

Just a laughing matter? Nitrous oxide use among a group of regular psychostimulant users in Melbourne, Victoria

Cerissa Papanastasiou and Paul Dietze

Centre for Population Health, Burnet Institute, Melbourne, Australia

Introduction

- Nitrous oxide (N₂O) has been used recreationally since the 1960s, typically by discharging nitrous gas cartridges (bulbs) into another object, such as a balloon, or inhaling the gas directly into the mouth.
- Peak effects, which include a rush of euphoria, heightened consciousness, disassociation and excitement, occur around one minute after ingestion. The effects of N₂O are heightened by use of other psychoactive drugs. N₂O is legal, relatively easy to obtain, and inexpensive.
- Health issues associated with N₂O use include; asphyxiation (mostly to do with the method of administration), depletion of vitamin B12 and, in extreme cases of prolonged use, acute mental health conditions have been reported, such as psychosis and conversion disorder.
- There is little research examining the prevalence of N₂O use. A survey of 1360 university students in New Zealand showed that 12% of the sample reported using N₂O in the past year; with these people being slightly older than non-users. The average number of bulbs reportedly used in one session ranged from two to six.
- This research explores N₂O use among regular psychostimulant users (RPU) surveyed as part of the 2013 Victorian Ecstasy and related Drug Reporting System (EDRS).

Methods

- In April-June, 2013, interviews were conducted with a sample of 100 RPU in Melbourne. Participants were eligible to participate if they reported psychostimulant use at least monthly during the past six months, resided in Melbourne during the preceding 12 months, and were 18 years of age or older.
- Frequencies of N₂O use were generated using Stata version 11 along with key demographic and drug use variables. χ^2 tests were conducted to examine associations between categorical variables and the Kruskal-Wallis test was used for continuous variables.

Results

- In 2013, there was an increase in both lifetime and recent (past six month) use of N₂O among EDRS participants, compared to those interviewed in 2012; with almost half (48%) reporting recent use (Table 1).

Table 1. Patterns of nitrous oxide use among EDRS participants, Victoria (2011-13)

	2011 N=101 %	2012 N=100 %	2013 N=100 %
Ever used	54	39	72
Median age first used (range)	19 (14-31)	19 (13-31)	19 (13-36)
Used last 6 months	33	22	48
Median # of days used last 6 months (range)	4 (1-48)	5 (1-72)	3 (1-48)
Median # of bulbs used per session (range)	7 (0.5-120)	10 (1-60)	8 (1-250)
Most # of bulbs used per session; median (range)	16 (0.5-150)	15 (5-300)	11 (1-300)

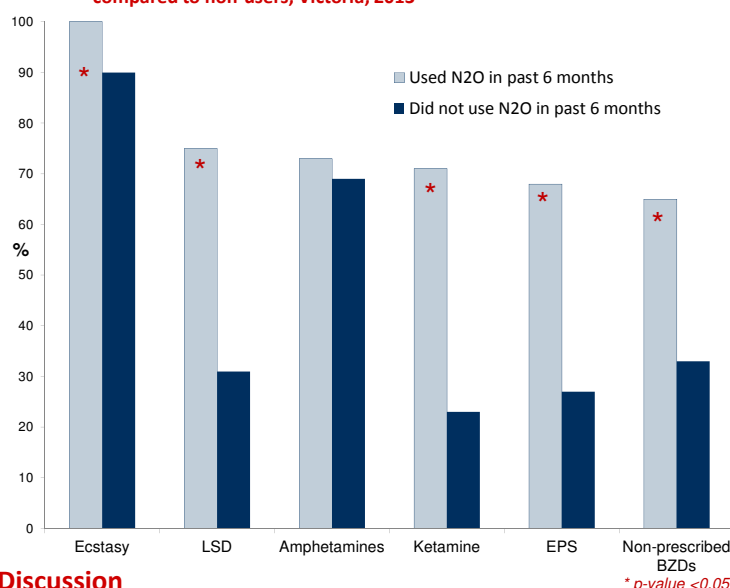
- Compared with non-users, participants who used N₂O in the past six months were more likely to be: younger, have completed high school education, be studying, and have a lower weekly income (Table 2).
- N₂O users were more likely to report using a higher number drug types in the past 6 months than non-users (median of 8 vs. 5). The illicit drugs more likely to be used by N₂O users were: ecstasy, LSD, ketamine, emerging psychoactive substances (EPS) and non-prescribed benzodiazepines (BZDs) (Figure 1).

Table 2. Demographic characteristics of recent users of nitrous oxide compared with non-users, Victoria, 2013

	Recent users n=48 %	Non-users n=52 %
Male	58	67
Median age in years (range) *	22 (18-39)	28 (18-50)
Identified as heterosexual	88	83
Completed high school education*	88	62
Completed tertiary education	52	67
Currently enrolled in tertiary education*	46	10
Employed	60	67
Living in rental accommodation	69	71
Income per week*		
\$0 - 249	38	13
\$250 - \$399	31	39
\$400+	31	48

* p-value <0.05

Figure 1. Patterns of other drugs used in the past 6 months among nitrous oxide users compared to non-users, Victoria, 2013



* p-value <0.05

Discussion

- The prevalence of reported N₂O use has increased among RPU participating in the EDRS in Victoria, in 2013.
- Recent N₂O users were significantly younger than non-users, were more likely to be poly-drug users and therefore report a higher number of drug types used in the past six months. Poly-drug use may increase the risk of experiencing drug-related harms in this group of RPU.
- This sample does not reflect all psychostimulant users in Melbourne as the recruitment was based on self-selection in response to advertisements placed in local street press and on relevant websites.

Conclusion

- There is little research into the prevalence of N₂O use. Given the increase in reported use in this group of RPU in Melbourne, further work needs to be undertaken in order to better understand patterns of N₂O use and their relationship to harm.
- Harm reduction messages about N₂O use should be targeted toward young RPU users in Melbourne. These need to be delivered and targeted to places where recreational N₂O use may occur, such as dance parties and music festivals.

For further information, please contact:

Cerissa Papanastasiou
Centre for Population Health, Burnet Institute
Email: cerissa@burnet.edu.au

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