

# When polyabuse of psychoactive drugs becomes a polyuse in drug, sex and training addictions

*Alessandro Di Giorgi<sup>1</sup>, Lina De Paola<sup>2</sup>, Valeria Aquilina<sup>1</sup>*

<sup>1</sup>Department of Biomedical Sciences and Public Health, University “Politecnica delle Marche”, Ancona, Italy; <sup>2</sup>Department of Anatomical, Histological, Forensic and Orthopedic Sciences, Departmental Section of Legal Medicine, “Sapienza” University of Rome, Rome, Italy.

## To the Editor,

The new century has led significant changes in drugs of abuse consumption patterns. Indeed, the classical drugs of abuse (such as opioids, cocaine, cannabinoids, amphetamines and hallucinogens) have been joined by New Psychoactive Substances (NPS), which are a growing concern for health professionals. These latter have been designed to mimic the effects of traditional drugs of abuse and have made more challenging the work of professionals in clinical and forensic toxicology. As a result, the use of both classical and NPS are permeating new areas of society, expanding consumers typologies. Stepping back in time, substance abuse was significantly tied to addiction and consumers were driven by the desire to isolate themselves or to participate in social or recreational settings. For these reasons, the focus of addiction treatment and toxicology was to help individuals to manage their addiction preserving health and social consequences. The rise of NPS has changed this condition. The difficulty to detect these compounds in standards drug test and their rapid proliferation on the market has made complicated the law enforcement and health professionals work to keep up with the evolving landscape of substance abuse. Nowadays, substances usually associated with addiction are being used to enhance performance in different settings, such as physical, psychological, sexual and behavioral one. Indeed, psychoactive drugs are used also to enhance sport performances, sexual intercourses and drug-facilitated crimes.

One of the most alarming areas of expansion is the use of substances to enhance sexual experiences

(“chemsex”). Specifically, this term refers to the drugs consumption during sexual activity to facilitate sexual confidence, libido, desire and connections (1). Such a phenomenon has gained considerable attention in recent years due to ever growing population involved in it. Several studies reported gamma-hydroxybutyric acid (GHB) as the most common drugs used in these practices. The detection of this compound represents a challenge for forensic toxicologist for several reasons. First, GHB naturally occurs in the human body; this can lead to misinterpretation of positive results. Then, this compound has a narrow window of detection (in the range of 3-12 h in blood and urine) and the concentration in biological fluids quickly reaches the endogenous levels (2,3). Performance enhancement is another emerging factor in substance abuse. The use of doping agents has long been an issue, especially in the world of athletics. However, recreational athletes (individuals who are not competing professionally) are increasingly turning to these drugs, especially after COVID-19 pandemic (4). These individuals are moved by the desire to push beyond natural limits and obtain rapid results. This trend poses serious health risks, since many of these compounds can have side effects when used improperly. The use of substances in drug-facilitated crimes has become a significant concern. GHB, ketamine and benzodiazepines are often used in sexual assault cases and robbery, to render the victim unable to defend him/herself. Furthermore, these crimes are insidious since they often go unreported or unprosecuted due to the victim’s inability to recall the event clearly. As a result of these trends, professionals in clinical and forensic toxicology should broaden their

fields of expertise. In the past, overdoses and fatalities were the predominant cases related to substances use; nowadays, particular attention should be focused on doping agents in gyms and on sex enhancers. In this context, several studies reported a concerning increase in the use of drugs among women. Historically, men were more likely to consume drugs of abuse compared to women, especially in fields related to physical performance or sexual activity. However, this gender gap is rapidly closing since the percentage of women consuming drugs has been on the rise (5). A reason may be the societal pressures for women to perform at high levels both in their personal and professional lives, further complicating the efforts to address the issue. The most dangerous health emergency related to these substances is the unwitting consumption, especially in terms of polydrug use. This term refers to the consumption of different drugs in combination to obtain an enhancement of the desired effect (such as the simultaneous use of stimulants and alcohol) or to limit the negative effects (such as stimulants and benzodiazepines). However, the major risk is represented by the unknown drug-drug interactions, which may lead to unpredictable effects, especially for NPS. A recent study investigated the polydrug consumption in psychiatric patients from 2 hospitals in Rome (Italy), reporting that 70% analyzed blood samples were positive to more than 1 drug of abuse (6). Considering these issues, it is crucial that both professionals and society recognize the risks posed by the expanded use of both traditional and NPS. Toxicologists, health professionals and law enforcement should work together to address these challenges; at the same time, public education campaigns represent an important action measure to raise awareness of the dangers of substance use, especially when consumers are not addicted but are recreational users. Coordinated and informed efforts are the needed to mitigate the risks and protect the health and well-being of the population.

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## Correspondence:

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Lina De Paola

Department of Anatomical, Histological, Forensic and Orthopedic Sciences, Departmental Section of Legal Medicine, "Sapienza" University of Rome, Viale Regina Elena 366, 00161, Rome, Italy

E-mail: lina.depaola@uniroma1.it

ORCID: 0009-0001-4631-1061