Recent use of nitrous oxide among people who regularly use ecstasy in Adelaide, South Australia, 2003-2019

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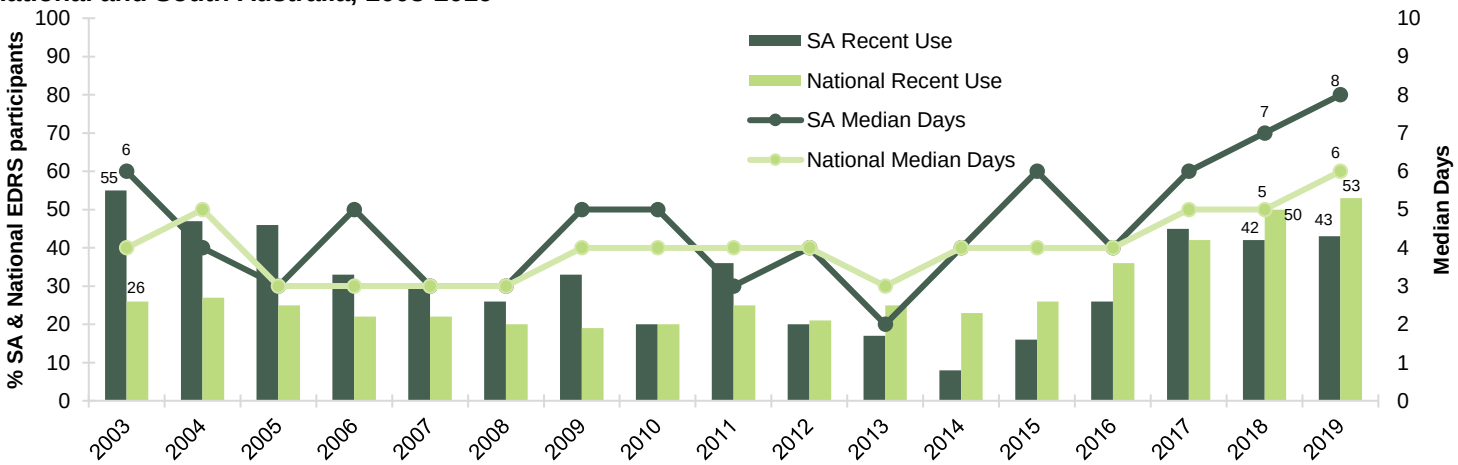
The issue

Nitrous oxide, a colourless gas used for the purpose of sedation and pain relief, is also a food additive when used as a propellant for whipped cream. This inhalant is also used by people for intoxication purposes, typically by releasing nitrous gas cartridges into another object, such as a balloon, or otherwise directly into the mouth (1). According to the 2019 Global Drug Survey (GDS), nitrous oxide was the 11th most used recreational drug globally (2). It is concerning, therefore, that there has been little research on the patterns of use and harms associated with its continued use (3). A recent study found that emergency department presentations in New South Wales related to inhaling nitrous oxide had increased substantially, particularly between 2016 and 2018 (4), a possible indication that nitrous oxide used for intoxication purposes may be an increasing health problem in Australia. Given these concerns, in April 2020, the South Australian Government implemented regulations that imposed new penalties for the sale of nitrous oxide (5).

What our work found

- A sentinel sample of people who regularly use ecstasy and other illicit stimulants were recruited from Adelaide, South Australia (SA), as well as other capital cities, between April-July each year through social media and word of mouth to complete face-to-face interviews.
- In 2003, 55% of the SA sample reported past six month (recent) use of nitrous oxide. The per cent reporting recent use declined until 2014 and then increased, with over two-fifths (43%) reporting recent nitrous oxide use in 2019. In the national sample, recent use of nitrous oxide remained fairly stable between 2003-2014, with a similar upward rise observed from then onwards (Figure 1).
- Median days of use has typically ranged between two-six days historically though in 2019, participants in SA reported recently using nitrous oxide on a median of eight days (IQR=3-24). Nationally, participants reported a median of six days of use (IQR=2-15) (Figure 1).
- In the SA sample in 2019, the median number of bulbs used was 10 (IQR=5-20; n=43) in a typical session and 35 bulbs (IQR=10-163; n=42) in their maximum intake session. Nationally, the median typical number of bulbs used was seven (IQR=4-20; n=419) and the median maximum amount used was 15 bulbs (IQR=5-30; n=418) in 2019.

Figure 1. Recent (past 6 months) and median days of use of nitrous oxide amongst the EDRS sample, national and South Australia, 2003-2019



Note. Y axis reduced to 10 days to improve visibility of trends. Possible range 0-180 days in the past six months.

Implications

Two in five participants in the SA sample reported recently using nitrous oxide in 2019 on a median of eight days, equating to more than monthly use. Given nitrous oxide is a legal drug and relatively easy to obtain, the need for direct consumer engagement and harm reduction messaging is imperative to avoid harms with increased use of the inhalant. This includes advice on reducing intensity of use (e.g., reducing quantity and/or breaks in use in a session) to avoid harms around vitamin B12 depletion and associated neurological damage.

References:

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