



Introduction

New Psychoactive substances (NPS) are a complex group of substances also known as Designer Drugs or as «Legal Highs». By their number, nature and composition NPS pose significant challenges for users, clinicians, forensic researchers, health care systems and global drug control policy. Up to December 2020 1,047 substances have been reported to the UNDOC Early Warning Advisory (EWA). They are not controlled by the 1961 Single Convention on Narcotic Drugs and by 1971 Convention on Psychotropic Substances. The spread of NPS rises exponentially because of the easy availability, the underestimation of risks and the higher acceptance into society.

Methods and Purpose

To describe the social, legal and medical issues of NPS phenomenon, a research of the latest literature was performed on PubMed, Discovery Sapienza and Dejure using the following keywords: new psychoactive substances, designer drugs or legal highs in association with the terms detection, social risk, psychiatry and law. Study eligibility criteria included relevance to the topic, English language and time of publication (from 2017 to 2021). Study selection was performed on title/abstract and in doubtful cases, on the full texts of papers. The aim of this work is to provide an overview of the problem related to the mental health risk, detection and regulation and to give tools for the future NPS management.

Discussion

Usually sold as a safe alternative to classical drugs, they pose severe health risks. There is a lack of the awareness of their effects and a low ability to identify a potential NPS user.

Synthetic Cannabinoids or «Spice»

- Greater incidence of major psychiatric complications and other adverse effects
- Severe morbidity and mortality
- High addictive potential

Synthetic Depressants

New Synthetic Opioids

- Greater potency, rapid rise of tolerance and dependence
- Higher morbidity and mortality due to toxicity or overdose

Designer Benzodiazepines

- A primary current NPS threat
- Taken for a «high» or as self-medication
- Greater potency and long-lasting effects
- Higher risk of toxicity and fatalities

Synthetic Hallucinogens

Hallucinogens

- Greater risk of toxicity and fatalities, psychosis and perceptual disturbances for Stimulat Hallucinogen

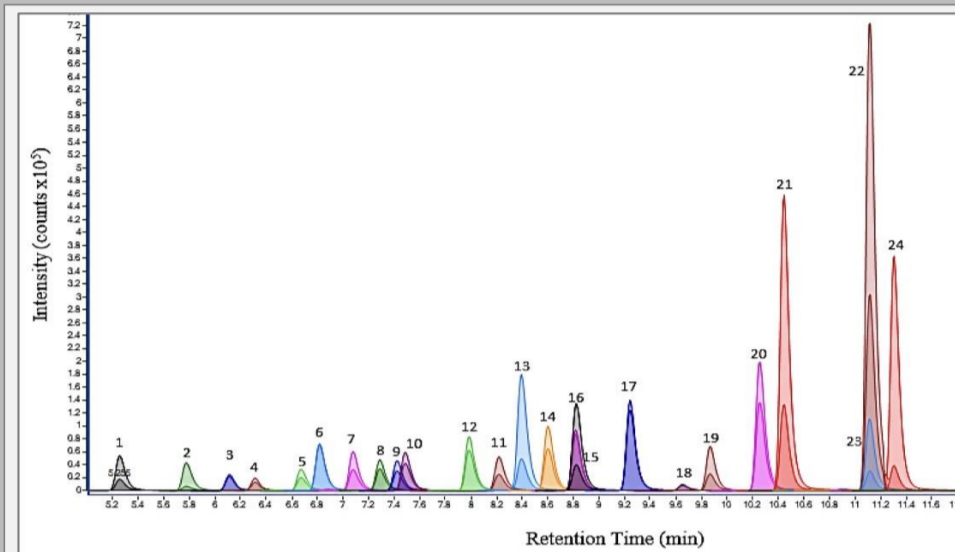
Dissociatives

- Aggressive, psychotic and catatonic states
- Higher risk of intoxication and fatalities
- Intense craving, binge consumption patterns, neurocognitive and mood impairment in long term

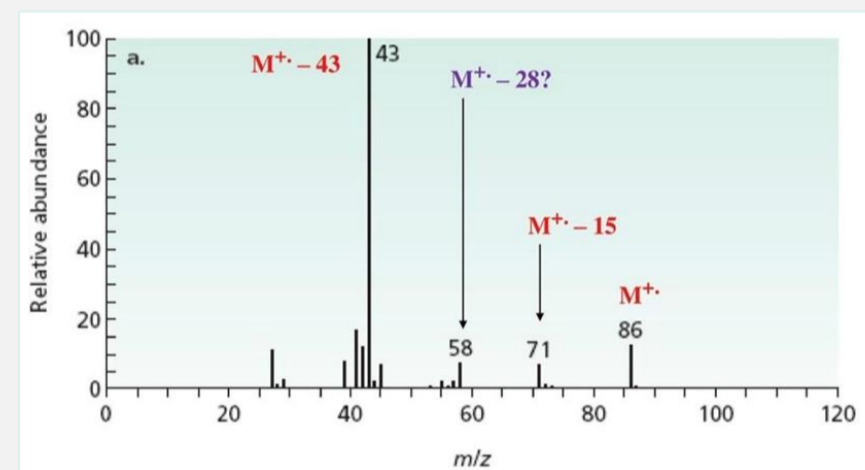
Synthetic stimulants

- High addictive potential
- Enhanced neurotoxicity and several medical consequences
- Impulsive behaviour, cognitive impairments, psychosis and depression in long term

A different range of **Prescription and Over the Counter Drugs** are widely misused as NPS.

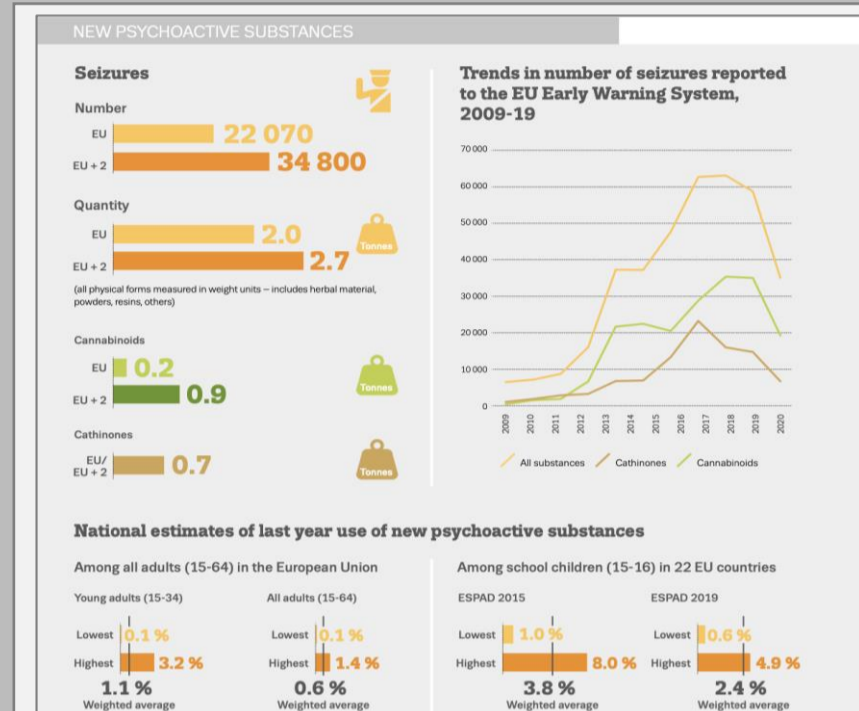


Screening methods: gas and liquid chromatography- mass spectrometry techniques. GC-MS and HPLC-MS separate the sample in its components and then in ions.



Detection performed in GC-MS allows to screen all the analytes in a certain range of molecular weight, with the aid of libraries (SWGDRUG-MS Library Version 3.0) or other advanced software programs that can match fragments and potential mass formulas/structures.

The analytical challenge involves not only the large range of NPS chemical structures, but also the variety of biological matrices investigated.



- **Criminal law** must define clearly what the controlled substances are, to avoid NPS producers' capitalization that omits risks for consumers' health.
- By the end of 2008, following EU dispositions, the Italian department for anti-drug policies (DPA) instituted a national system for rapid alerts and responses for drugs (SNAP), with seats located by the DPA's national observatory.
- The bill n. 36 of 03.20.2014, converted to law n. 79 of 05.16.2014, introduced some modifications to the Italian paper on illegal drugs (DPR 309/90), following the verdict 32/2014 of the Italian Supreme Court.
- The law reinstated the sanctions connected to illegal drugs, split in four tables.

Table I: D.M. 11.22.2021

- Opium and derivatives (morphine, Heroin and Methadone)
- Coca-leaves and derivatives
- Amphetamines and derivatives (Ecstasy and designer Drugs)
- Hallucinogens

Table II: L. 05.16.2014 n°79

- Cannabis

Table III: L. 05.16.2014 n° 79

- Barbiturates

Table IV: 11.11.2021

- Benzodiazepines

Consolidated Law on Narcotic Drugs deals with the regulation of narcotic substances in our legal system, with particular reference to the Art. 73 which provides for penalties in case of illegitimate use. Furthermore, our legal system has four tables for the classification of these substances.

Several countries where a large number of different NPS has rapidly emerged, have scheduled entire NPS groups using a so-called genetic approach, or have introduced analogue legislation that invokes the principle of «chemical similarities» to already controlled substances, to control the not explicitly mentioned ones in the legislation.

Conclusion

Since the effects caused by NPS are not completely understood, the sensibilization of the population results challenging. The regulation of NPS is an open match nowadays. However, the principle of Analogy, used by foreign legislations, may be the key to fill the normative gap in our drugs control, facilitating the identification and a timely intervention.