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# Challenges Posed by Novel Psychoactive Substances – Middle East Perspective

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Editorial

New psychoactive substances (NPS) are defined as substances of abuse, either in a pure form or a preparation, that are not controlled by the 1961 Single Convention on Narcotic Drugs or the 1971 Convention on Psychotropic Substances, but which may pose a public health threat. In this context, the term “new” does not necessarily refer to new inventions but to substances that have recently become available or popular in a given society or country. This definition indicates that the problem of NPS is not new; however, the availability of any information via new communication technologies in the 21st century has enabled the spread of unwanted and socially harmful information, like information on the commercial availability of various NPS, offered in rising amounts and brands.

A growing number of New Psychoactive Substances (NPS) appear yearly on the European market (81 for the first time in 2013, adding to a total of over 350 NPS) [1].

British authors [2] divided NPS into five major categories, based on their ‘parent’ compound: those originated from psychostimulants such as amphetamine, 3,4-methylenedioxy-N-methylamphetamine (MDMA) and cocaine; those that mimic the effects of cannabis; those based upon benzodiazepines; those that produce dissociate effects similar to ketamine or phencyclidine (PCP); and those developed as analogues of ‘classical’ hallucinogens such as LSD or psilocybin. German authors [3] divided NPS into the following groups: synthetic cannabinoids, phenethylamines, cathinones, tryptamines, piperazine derivatives, opioids, and benzodiazepines. These authors published a list of 56 synthetic cannabinoids comprising known pharmacokinetic and toxicological data as well as proposed amounts indicating drug dealing in the case of drugs.

NPS have been known in the market by terms such as “designer drugs”, “legal highs”, “herbal highs”, “research chemicals”, “bath salts”, and are offered on the internet under various brand names like “Spice,” “Kryptonite,” “Black Mamba” “Mr.Nice Guy”, “Mr. White”, “Clockwork Orange”, “Charley Sheen”, “Atomic Bomb”, “Cherry Bomb”, “Exodus”, “Herbal Incense”, and others. These names are chosen to appeal to customers, particularly the youth. Corazza et al. investigated the marketing strategies of NPS dissemination and retail via the internet in nine lan-

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Production and hosting by NAUSS

guages (English, French, Farsi, Portuguese, Arabic, Russian, Spanish, and Chinese simplified/traditional). The suppliers acted very professionally, advertising drugs as legal and safe, and using brand names designed to attract young potential users [4].

The term “designer drugs” had been traditionally used to identify synthetic substances but has recently been broadened to include other psychoactive substances that mimic the effects of illicit drugs and are produced by introducing slight modifications to the chemical structure of controlled substances to circumvent drug controls. These substances are frequently labeled as “not for human consumption”, obviously to avoid any legal problems.

Various international and national organizations recognized the challenge of NPS in 21st century. The UNODC (United Nations Office on Drugs and Crime) launched the Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Program in September 2008. In 2013, a comprehensive report on the challenge of NPS was issued covering the global situation in the period 2009-2012 [5]. This report should contribute to a better understanding of the NPS problem and in developing effective strategies to address it. 61 out of 80 countries participating in this program reported seizures of NPS. In the Asiatic/Middle Eastern region, which is most relevant for the Kingdom of Saudi Arabia, the following countries reported seizures of various groups of NPS: Bahrain, Egypt, India, Israel, Jordan, Lebanon, Malaysia, Philippines, Qatar, Syria, Oman, United Arab Emirates, Yemen, and Saudi Arabia itself. Pakistan and Iran did not supply any data. However, internet monitoring of Persian language websites during October 2011-February 2012 revealed 51 sites offering 14 various NPS, like “*Salvia divinorum*”, cathinones, “Bromo-Dragonfly”, or synthetic cannabinoids disguised as herbal incense. These products were imported to Iran from China, the UK, the USA, Cameroon, Nigeria, and

Tanzania. Due to a very restrictive drug policy in Iran, the websites offering NPS were hidden behind some legitimate and official ones [6].

In Europe, the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) and Europol, with their partners, operate the EU Early Warning System (EWS), which disseminates information on trends in drug abuse across the EU member states, Turkey, and Norway. EWS nowadays is focusing on NPS, and observed that the market recently has been dominated by two groups: synthetic cannabinoids and synthetic cathinones, offered as legal replacements for cannabis and controlled stimulants [7].

Three systems were developed and used by different states to prohibit or curb the use and marketing of drugs including NPS: 1. The List Model, which lists individual drugs chemically defined in appropriate legislations; 2. The Analogue System Model, which includes drugs based on the similarity of their chemical structure. In this approach, a substance is banned if it is structurally similar and its “chemical” effect is similar to another controlled and illicit drug; 3. The Generic Legislation Model, which prohibits clusters of substances showing similarity with an existing illicit drug. This kind of model is an attempt to ban all existing drugs and possible analogues still to appear in the drug market in the future without performing individual drug risk assessment.

Worldwide expansion of NPS stimulated the proposal of alternative policies that seem to be equally effective in protecting public health as the traditional ones. The European Commission (EC) in 2013 proposed a new regulation, based partly on the idea that a legitimate market for NPS requires adequate protection and suggested that “low risk” NPS should not be acted upon at the EU level while “moderate risks” substances should be prohibited and “high risks” substances should be subject to drug control measures. The EC proposal for a new regulation in this area



is based partly on the idea that a significant legitimate market in NPS for commercial and industrial purposes requires protection, and so it is legally based on a Treaty article to improve the functioning of the internal market [8].

Epidemiological surveys on the use of NPS are based mainly on self-reporting. Studies on epidemiology of NPS use in the US, based on self-reporting data from subjects 12-34 years olds showed that the use of NPS was mostly reported among white males of lower income residing in big cities. Attendees of music festivals and electronic music parties were identified as a high-risk population, since over one-third of these subjects reported lifetime use of NPS. Regular NPS consumers have usually had a history of abuse of other illicit drugs [9, 10]. Similar data were provided from the UK; over 65% of the patrons of London night clubs reported regular use of various NPS, mainly stimulants [11].

Another possibility of recognizing the social exposure to NPS comes from the analytical area. The exposure to NPS can be assessed through the analysis of wastewater samples or pooled urine samples collected from social events such as rock music festivals. This approach is similar to the analysis of “traditional” drugs of abuse or therapeutic drugs [12].

It seems that young people, eagerly looking for new drugs, may have more information on NPS than health professionals; the survey done in the UK showed that the majority of London pharmacists thought that they have insufficient information and knowledge of NPS, particularly among older professionals [13].

The social situation and dangers of NPS abuse in the Gulf States is quite particular. There are several factors in these countries which may cause enhanced interest in the use of drugs of abuse, particularly NPS. Middle-East societies are particularly prone to the use of herbal medicines on a daily basis. Therefore, the supply of NPS disguised as

“natural herbal remedies” may be expected. The population of these countries is relatively young, and, therefore, prone to experimenting with drugs. Young people have broad interest in internet-transmitted information and have sufficient financial means to purchase various preparations online. Moreover, these countries are hosting a considerable number of expatriate workers – mainly young, single males. All these people may be regarded as potential consumers of NPS. On the other hand, the general anti-drug policy is very restrictive, which facilitates the switch to “legal highs”, despite the high popularity of traditionally used drugs e.g., fenethylamine or khat. The importance of fenethylamine (Captagon) as probably the most important drug among young consumers in the Middle East should be particularly stressed. This drug (a combination of amphetamine and theophylline) was banned from therapeutic use in 1986. Nevertheless, it found his way to the clandestine drug market as a stimulant. Captagon production and export increased in the early 2000s to southeastern Europe and Turkey, targeting mainly Jordan, the Arabian Peninsula and Gulf States. Nowadays Syria is the premier producer of Captagon, replacing Lebanon. Many clandestine Captagon preparations contain not only fenethylamine, but also amphetamine, ephedrine, theophylline, chloroquine, trimetoprim, among others. The popularity of Captagon rose after the development of the Syrian conflict, since this drug is used in military combat as a stimulant and performance enhancer [14].

Al-Imam et al. [15] published the results of the multilingual literature survey on the use of Captagon in the Middle East. A list of prespecified keywords was applied across medical and paramedical databases, web and Dark web, search engines, social communication media, electronic commerce websites, media networks, and the Global Public Health Intelligence Network database. The use of Captagon as a stimulant in terrorist settings has been mar-



ginally covered in the literature. Data were retrieved from Google and AOL search engines, YouTube, and Amazon e-commerce websites, and to a lesser extent from Alibaba and eBay. On the contrary, Middle Eastern e-commerce websites yielded almost no results, but the Dark web generated original data for Captagon e-commerce in the Middle East.

The popularity of Captagon in the Middle East may indicate that any legal action toward eradication of this drug from the market may cause a switch to NPS with stimulative properties.

All epidemiological and social factors mentioned above should be taken into account in planning and promoting the proactive and preventive strategy concerning the use of NPS in the Middle East. From the forensic-toxicological point of view, the profile and extent of NPS present in the local market should be recognized. This can be done by the routine analysis of NPS-suspected material with modern analytical methods [16] in order to identify the drug of particular relevance in a given country or society.

The studies on the epidemiology of use and spread of NPS among young consumers should be supported by awareness campaigns showing the dangers of NPS use for potential consumers. Such studies should be done in close collaboration with the existing international agencies, like the UNODC, the EMCDDA, or the EWS. A regional initiative in this matter could be beneficial for the society. The forensic service in the Kingdom of Saudi Arabia could play a crucial role in coordinating such initiatives in a proactive manner.

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