress. There was also an association between alcohol use disorders and psychological distress. Those scoring in Zone 4 of the AUDIT were more likely to experience higher levels of distress. These findings support previous research linking psychological distress to ecstasy use. They also illustrate that this relationship becomes stronger amongst those ecstasy users who report hazardous/risky drinking. This lends support to earlier findings linking polydrug use to mental health issues.

It is interesting to note that when participants were asked to self-report whether they had experienced a mental health problem in the previous six months, there was no association with the prevalence of alcohol use disorders.

It is perhaps unsurprising to find that those scoring higher levels of alcohol dependence reported experiencing significantly more problems across all four domains included in the study; social, legal, risk and responsibility problems.

Given the association between psychological distress and alcohol use disorders in this group of polydrug users it is important that education and research continues to adopt a wide-ranging approach. Further research is necessary to disentangle the complicated relationships between different patterns of polydrug use, mental health and other drug-related harms.

## References:

AUSTRALIAN INSTITUTE OF HEALTH AND WELFARE (2008) 2007 National Drug Strategy Household Survey: detailed findings. *Drug statistics series no. 22. Cat. no. PHE 107*. Canberra, AIHW.

BABOR, T. & HIGGINS-BIDDLE, J. (2000) Alcohol screening and brief intervention: Dissemination strategies for medical practice and public health. *Addiction*, 95, 677-86.

BABOR, T. & HIGGINS-BIDDLE, J. (2000) Alcohol screening and brief intervention: Dissemination strategies for medical practice and public health. *Addiction*, 95, 677-86.

CAMPBELL, A., *The Australian illicit drug guide: every person's guide to illicit drugs - their use, effects and history, treatment options and legal penalties*. (2001) Black Inc., Melbourne, pp 217-347.

FOX, H.C., PARROTT, A.C. & TURNER, J.J.D. (2001) Ecstasy use: cognitive deficits related to dosage rather than self-reported problematic use of the drug. *J Psychopharmacology*, 15:273.

KESSLER, R. C., ANDREWS, G., COLPE, L. J., HIRIPI, E., MROCZEK, D. K., NORMAND, S.-L.T., WALTERS, E. E. & ZASLAVSKY, A. M. (2002) Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, 32, 959-976.

MINISTERIAL COUNCIL ON DRUG STRATEGY (2006) National Alcohol Strategy 2006-2011. Canberra, Commonwealth of Australia.

PARROTT, A.C., MILANI, R.M., PARMAR, R. & TURNER, J.J.D. (2001) Recreational ecstasy/MDMA and other drug users from the UK and Italy: psychiatric symptoms and psychobiological problems. *Psychopharmacology*, 159: 77-82.

REINERT, D. F. & ALLEN, J. P. (2002) The Alcohol Use Disorders Identification Test (AUDIT): A review of the recent research. *Alcoholism: Clinical & Experimental Research*, 26, 272-279.

SAUNDERS, J. B., AASLAND, O. G., BABOR, T. F., DE LA FUENTE, J. R. & GRANT, M. (1993) Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption. *Addiction*, 88, 791-804.

SCHIFANO, F., DIFURIA, L., FORZA, C., MINICUCI, N. & BRICOLO, R. (1998) MDMA ('Ecstasy') consumption in the context of polydrug abuse: A report on 150 patients. *Drug and Alcohol Dependence*, 52:85-90.

WORLD HEALTH ORGANISATION. (2011) Global status report on alcohol and health. Geneva, Switzerland, WHO Press.