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NPIS

Clini-Hub

CATHINONES IN THE UK: AN ANALYSIS OF ANALYTICALLY CONFIRMED CATHINONE EXPOSURE REPORTED THROUGH THE IDENTIFICATION OF NOVEL PSYCHOACTIVE SUBSTANCES (IONA)

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Objective

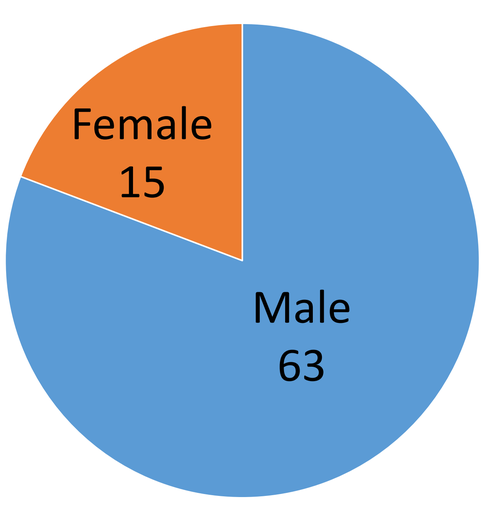
Cathinones are synthetic stimulants that are structurally related to amphetamines. The prevalence of cathinone use in the UK increased sharply in the mid 2000s, alongside a rising number of newly reported cathinones in European drug markets. Cathinones are associated with significant harm and fatalities. In the UK there has been a focus on products that contain pyrrolidino-cathinones including α-PHP, α-PiHP, MDPHP, α-PVP and MDPV.

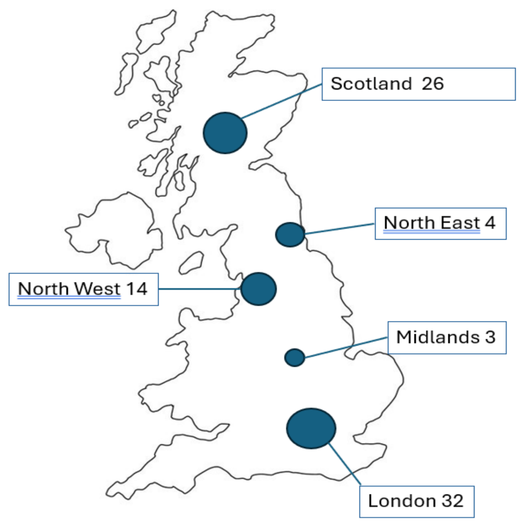
Methods

The IONA study tracked substances detected in samples obtained from adults presenting to 26 hospitals in the UK with severe drug toxicity between March 2015 and March 2023. Data including demographics, clinical features and biological samples were collected. Samples were analysed by liquid chromatography–tandem mass spectrometry. Data storage and analysis using Clini-Hub Vision platform for IONA.

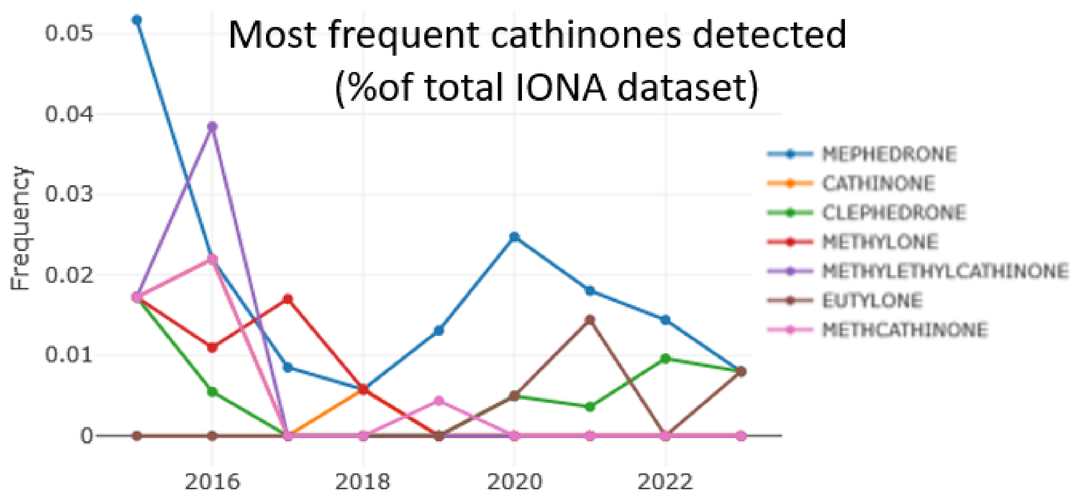
Results

106 individual cathinone detections were made across 78 subjects (63 males and 15 females; median age 28 years [range 17-60]).





Detection rates were highest in 2016 with a significant decline following the introduction of the Novel Psychoactive Substances Act (2016). Of 22 different cathinones identified mephedrone was most frequently detected (38%) whilst pyrrolidino-derived cathinones (~5%) were less common

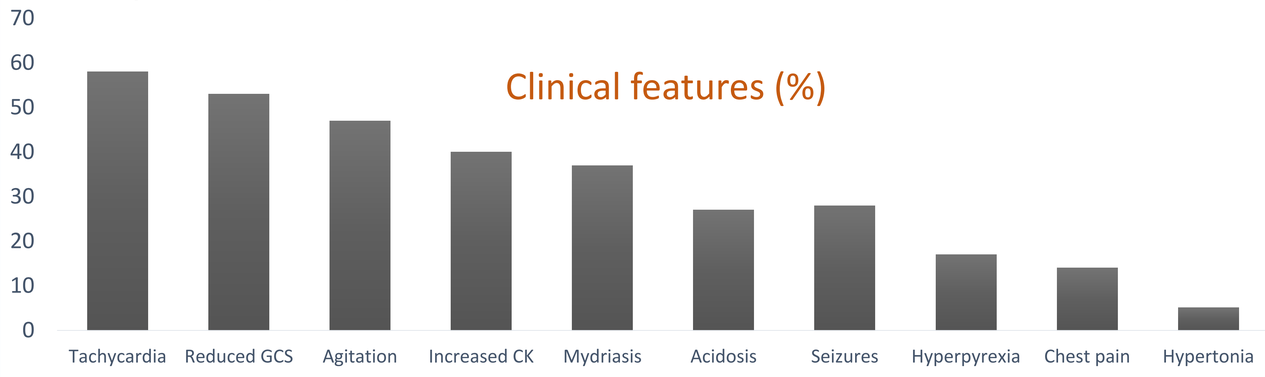


Cathinones were co-ingested with a range of substances (median 7; range 18)

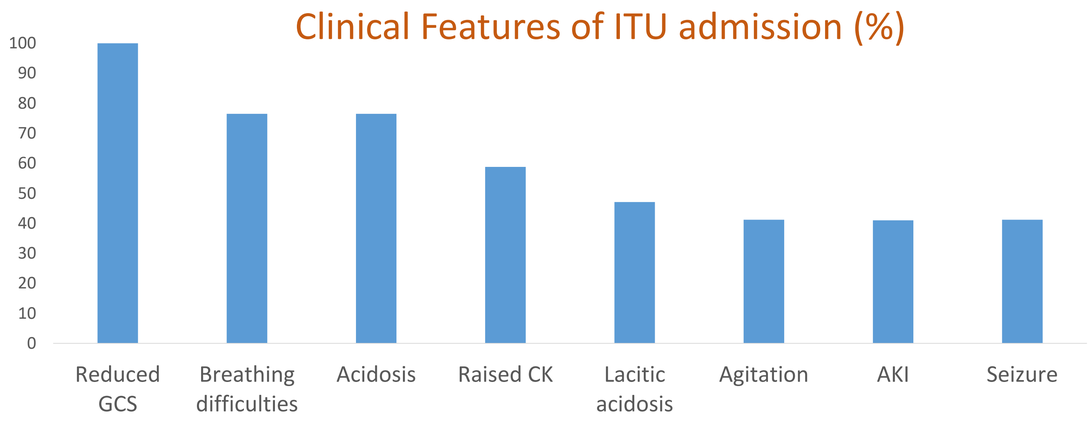
Most commonly associated with other stimulants and benzodiazepine

- Diazepam – 37 cases (47%)
- Cocaine – 29 cases (37%)
- Methadone – 29 cases (37%)
- MDMA – 25 cases (32%)
- Amphetamine – 25 cases (31%)

The most common clinical features recorded were tachycardia (58%), reduced GCS (53%), agitation (47%), increased creatinine kinase (40%) and mydriasis (37%).



15 patients (19%) required admission to intensive care. In this group mephedrone (20%), methylone (14%), methylethylcathinone (14%) and n-ethyl-pentylone (14%) were the most frequently identified cathinones.



Sedation 40%

Mechanical ventilation 19%

Death 2%

Conclusion

Cathinones have been detected less frequently in the UK since 2016 in those presenting with drug toxicity. Pyrrolidino-cathinones were infrequently identified. Cathinone users often co-use other substances, and exhibit features of a stimulant toxidrome. They are at risk of serious harms, including severe clinical features, necessitating treatments such as sedation or mechanical ventilation.

References:

1] Advisory Council on the Misuse of Drugs (2010). **Consideration of the cathinones.** [Report].
[2] European Monitoring Centre for Drugs and Drug Addiction (2022). **European Drug Report. Trends and Developments.** [Report].
[3] Philp, C. (2023): **Rt Hon Chris Philip to Professor Owen-Bowden-Jones. Synthetic cathinones: an updated harms assessment.** [Letter]. Available from: https://www.gov.uk/government/publications/synthetic-cathinones-letter-asking-for-updated-harms-assessment/synthetic-cathinones-an-updated-harms-assessment. [Accessed 20/10/2024].

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