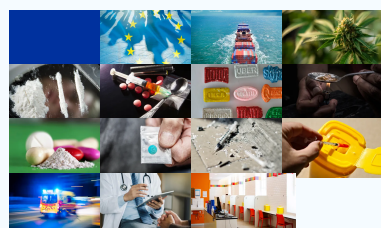


Other drugs – the current situation in Europe (European Drug Report 2024)

Alongside the more well-known substances available on illicit drug markets, a number of other substances with hallucinogenic, anaesthetic, dissociative or depressant properties are used in Europe: these include LSD (lysergic acid diethylamide), hallucinogenic mushrooms, ketamine, GHB (gamma-hydroxybutyrate) and nitrous oxide. On this page, you can find the latest analysis of the situation regarding these substances in Europe, including seizures, prevalence and patterns of use, treatment entry, harms and more.



This page is part of the [European Drug Report 2024](#), the EMCDDA's annual overview of the drug situation in Europe.
Last update: 11 June 2024

Need for greater investment in monitoring the use of less well-known substances

Alongside the more well-known substances available on illicit drug markets, a number of other substances with hallucinogenic, anaesthetic, dissociative or depressant properties are used in Europe: these include LSD (lysergic acid diethylamide), hallucinogenic mushrooms, ketamine, GHB (gamma-hydroxybutyrate) and nitrous oxide. Some of these substances appear to have become well-established in some countries, cities or specific populations, although overall their relative prevalence may remain low in comparison to some other better-known drug classes. However, for a variety of methodological and historical reasons, our current monitoring approaches often perform poorly in identifying patterns and trends in the use of less well-known substances. This makes it difficult to comment with confidence on the prevalence of use or recent trends, or on the extent to which these drugs are associated with health or social problems. The information available suggests, however, that in some countries, subgroups or settings, the use of these sorts of substances has become more

common. As patterns of drug use can change rapidly and many of the drug-related problems we face are increasingly influenced by the co-consumption of multiple substances, there is a strong argument for increasing investment in the surveillance of substances with hallucinogenic, anaesthetic, dissociative or depressant properties.

Signs that ketamine is increasingly available and more prominent in Europe's drug problems

Ketamine accounted for 9 % of the quantity of new psychoactive substances seized in the European Union in 2022. The quantity of ketamine seized and reported to the EU Early Warning System on new psychoactive substances has varied over time, but has remained at relatively high levels in recent years, tripling from just under a tonne in 2021 to 2.8 tonnes in 2022. Seizures were reported by 17 countries in both years, with both Denmark and the Netherlands reporting large seizures, and these two countries together accounted for two thirds of the overall quantity of ketamine seized in 2022. Most of the ketamine seized in Europe is thought to originate from India, but there is some evidence that the drug may also be sourced from Pakistan and China. Available information suggests that production of the drug in Europe remains limited.

Overall, there is evidence to suggest that ketamine is likely to be consistently available in some national drug markets and may have become an established drug of choice in some settings. It is also reported to be used in combination with other substances, such as stimulants. In Ireland, for example, the intentional mixing of cocaine and ketamine has been identified at music festivals, as have ketamine-related medical incidents during 2022 and 2023. In 2022, Euro-DEN sentinel hospital emergency departments in Europe reported that cocaine was the substance most often reported in combination with ketamine in acute toxicity presentations. Ketamine is commonly snorted, but can also be injected, and has been linked to various dose-dependent acute and chronic harms, including neurological and cardiovascular toxicity, mental health problems, such as depression, and urological complications, such as bladder damage from intensive use or the presence of adulterants.

Ketamine may also be added to other drug mixtures, including MDMA powders and tablets, potentially making inadvertent consumption an issue. Ketamine has also been found in mixtures sold as 'pink cocaine' or 'tucibi', which are more likely to contain ketamine and other synthetic drugs, such as amphetamines or MDMA. In contrast to some other parts of the world, mixtures sold as pink cocaine are less likely to contain the synthetic drug 2C-B, which has historically been associated with this product. At least 10 countries reported the detection of pink cocaine to the EU Early Warning System's database on new drugs, with most of the cases reported by Spain. It is also interesting to note that while the overall figure remains low, both the quantity of 2C-B seized and the number of countries reporting seizures increased in 2022, with 14 countries reporting seizures amounting to just under 6 kilograms of this drug.

The number of clients reported to receive treatment for problems related to ketamine use remains low. However, it has risen from around 240 cases reported in 2018 to 600 in 2022. Moreover, this data set is not likely to capture all those having health problems with this drug. For example, those who have developed urological problems may be poorly represented.

More EU countries control access to nitrous oxide

Nitrous oxide, commonly known as laughing gas, has been linked to various health problems, including poisonings, burns and lung injuries and, in some cases of prolonged exposure, neurotoxicity from vitamin B12 deficiency. There is, however, a debate on the extent to which this substance is associated with negative health risks, especially among episodic users, although given its apparent growing popularity among young people, this is clearly an important area for further research and monitoring. In some European cities, discarded nitrous oxide gas canisters have become a relatively common sight, and the disposal of the smaller stainless steel canisters has been identified as a drug-litter issue in some countries. A 2022 EMCDDA [review](#) identified a number of EU Member States, including Denmark, Ireland, France, Lithuania, the Netherlands and Portugal, that observed signs of an increase in the availability and recreational or episodic use of nitrous oxide. The drug has become more accessible and cheaper, available online and with the increased availability of larger gas canisters aimed at recreational use. However, high-volume cylinders may also increase the risk of lung damage, due to the higher pressure of their contents and, in general, inhaling directly from gas bottles is reported to be associated with a greater risk of harm. Nitrous oxide has various commercial uses, for example, it is used by the catering industry. Regulatory approaches to the sale and use of this substance vary between countries, with the gas legally available for sale in some countries. Several EU countries, including Denmark, France, Lithuania, the Netherlands and Portugal have restricted the availability of nitrous oxide in recent years. There is limited evaluative information about the effectiveness of legislative or other approaches to restricting access to nitrous oxide.

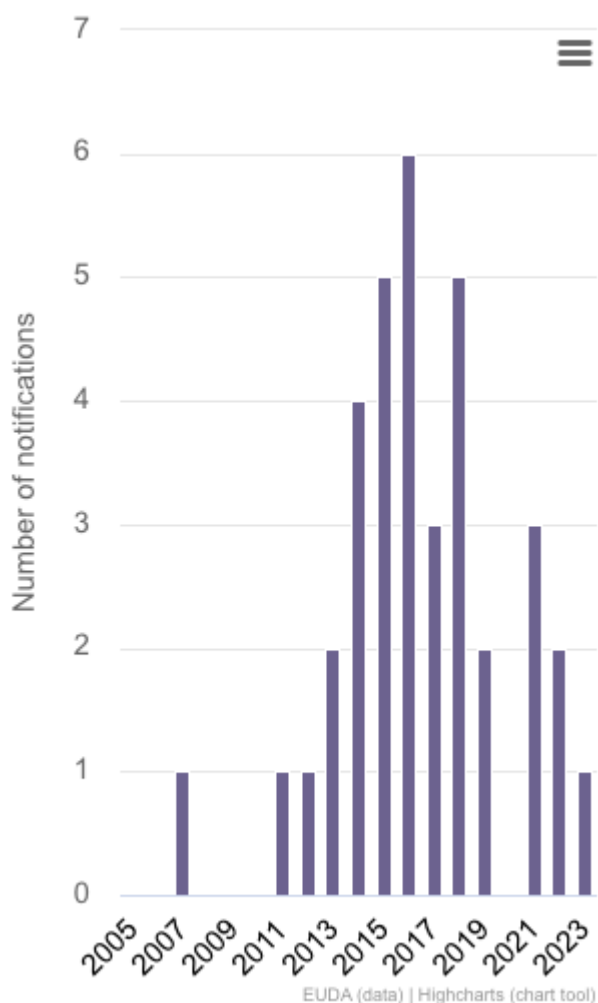
New benzodiazepines continue to appear on Europe's illicit drug market

Non-controlled and new benzodiazepines also continued to be available in some European countries but, again, current monitoring approaches make it difficult to comment on the scale of their use, although signals exist that these substances may have important consequences for health, especially when consumed in combination with other drugs. They are often very cheap and may be used by young people in combination with alcohol, sometimes resulting in potentially serious health reactions or aberrant behaviour. These substances have also been linked to overdose deaths among people who use opioids. A lack of toxicological information means the role that benzodiazepines play in opioid-related deaths is not sufficiently

understood. A total of 36 new benzodiazepines were notified to the EU Early Warning System between 2007 and 2023 (Figure 8.1), with 23 of these appearing on the drug market in 2022 in 19 EU countries and Norway.

Mixtures containing new benzodiazepines and opioids, known as 'benzo-dope', have been linked to increases in overdose deaths in Canada and the United States. So far, seizures of benzo-dope have been reported by Estonia and Latvia. In both countries, the same mixtures have also been identified in residues analysed from used syringes.

Figure 8.1. Number of formal notifications of benzodiazepines reported to the EU Early Warning System, 2005-2023



Potential therapeutic uses of psychedelics: an increasing focus of medical research

Both clinical and public interest has been growing in the therapeutic use of some novel substances, particularly psychedelic substances, but also dissociative drugs such as ketamine.

At the same time, a growing number of clinical studies, both internationally and in Europe, are exploring the potential of a range of psychedelic substances to treat different mental health conditions.

The evidence base in this area is growing rapidly, and some studies have produced evidence to support the view that some substances may have value in the treatment of specific neuropsychiatric disorders, such as post-traumatic stress disorder or treatment-resistant depression and major depressive disorder. However, the interpretation of the results is complicated by a range of methodological issues, and generalisation remains difficult as much of the research in this area remains at an early stage.

Nonetheless, these developments have received considerable media attention, raising concerns that this may encourage greater experimental use of a range of potent psychoactive substances without appropriate medical support, potentially putting vulnerable individuals at risk of suffering adverse consequences. At the same time, there are signs of unregulated programmes being operated in the European Union and elsewhere, in which the use of psychedelic substances is included as part of a wellness, therapeutic or spiritually oriented intervention. Strengthening monitoring in this area will be important, as a growth of unlicensed therapeutic uses of psychedelics may adversely affect vulnerable individuals with pre-existing mental health conditions.

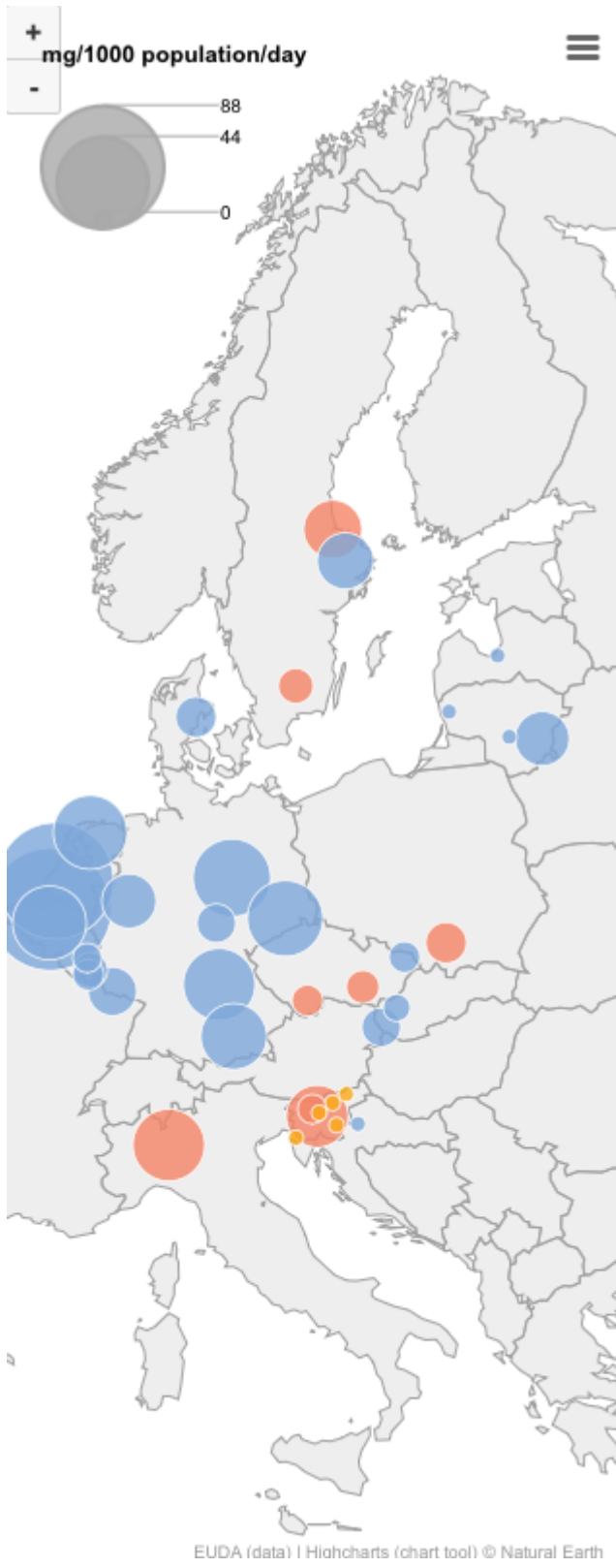
Key data and trends

Prevalence and patterns of use of other drugs

- Among young adults (aged 15 to 34), recent national surveys show last year prevalence estimates for both LSD and hallucinogenic mushrooms equal to or less than 1 %. Exceptions for hallucinogenic mushrooms include Czechia (4.4 % in 2022), Finland (2.7 % in 2022), the Netherlands (2.2 % in 2022), Estonia (1.6 % in 2018, 16-34), Denmark (1.7 % in 2023, 16-34) and Germany (1.1 % in 2021). Exceptions for LSD include Czechia (3.5 in 2022), Ireland (2.4 % in 2019), Estonia (1.7 % in 2018, 16-34), Latvia (1.4 % in 2020), Finland (1.3 % in 2022) and Denmark (1.1 % in 2023).
- Among respondents to the European Web Survey on Drugs, a non-representative survey of people who use drugs, 20 % of those who had used drugs within the last 12 months had used LSD, while 13 % had used ketamine.
- Recent estimates of last year prevalence of ketamine use among young adults (15-34) range from 0.8 % in Romania (2019) to 0.9 % in Denmark (2023, 16-34). The Netherlands reported that ketamine use has increased among young people in nightlife settings.
- In 2023, generally very low levels of ketamine residues in municipal wastewater were reported by 22 cities in 16 EU Member States, with the highest mass loads being detected

in cities in Belgium, Germany, Spain, France and the Netherlands ([Figure 8.2](#)). Among the 22 cities with data for 2022 and 2023, 12 showed an increase (of at least 10 %), 8 were relatively stable and 2 showed a decrease.

Figure 8.2. Ketamine residues detected in wastewater in selected European cities, 2023



Red = increase | Green = decrease | Yellow = stable, with respect to previous value |
 Blue = no previous data

Mean daily amounts of ketamine in milligrams per 1000 population. Sampling was carried out over a week in March and April 2023.

Taking into account statistical errors, values that differ less than 10 % from the previous value are considered stable in this figure.

Source: [Sewage Analysis Core Group Europe \(SCORE\)](#).

For the complete data set and analysis, see [Wastewater analysis and drugs – a European multi-city study](#).

Treatment entry for ketamine use

- Increases were observed in the number of clients entering treatment for problems related to ketamine use in Belgium, Germany and Italy in 2022 and Spain in 2021 (most recent data), with the overall number rising from 179 in 2018 to an estimated 534 clients in 2022 in these countries.

Harms related to use of other drugs

- GHB/GBL (gamma-hydroxybutyric acid/gamma-butyrolactone) was the fourth most common drug reported by Euro-DEN Plus hospitals in 2022. Overall, it was reported by 16 emergency departments in 11 EU Member States and Norway in 2022 and was involved in an estimated 3.7 % of presentations (median) across the 23 participating emergency departments in 17 EU Member States and Norway that reported 2022 data.
- Ketamine was the eighth most common drug reported by Euro-DEN Plus hospitals in 2022. Overall, it was reported by 18 centres in 12 EU Member States and Norway in 2022 and was involved in an estimated 2.3 % of presentations (median) across the 23 centres that reported 2022 data. In 2022, half of the cases were aged between 25 and 45 years, most were males, presented to the emergency services during weekdays, and had also consumed alcohol. In most centres, cocaine was the substance most often reported as used in combination with ketamine. Cannabis and stimulants, including amphetamine and MDMA, were also reported in the acute drug-toxicity presentations with ketamine involved, potentially indicating a diversity of use patterns and possible inadvertent consumption. One in 40 ketamine-related presentations was admitted to intensive care.
- Nitrous oxide was reported in acute drug-toxicity presentations to emergency services of 6 out of 23 sentinel hospitals in 2022. Most cases were younger than 25 years, males and presented during weekdays. A minority of the presentations involved alcohol, and cannabis was the drug most commonly reported in the cases of polydrug use toxicity.
- LSD was reported by 15 centres in 12 of the 17 participating EU Member States and Norway in 2022 and was involved in an estimated 0.7 % of presentations (median) across

the 23 centres. Three quarters of the presentations were in males and 4 out of 10 were younger than 25 years. One in 3 LSD-related presentations was admitted to intensive care.

Market data for other drugs

- Seizures of hallucinogenic and dissociative drugs are not consistently monitored across Europe. Different EMCDDA monitoring systems provide the limited information available, which is incomplete, divergent and difficult to generalise.
- In 2022, 1 700 seizures of LSD (lysergic acid diethylamide), amounting to 99 700 units and 2.1 kilograms were reported in Europe ([Table 8.1](#)). Twenty-three countries reported 1 439 seizures of hallucinogenic mushrooms, amounting to 143 kilograms. Sixteen countries reported 207 seizures of DMT (dimethyltryptamine), amounting to 754 kilograms, mainly in Türkiye (710 kilograms) and Italy (19 kilograms).

Table 8.1a. Number of seizures and quantity seized of other drugs, EU+2

Drug	Countries	Number	Quantity (kg)	Quantity (litres)	Quantity (tablets/units/blotters)
2C-B	14	569	5.7		64586
LSD	24	1665	2.1		99687
DMT	16	207	754.4	6.1	8453
Hallucinogenic mushrooms	23	1439	143		3588
GHB	17	1011	6.5	166.5	
GBL	16	488	106.9	599.9	
Clophedrone	15	1269	132.3		
Clephedrone	14	153	15.5		

Table 8.1b. Number of seizures and quantity seized of other drugs, EU

Drug	Number	Quantity (kg)	Quantity (litres)	Quantity (tablets/units/blotters)
2C-B	569	5.7		64586
LSD	1330	2		94026
DMT	205	45	6.1	8453

Drug	Number	Quantity (kg)	Quantity (litres)	Quantity (tablets/units/blotters)
Hallucinogenic mushrooms	1434	143		3588
GHB	621	6.5	62.3	
GBL	471	106.9	481.6	
Clophedrone	1269	132.3		
Clephedrone	153	15.5		

- In 2022, ketamine seizures reported to the EU Early Warning System amounted to 2.8 tonnes, up from 0.87 tonnes in 2021. Seizures of ketamine have fluctuated at levels above 0.5 tonnes since 2017 ([Figure 8.3](#)), while the number of ketamine seizures has doubled ([Figure 8.4](#)).
- No ketamine laboratories were reported as dismantled in 2022. Given ketamine’s common use in veterinary medicine as an anaesthetic, the theft and diversion of the drug from legitimate purposes remains a problematic issue.
- Ketamine was submitted for testing to drug checking services in 11 cities in 4 EU countries in the first half of 2023, with an average purity of 83 % (in the same period, in 2022, the average purity was 80 %). Detected adulterants generally included stimulants (cocaine, amphetamines, MDMA, synthetic cathinones) or dissociative drugs (2-(2-fluorophenyl)-2-(methylamino)cyclohexan-1-one).

Figure 8.3. Seizures of ketamine powder in the European Union: total quantity (kilograms), 2006-2022

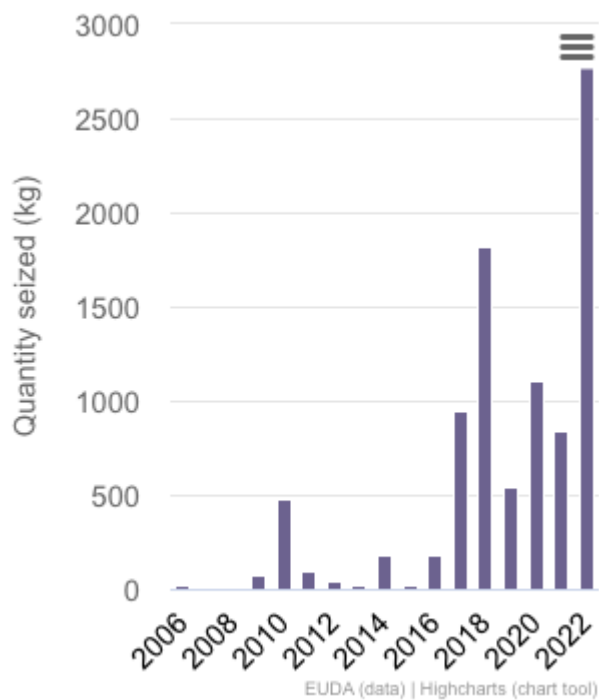
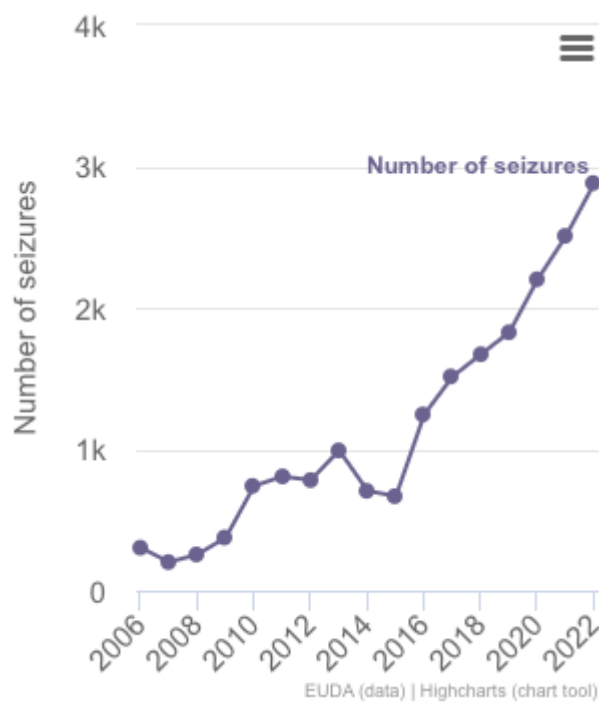


Figure 8.4. Seizures of ketamine powder in the European Union: total number, 2006-2022



- An increasing number of samples of mixtures containing ketamine, MDMA and cocaine have been reported to the EU Early Warning System on new psychoactive substances since about 2018, mostly by Spain. Some of these appear to be sold as 'pink cocaine' or 'tucibi',

with people consuming it potentially unaware they may be consuming ketamine.

- In 2022, 14 EU countries reported 569 seizures of the psychedelic drug 2C-B, amounting to 64 600 tablets or units and 5.7 kilograms. Open-source monitoring indicates that it is sometimes added to mixtures sold as pink cocaine in Europe and elsewhere, alongside MDMA powder and ketamine, which may or may not contain cocaine.
- Seventeen European countries reported 1 500 seizures of GHB (gamma-hydroxybutyrate) or its precursor GBL (gamma-butyrolactone), amounting to 114 kilograms and around 800 litres. GBL has many industrial purposes, making the data challenging to interpret.
- In 2022, EU Member States reported 752 seizures of new benzodiazepines to the EU Early Warning System, representing approximately 3 % of the total number of seizures of new psychoactive substances. Of the 36 new benzodiazepines ever reported to the Early Warning System, 23 were detected in drug seizures in 19 EU countries and Norway in 2022.

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