

Increasing trends in coke, ket, nangs and poppers among people who regularly use ecstasy and/or other illicit stimulants, Perth WA

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Key findings:

- Increasing trends have been observed in self-reported past 6 month use of cocaine, ketamine, nitrous oxide and amyl nitrite.
- While no increasing trends were identified in the frequency of recent use or quantities used per session among these drugs, many recent consumers reported reducing or completely ceasing use in 2020 when COVID-19 restrictions came into effect.
- These substances were almost never implicated in self-reported overdoses in 2020.
- No shifting trends were identified in the price or perceived purity and availability of these substances.

Introduction

In 2020, the Western Australian Ecstasy and related Drugs Reporting System (EDRS) report documented record highs in self-reported recent use of cocaine, ketamine, amyl nitrite (poppers) and nitrous oxide (nangs) (1). These findings are consistent with increasing trends in the national EDRS data (2) and the available population-based data (3). Specifically, the National Drug Strategy Household Survey (NDSHS) observed significant increases in cocaine, ketamine and inhalant use between 2016-19 (3). There are also indications of increasing cocaine use internationally (4). While the exact factors driving these trends are unclear, there have been reports of increasing cocaine seizures and arrests in Australia (5), and increased manufacture and seizures globally (6). Ketamine has also been identified as an emerging/expanding market in Australia based on increasing border seizures (5). In relation to increasing inhalant use, it is noteworthy that amyl nitrite became available for purchase over-the-counter when sold for human therapeutic purpose from 1 February 2020 (as Schedule 3), following a review by the [Therapeutic Goods Administration](#). There has also been increasing promotion of and access to nitrous oxide associated with the emergence of 24/7 express delivery services (7).

While these substances are commonly perceived as relatively harmless 'party drugs' (8), and are on the mid-lower end of harm ranking systems (e.g. 9), use still carries risks. For example, cocaine use is associated with cardiovascular risks (e.g. stroke), particularly in the context of concurrent alcohol use (10). Also, while [drug-induced deaths](#) involving cocaine in Australia are still very low compared to other substances (e.g. alcohol), they more than doubled between 2016-19 (11). [Alerts](#) were also issued in June 2021 in response to increasing hospitalisations and deaths attributed to cocaine contaminated with opioids.

While gaining increasing recognition for its therapeutic benefits (12), it is well established that chronic ketamine use can cause urological damage (e.g. ketamine bladder syndrome) (13). Ketamine is also particularly risky when mixed with depressants like alcohol (14) and [drug alerts](#) have recently been issued for ketamine containing fentanyl. While deaths involving ketamine are very rare, they do occur, although mostly due to misadventure (14). The risks associated with nitrous oxide use are increasingly recognised, with [a review of its scheduling underway by the TGA](#) at the time of writing. One risk is that heavy and/or prolonged use can lead to irreversible neurological damage (7, 15), and there have been increasing reports of nitrous-related presentations to Australian emergency departments (7, 16). However, like ketamine, deaths involving nitrous are very rare, but can occur from hypoxia (17) and misadventure (18). Lastly, two key risks associated with amyl nitrite are methaemoglobinaemia – a rare but potentially fatal blood disorder associated with heavy use or accidental ingestion (19) – and macular degeneration/irreversible vision loss caused by chronic use (20). Concerningly, the Global Drugs Survey found a small, but significant proportion of consumers reported visual impairment they attributed to poppers (21). Deaths involving amyl are again very rare and often due to ingestion (22). Overall, there are a variety of short and long-term risks associated with use of these substances. Thus, increasing trends in use warrants closer investigation.

The aim of this bulletin is to examine trends in self-reported use of these substances among sentinel cross-sectional samples of West Australians recruited for the EDRS who regularly use ecstasy/MDMA and other illicit stimulants. Specifically, it aims to investigate markers of increasing risk (e.g. increasing frequency of use) which may accompany increasing trends in reports of recent use. It also aims to investigate any accompanying market changes (e.g. increasing perceived availability).

Methods

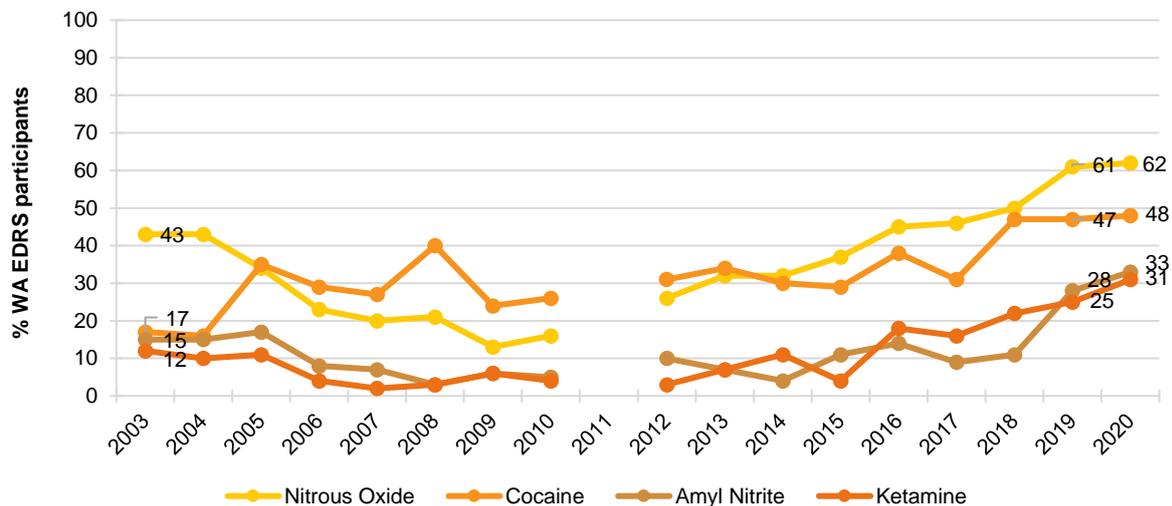
Data from the 2003-2020 WA annual EDRS interviews were examined. Full details of the methods, and definitions of particular terms for the purpose of the survey (e.g. stimulant overdose), are available [here](#). To investigate markers of risky/problematic use, descriptive statistics were run for key variables relating to patterns of use (e.g. frequency of use, quantities used per session and route of administration). Trends across data collection years were examined to see if there were any indications that patterns of use were becoming riskier in these samples. To investigate markers of harm, descriptive statistics were run for variables relating to past 12 month non-fatal overdoses (to determine if these substances were implicated in the mix of substances used in stimulant, depressant or 'other' overdoses). Lastly, to investigate drug market changes which could be driving/contributing to increased recent use, descriptive statistics were run for variables relating to Perth market trends (e.g. price and perceived purity and availability).

Results

Recent (past 6 month) use, 2003-2020

While there were no significant increases in self-reported recent use of cocaine, ketamine, nitrous oxide or amyl nitrite in the Perth EDRS samples between 2019 and 2020, use of these substances has been steadily increasing in recent years and peaked in 2020 (Figure 1). These upward trends have also been observed in the national EDRS data (2), although use varies between jurisdictions. Despite increasing trends in recent use, Perth samples have consistently observed much lower use of ketamine and cocaine than most other jurisdictions (e.g. in 2020, 33% of Perth participants reported recent ketamine use versus 78% in Victoria).

Figure 1: Proportions reporting past 6 months use of nitrous, cocaine, amyl and ketamine, WA EDRS, 2003-2020

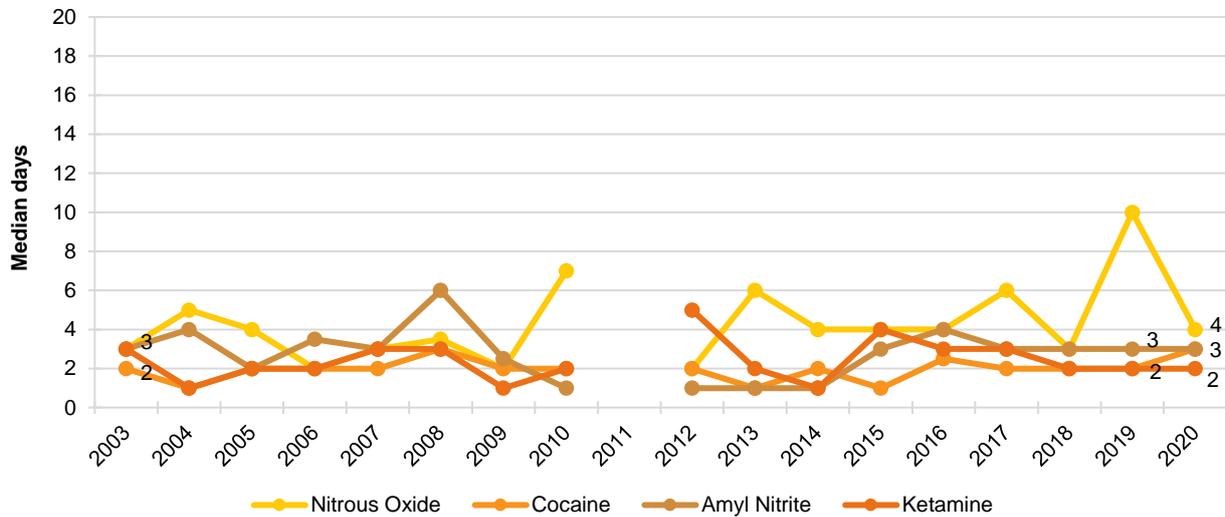


Note. Recruitment difficulties were experienced in 2011 (total sample N=28) therefore data for this year has been excluded from this figure.

Patterns of use, 2003-2020

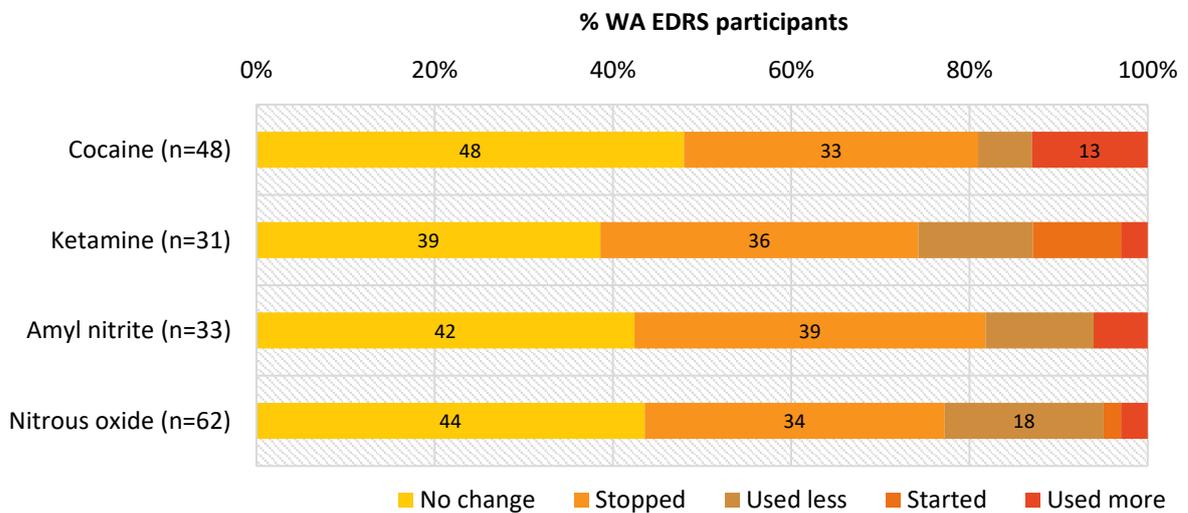
While a greater percentage of respondents have been reporting recent use of these substances (as evident in Figure 1), the frequency of use in the 6 months preceding the interview has remained low for all four substances (median ≤ 4 days, equivalent to less than monthly use). The percentage reporting weekly or more frequent use has also remained very low for amyl nitrite, ketamine and cocaine ($\leq 5\%$ of consumers across reporting years). While in 2019 there were preliminary indications of an increasing trend in the percentage of respondents reporting weekly or more frequent use of nitrous oxide (26% in 2009), this trend was not maintained in 2020 ($\leq 5\%$). However, it is important to note that over half (52%) of recent nitrous oxide consumers reported reducing or completing ceasing use when the 2020 COVID-19 associated restrictions came into effect. COVID-19 related reductions in use were also reported by recent consumers of cocaine, ketamine and amyl nitrite (Figure 3).

Figure 2: Frequency of nitrous, cocaine, amyl and ketamine use in the 6 months preceding interview, WA EDRS, 2003-2020



Note. Recruitment difficulties were experienced in 2011 (total sample N=28) therefore data for this year has been excluded from trend series.

Figure 3: Perceived change in drug use since March 2020 (since COVID-19 restrictions) as compared to before, WA EDRS, 2020



Note. Values suppressed due to small cell size (n≤5 but not 0).

There were no clear increasing trends in the typical or maximum median quantities reportedly used per session for any of these substances. However, the proportion of nitrous oxide consumers reporting ≥ 20 bulbs in a 'typical' session does appear to be on a slight upward trend (38% in 2020, n=61; 21% in 2003, n=43). Routes of administration have also remained stable, with most reporting intranasal use of cocaine and ketamine (i.e. snorting). Injecting remains very rare (n≤5 within each monitoring year). The EDRS does not investigate the route of administration for inhalants.

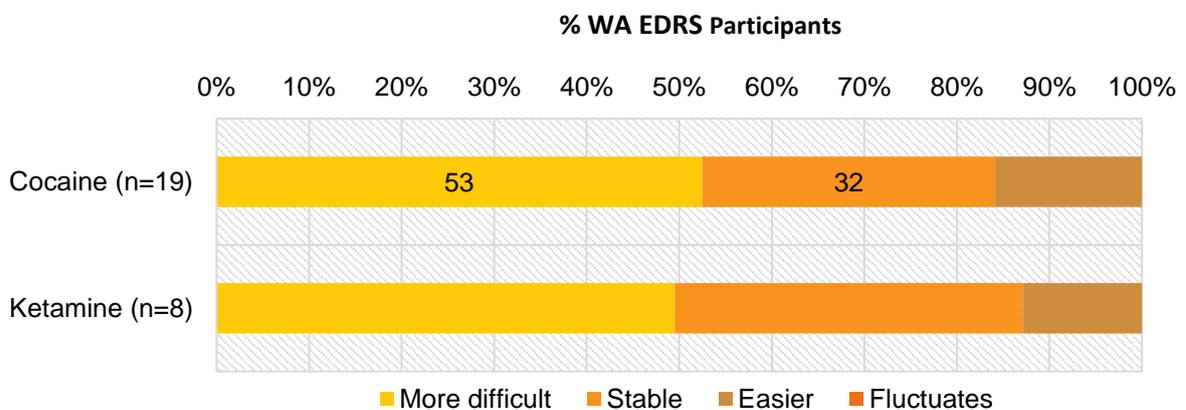
Recent (past 12 month) non-fatal overdose trends

Unfortunately, questions regarding the experience of recent non-fatal overdoses have changed over data collection years, precluding reliable comparisons over time. However, in 2020, cocaine and ketamine were not implicated in any self-reported recent overdoses, while nitrous oxide and amyl nitrite were implicated in a nominal per cent of stimulant overdoses (each $n \leq 5$).

Illicit market trends

According to the data from respondents able comment on the Perth market across data collection years, cocaine has remained stable in terms of price (median~\$350/gram), perceived purity (mostly 'low' or 'medium') and perceived availability (mostly 'easy' or 'very easy'). Given ketamine has traditionally been uncommon in Perth, few respondents have been able to comment on market trends across data collection years (between 2003-2017 $n \leq 10$), precluding reliable comparisons over time. However, in the past three years (2018-2020), purity was mostly perceived as 'high', while availability was mostly perceived as 'difficult' or 'very difficult'. It should also be noted that half of those commenting on cocaine (53%) and ketamine (50%) thought access had been more difficult since COVID-19 restrictions came into effect (Figure 4). The survey does not collect illicit drug market data on inhalants given they can be legally purchased in Australia.

Figure 4: Change in perceived availability of illicit drugs since March 2020 (since COVID-19 restrictions) as compared to before, Western Australia, 2020



Note. Don't know responses are excluded. Values suppressed due to small cell size ($n \leq 5$ but not 0).

Discussion

This bulletin aimed to investigate trends in the use of cocaine, ketamine, nitrous oxide and amyl nitrite among Perth EDRS samples. Specifically, it looked for indications of shifting trends in patterns of use (e.g. frequency of use) and self-reported overdoses that may be accompanying increasing reports of recent use. It also examined illicit drug market data to see if there were any shifting trends which could be helping drive increasing reports of use (e.g. changes in perceived availability).

There were no obvious indications of increasing risk in terms of patterns of use. For example, frequency of use has remained low and there does not appear to be increasing trends in median quantities used per session. While reassuring, this does not mean there were not respondents using problematically. For example, the 2020 WA bulletin found some respondents were using nitrous oxide at high risk levels in terms of frequency and/or quantity of use (≥ 20 bulbs per session) (7). While the proportion reporting heavy use per session remained high in 2020, the increasing trend in frequency of use was not maintained. However, most nitrous consumers reported ceasing or reducing use when COVID-19 restrictions came into effect. In fact, nitrous oxide, amyl nitrite and ketamine were among the drugs respondents most commonly reported reductions in. Therefore, trends in these substances should be monitored as restrictions ease. Additionally, closer attention should perhaps be placed on higher risk groups.

While the results suggested low problematic use, other factors which may increase risk should also be considered. For example, as noted earlier, [recent alerts](#) were issued in NSW for contaminated ketamine and cocaine linked to deaths. Other jurisdictions observing increasing trends in recent use should be aware of this risk.

Secondly, given these substances were less common in earlier years, there may be a lack of awareness of potential short and long-term harms. It is important consumers are aware of the risks and safe(r) using practices. For example, while it might seem obvious to some to inhale amyl nitrite, ingestion was recently implicated in a festival death (23). Thirdly, it is important to consider that these drugs are commonly used in a context of polydrug use (23). As noted earlier, co-use of alcohol with these substances can have a potentiating effect which consumers should be aware of. The emergence of 24/7 express delivery services is concerning (see 7) because they may encourage polydrug use by allowing already intoxicated people to access nitrous oxide anytime they want. Finally, even when using at 'normal' levels, underlying health conditions can place consumers at risk. For example, vegans and females of reproductive age are at greater risk of B12 problems associated with nitrous oxide use (24). Overall, even in the absence of obvious risk markers, there may be a need to investigate awareness of risks and experience of harms to inform harm reduction responses.

Evidence of recent harm was also investigated in this bulletin. However, the only direct marker for harm routinely captured in the survey is past year overdoses. While the absence of self-reported overdoses in 2020 is encouraging, particularly in the context of a [doubling](#) of deaths involving cocaine nationally, it is possible harms were still experienced that did not fit the survey definition of 'overdose'. For example, many of the risks described in the introduction are associated with use over time (e.g. urological problems associated with ketamine use) and would therefore not be captured by the survey. Thus, there is a case for future research to investigate a wider range of potential short and long-term harms associated with these drugs (e.g. vision problems from amyl use and bladder problems from ketamine use). It is also important to remember that the EDRS findings are not representative of the wider population of West Australians who use these substances, and future research should consider other sources of information, such as Poisons Information Centre calls, ambulance call outs and emergency department presentations, to better investigate harms.

Lastly, the bulletin looked for shifts in perceptions of drug markets which could be contributing to increasing reports of recent use. While nationally and internationally, cocaine and ketamine seizures are reported to have increased (4-6), which could signal increased supply, no obvious shifts were identified in perceived availability of either drug. Price and perceived purity also remained stable. That said, before 2018, very few participants were able to comment on the Perth ketamine market, precluding comparisons over time. Additionally, most respondents able to comment in 2020 thought COVID-19 restrictions had made access harder. Thus, market trends should be investigated as restrictions ease.

Conclusion

Consistent with national EDRS and NDSHS trends, there have been increasing reports of recent use of cocaine, ketamine, nitrous oxide and amyl nitrite in Perth EDRS samples. While this trend does not appear to be accompanied by increasing risk in terms of patterns of use, many respondents reported using less in 2020 following COVID-19 restrictions. The findings have several implications. Firstly, closer surveillance may be warranted, particularly as COVID-19 restrictions ease. Secondly, further research may be needed to determine the need for and/or target harm reduction efforts. Thirdly, clinicians should be alert to the variety of presenting symptoms associated with use. Finally, a greater understanding of factors driving increasing trends in recent use may be warranted.

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