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Understanding the synthetic drug market: the NPS factor

EN



About the SMART Update

Synthetic drugs constitute one of the most significant drug problems worldwide. After cannabis, amphetamine-type stimulants (ATS) are the second most widely used drugs across the globe, with use levels often exceeding those of heroin and/or cocaine. Along with ATS, the continued growth of the new psychoactive substances (NPS) market over the last years has become a policy challenge and a major international concern. A growing interplay between these new drugs and traditional illicit drug markets is being observed. By December 2017, the emergence of NPS had been reported by 111 countries and territories. Trends on the synthetic drug market evolve quickly each year.

The UNODC Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme enhances the capacity of Member States in priority regions to generate, manage, analyse, report and use synthetic drug information to design effective policy and programme interventions. Launched in September 2008, the Global SMART Programme provides capacity building to laboratory personnel, law enforcement and research officers in the Pacific, East and South-East Asia, South Asia, the Near and Middle East, Africa, Latin America and the Caribbean; and regularly reviews the global amphetamine-type stimulants and new psychoactive substances situation. Its main products include online drug data collection, situation reports, regional assessments and the UNODC Early Warning Advisory (EWA) on new psychoactive substances. The EWA is a web-portal that offers regular updates on new psychoactive substances, including trend data on emergence and persistence, chemical data, supporting documentation on laboratory analysis and national legislative responses (available at: www.unodc.org/NPS).

The Global SMART Update (GSU) series is published twice a year in English, Spanish and Russian. It provides information on emerging patterns and trends of the global synthetic drug market in a concise format. This issue is fully dedicated to the topic of the shift in the synthetic drug market. Past issues have covered topics such as the non-medical use of benzodiazepines, the fentanyl group of synthetic opioids, UNGASS 2016 recommendations, injecting use of synthetic drugs, legal responses to NPS, and key facts about synthetic cannabinoids. Electronic copies of the Global SMART Updates and other publications are available at: www.unodc.org/unodc/en/scientists/publications-smart.html.

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* The information and data contained within this report are from official Government reports, press releases, scientific journals or incidents confirmed by UNODC Field Offices. This report has not been formally edited. The contents of this publication do not necessarily reflect the views or policies of UNODC or contributory organizations and neither do they imply any endorsement. Suggested citation: UNODC, "Understanding the synthetic drug market: the NPS factor", Global SMART Update Volume 19, March 2018.

Understanding the synthetic drug market: the NPS factor

ABSTRACT

Since 2009, new psychoactive substances (NPS) have captured the attention of the international community and transformed the global synthetic drug market. The rapid emergence of new substances is certainly unparalleled. What is more striking is the evolution of a market where psychoactive effects were derived from a limited number of closely related chemical structures and innovation mainly featured the adaptation of synthesis routes, including the use of alternative precursor chemicals, to one where the desired psychoactive effects are obtained from hundreds of different substances with diverse chemistry. This dramatic transformation has implications for effective monitoring, understanding and control of synthetic drugs and their precursor chemicals.

The increasing chemical diversity of NPS and their unprecedented number further complicates the challenges to monitor and understand this phenomenon. Rationalizing the NPS phenomenon in the context of the psychoactive effects of the traditional drugs under international control, which they mimic, may offer new insights and opportunities for understanding and reacting to drug market dynamics.

Introduction

Over the last decade, NPS have changed the landscape of the synthetic drug market, by appearing in large numbers and diversity across a wide geographic spread. NPS are substances of abuse, either in a pure form or in a preparation, that are not controlled by the Single Convention on Narcotic Drugs of 1961, as amended by the 1972 Protocol, or the Convention on Psychotropic Substances of 1971, but which may pose a public health threat.¹

This SMART Update explores the impact of NPS on the synthetic drug market and presents an analysis of the situation before and after the emergence of large numbers of NPS. Particularly, this report aims to shed light on how NPS have produced a transformative shift in a market that was characterised by a limited number of substances belonging to a limited number of chemical groups to one that includes hundreds of

substances of diverse chemistries. Despite their diversity, NPS can be grouped into the same six categories of psychoactive effects known from traditional drugs under international control.

The synthetic drug market before NPS

Before the widespread emergence of NPS, which came to the attention of the wider international community at around 2009, but much earlier in some regions such as Europe, the synthetic drug market had already experienced a dynamic period of chemical innovation, which led to a diversification of drugs of mainly stimulant effects. However, the scope of diversification was limited in terms of the number of new substances (only in single digits per year) and chemical diversity (mostly analogues of amphetamine, methamphetamine and MDMA). Given their similar chemical structure and predominant stimulant effects, these substances were termed “amphetamine-type stimulants” (ATS).²

Further attempts at innovating the synthetic drug market continued with the use of pre-precursors, the masking of known precursors and the identification of alternative synthesis routes. For example, once stricter regulations were in place to limit the availability of ephedrine and pseudoephedrine³ for methamphetamine synthesis, a shift occurred in North America and in some parts of Europe to precursors based on 1-phenyl-2-propanone (P-2-P)⁴. At this stage of the synthetic drug market, innovative strategies were limited to identifying alternative manufacturing methods and precursors to circumvent controls, whilst still aiming at manufacturing the same range of products.

Although users may have noted the varying purity and composition of synthetic drugs, the products available in the market were mostly still very alike and sold under a traditional drug street name, containing at least some amounts of the psychoactive substance they were expecting. This situation changed dramatically with the advent of a large number of NPS.

What triggered the emergence of NPS?

The unprecedented proliferation of NPS, in terms of both quantity and diversity, is widely known. Since the start of their monitoring by UNODC in 2009, new substances have been emerging every year at an average rate of about one substance per week, and the emergence of NPS has been reported by every region of the world. Why did this period mark the advent of the development of such

1 UNODC, The challenge of new psychoactive substances. Global SMART Programme. March 2013. Since 2015, a number of NPS were placed under international control, see https://www.unodc.org/unodc/en/commissions/CND/Mandate_Functions/Mandate-and-Functions_Scheduling.html

2 Terminology and Information on Drugs. 3rd Edition, 2016. (United Nations Publication. Sales No. E.16.XI.8).

3 Both ephedrine and pseudoephedrine were placed under international control in the United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988.

4 The most notable precursors and derivatives of P-2-P that were used involved phenylacetic acid and alphaphenylacetoneitrile (APAAN). APAAN and its optical isomers were included in Table I of the 1988 UN Convention in March 2014 (fully effective on 9 October 2014).

large numbers of new substances and what was the logic behind this trend?

A number of factors may have triggered the sudden proliferation of new substances as a means to make profits and minimize risk. These include, *inter alia*, the aura of legality of NPS products marketed as “legal highs”, perceived lower risks associated with the use of NPS, opportunities for marketing, ordering and purchasing via the Internet, and changes in the quality and availability of traditional drugs.

Changes in the market for stimulants

Manufacturers and traffickers of NPS developed and marketed large numbers of new substances as a means of remaining flexible to legislation and other changes in the market. In a situation where precursors can be hard to access due to controls, traffickers have tried to expand the range of manufacturing methods to continue their manufacture of synthetic drugs.⁵ However, increasing difficulties in obtaining the precursors for the synthesis of the desired substances/products, would have led to the search for substitute or alternative substances with similar psychoactive effects.

The alternative substances may have stemmed from different chemical “families” and thus required different precursor chemicals. These newer precursor chemicals, which might not have been the focus of supply reduction measures and were therefore more easily available (e.g. cheaper and at a lower risk of being detected), presented a challenge to law enforcement interception efforts. With the introduction of legal controls on substances, or a loss of market appeal among users, due to their harmful effects, manufacturing strategies continued to be adapted in an effort to widen or change the range of substances offered, while retaining similar



Source: UNODC

The evolving content of “ecstasy” tablets

Over the last several years, the content of “ecstasy” tablets available on illegal drugs markets has changed significantly. 3,4-methylenedioxymethamphetamine (MDMA) or its analogues such as MDEA or MDA have traditionally been the substances found in most tablets branded as “ecstasy”. For instance in 2005, “ecstasy” containing MDMA accounted for around 70 per cent of “ecstasy” tablets analysed in 17 out of 23 European reporting countries. Shortly after 2005, the “ecstasy” market went through a worldwide change triggered by a shortage of MDMA.

With the demand for “ecstasy” unchanged, traffickers turned to the use of alternative chemicals to MDMA to satisfy the existing market. Forensic analysis revealed that “ecstasy” tablets available on the market in 2014 varied considerably in content. Several countries reported of “ecstasy” tablet seizures that consisted mainly of a blend of non-controlled substances as opposed to MDMA. Among others, synthetic cathinones (mephedrone, methylone or MDPV) and piperazines (BZP or mCPP) were used as substitutes for MDMA.

Terminology and Information on Drugs. 3rd edition, 2016. (United Nations Publication. Sales No. E.16.XI.8).

UNODC, “The changing nature of ‘ecstasy’”, Global SMART Update, vol. 11 (March 2014).

EMCDDA, Recent Changes in Europe’s MDMA/Ecstasy Market: Results from an EMCDDA Trendspotter Study, EMCDDA Rapid Communication Series (Luxembourg, Publications Office of the European Union, 2016).

psychoactive effects.⁶ (See box on “Circumventing national legislation” on page 8 for more information).

In such cases, NPS were used to supply the market of traditional drugs by substituting for the expected psychoactive substance(s) without changing the branding of the product. Synthetic drug users, for example, would still obtain a product sold under a familiar drug street name, in similar form of presentation, but the product would not contain the psychoactive substance originally associated with the drug. A well-documented example

is the case of “ecstasy”, whose content in some markets has evolved significantly over time. (See box on “ecstasy” for more information).

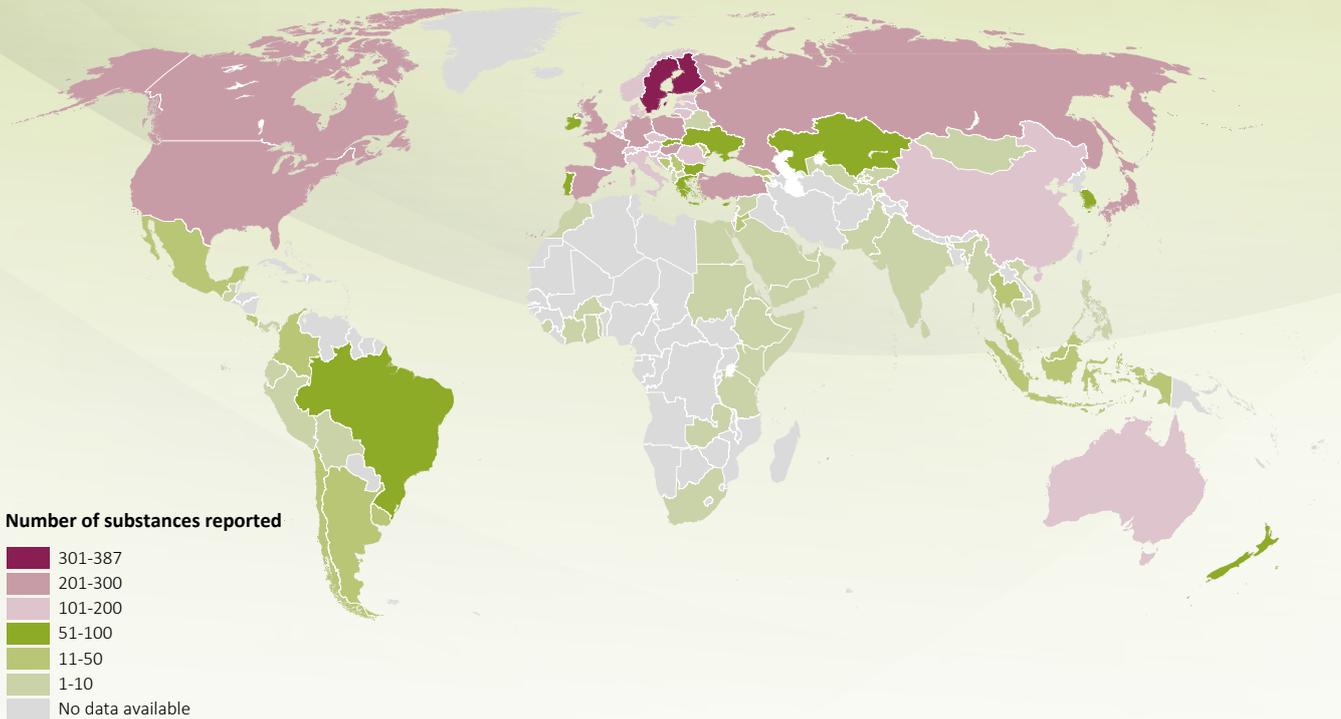
From substitution to expansion

Expanding the range of drug products offered to users also presented an interesting way for traffickers to increase their business. Some users were no longer satisfied with the quality and effects of the drugs typically available in the market and were ready to try out new or lesser-known substances. In addition to making small changes to the molecules of known drugs as done in the past, traffickers exploited the rich body of pharmaceutical and medical research to supply new substances, which, in

⁵ For more information, see UNODC, “Methamphetamine manufacture: Global Patterns and Regional Differences”, Global SMART Update 2014, vol. 12 (September 2014).

⁶ For more information, see UNODC, “Post-UNGASS 2016: NPS trends, challenges and recommendations”, Global SMART Update 2016, vol. 16 (September 2016).

Map 1: Number of NPS reported by country, December 2017



Source: UNODC Early Warning Advisory on NPS.

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas). The analysis comprises NPS registered up to December 2017.

spite of the significant difference in chemistry, mimicked the effects of known drugs. This innovation by now encompasses all the known six psychoactive effect groups.

Current features of NPS markets

While the emergence of NPS is a global phenomenon that affects all regions of the world, diverse regional patterns of NPS emergence are observed, in terms of both the type and number of NPS reported by individual countries. Overall, the ten countries that have reported the largest number of substances worldwide are from three regions of the world: Asia, Europe, and North America.⁷ However, data on NPS emergence remain limited for other regions such as Africa, Central America, the Near and Middle East

⁷ These countries include Canada, Finland, Germany, Hungary, Japan, Russian Federation, Sweden, Turkey, United Kingdom, and the United States.

Sachets used for NPS products



and Central and South-West Asia. The NPS situation differs from country to country and from one year to the next.

Furthermore, the sheer speed at which new substances emerge on the market is unparalleled. New

NPS emerge every year at an average rate of about one substance per week. The NPS market is also highly dynamic in the sense that it undergoes periods of both innovation and stagnation. Despite a growing number of substances reported by

Figure 1: Psychoactive effect groups of traditional drugs and NPS

	Example of traditional drug	Example of synthetic NPS
Sedatives/hypnotics	Diazepam	Etizolam, clonazolam
Dissociatives	Phencyclidine	3-methoxyphencyclidine, Deschloroketamine
Classic hallucinogens	LSD, 2C-B	1p-LSD, 2C-I
Stimulants	Cocaine, methamphetamine	4-fluoroamphetamine, Dimethylcathinone
Cannabinoids	Cannabis	AB-PINACA, ADB-FUBINACA
Opioids	Morphine, heroin	Furanyl fentanyl, ocfentanil

Source: UNODC.

more countries each year, some NPS are transient in their nature: new substances continue to emerge; some NPS have been in the market for years; and others disappear over time.

The dynamics of NPS indicate a pronounced degree of volatility, as new evidence continues to emerge. While some NPS have emerged and subsequently disappeared, others have established their own niche markets. Reports to UNODC show that about 60 NPS have disappeared from the drug market since 2013. In contrast, UNODC registered over 70 NPS previously unreported in 2016 alone. It is uncertain whether these substances will succeed in gaining a foothold on drug markets. Substances such as JWH-018 and mephedrone have gained an established presence on the market, notwithstanding their placement under international control since 2015.⁸

NPS cover all psychoactive effect groups

NPS interact with the central nervous system in a similar manner to traditional drugs to produce the desired psychoactive effects. The

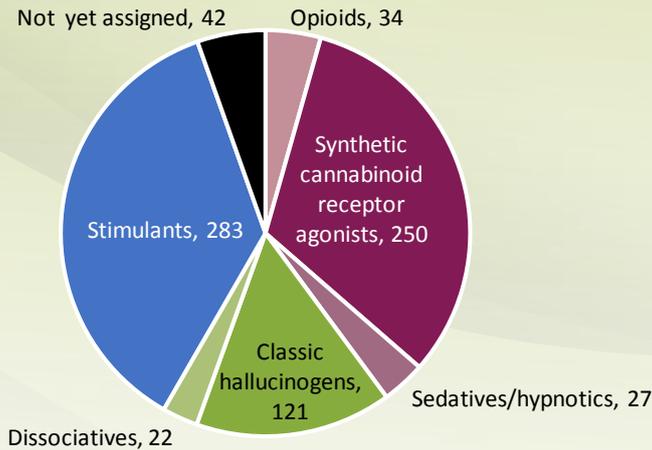
substances controlled under the 1961 and 1971 Conventions, while diverse in chemistry, can be placed into six distinct groups based on the major psychoactive effect they produce. These are opioids (e.g. heroin, morphine, and fentanyl), cannabimimetics (e.g. cannabis and delta-9-THC), dissociatives (e.g. phencyclidine), classic hallucinogens (e.g. LSD, 2C-B), sedatives/hypnotics (e.g. diazepam) and stimulants (e.g. cocaine and amphetamine-type stimulants such as methamphetamine). NPS produce psychoactive effects analogous to those of traditional drugs. For example, a rapidly growing number of fentanyl analogues⁹ shows opioid effects; the group of synthetic cannabinoids receptor agonists are by definition cannabimimetics,¹⁰ while other NPS mimic the effects of stimulants,¹¹ hallucinogens, sedatives/hypnotics¹² and dissociatives (see Figure 1).

While the market segment for stimulants such as “ecstasy” was among the first to experience the emergence of NPS with similar psychoactive effect, other market segments soon followed. A large number of products containing cannabimimetics (synthetic cannabinoids) of diverse chemical structures gained popularity in some European countries. Marketed as ‘legal highs’, these substances gained an aura of legality that often made them more attractive than the illegal substances they tried to mimic. While in 2009, only 32 different synthetic cannabinoids were known to be available on drug markets, this number increased to over 250 substances by 2017.¹³ In 2010, reports of substances such as methoxetamine (MXE), which produced dissociative effects, emerged in Europe. Since 2015, the number of NPS with opioid effects, mainly analogues of fentanyl, has been growing.¹⁴ This development has been associated with the growing number of overdose deaths among opioid users, in North America and Europe. An equally recent

⁸ World Drug Report 2017: Market Analysis of Synthetic Drugs—Amphetamine-type Stimulants, New Psychoactive Substances (United Nations publication, Sales No. E.17.XI.10).

⁹ UNODC, “Fentanyl and its analogues – 50 years on”. Global SMART Update, vol. 17 (March 2017).
¹⁰ UNODC, “Synthetic cannabinoids: Key facts about the largest and most dynamic group of NPS”, Global SMART Update, vol. 13 (March 2015).
¹¹ UNODC, “Injecting use of synthetic drugs”, Global SMART Update, vol. 15 (March 2016).
¹² UNODC, “Non-medical use of benzodiazepines: a growing threat to public health?”, Global SMART Update, vol. 18 (September 2017).

¹³ UNODC, “Synthetic cannabinoids: Key facts about the largest and most dynamic group of NPS”, Global SMART Update, vol. 13 (March 2015).
¹⁴ UNODC, “Fentanyl and its analogues – 50 years on”, Global SMART Update, vol. 17 (March 2017).

Figure 2: Number of NPS by psychoactive effect group, December 2017

Source: UNODC Early Warning Advisory on NPS.

Note: Based on the analysis of 779 NPS. The analysis of the psychoactive effects comprises NPS registered up to December 2017. Plant-based substances are excluded from the analysis as they usually contain a large number of different substances some of which may not have been known and whose effects and interactions are not fully understood.

development is the emergence of NPS with sedative/hypnotic effects, which mimic the effect of benzodiazepines.¹⁵ In South America, NPS with hallucinogenic effects emerged on LSD and 2C-B markets leading to a number of serious adverse events.¹⁶ By the end of 2017, traffickers had developed NPS for all six psychoactive effect groups known for the traditional drugs.

Synthetic drugs have developed into a complex market featuring a very large number of new substances co-existing with traditional ones. Presently, the synthetic drug market offers an unprecedented wide range of chemically diverse substances. Given that new substances not under international control essentially mimic the effects of controlled substances, a better understanding of the market can be gained through classifying the rapidly emerging substances in terms of the psychoactive effects than by similarities in chemical structures alone.

Responding to shifts in the synthetic drug market

The ongoing proliferation of NPS has become widely known and is of great concern to the international community. What are the consequences for monitoring synthetic drugs at the national, regional and global level?

With a synthetic drug market that has never been so diverse, a new set of challenges have emerged for monitoring, drug detection and identification, legislative measures and precursor control. The emergence of NPS has changed the “rules of the game” and tools and mechanisms have adapted to remain in sync with the *modus operandi* of the synthetic drug market.

Monitoring a dynamic synthetic drug market

The volatility, spread and fast-paced nature of the NPS market present a number of significant challenges to synthetic drug monitoring. Monitoring mechanisms need to be sensitive to the fluidity of the NPS market and be able to detect newly emerging trends and threats. In response to these challenges, early warning systems have been developed at the national, regional and global levels. Beyond merely monitoring the emergence and spread of NPS,

early warning systems raise awareness of the associated health risks of NPS use and provide platforms for sharing information.

At the global level, the UNODC Early Warning Advisory (EWA) on NPS monitors these substances and serves as a knowledge hub and platform for sharing best practices. At the regional level, the Early Warning System (EWS) of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) draws on regional cooperation to monitor NPS in Europe. Over the years, many countries have adopted strategies to monitor NPS through inclusion into existing drug monitoring systems (e.g. Australia, Belgium, Canada, Chile, Colombia, Italy) or by creating systems specifically designed for NPS (e.g. the Forensic Early Warning System in the United Kingdom). While some countries are in the process of establishing early warning mechanisms, other countries and regions are not adequately covered by such systems.

Detection and identification of synthetic drugs

Overall, the rapid evolution of the synthetic drug market, particularly due to the unprecedented number of structurally diverse NPS, marked a defining point in forensic science practice. Similarities in chemical structure do not always reflect identical psychoactive effects and a known psychoactive effect can be produced by dissimilar chemical structures (see Figure 3 with an example for synthetic stimulants). This complexity challenges the work of forensic scientists dealing with a large degree of unknowns when analysing and identifying NPS.

National legislative responses

The structural diversity and rapid development of new chemical analogues of NPS have particularly posed a challenge for developing legislative controls. The individual listing of substances under national legislation has the advantage, in principle, that there is no ambiguity about whether or not a substance is covered by the control measures. Yet, a

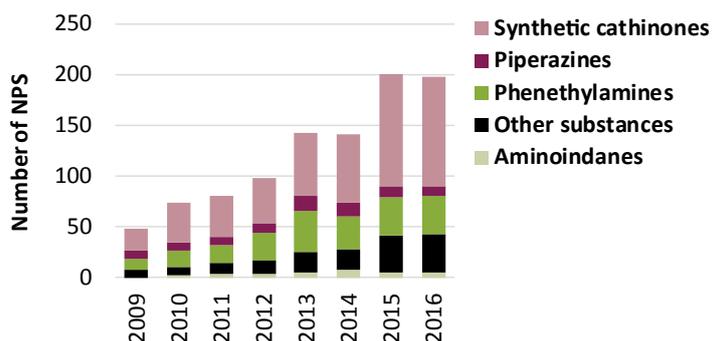
15 UNODC, “Non-medical use of benzodiazepines: a growing threat to public health?”, Global SMART Update, vol. 18 (September 2017).

16 World Drug Report 2017: Market Analysis of Synthetic Drugs—Amphetamine-type Stimulants, New Psychoactive Substances (United Nations publication, Sales No. E.17.XI.10).

The chemical diversity of NPS with stimulant effects

Traditional drugs with stimulant effects such as cocaine, methamphetamine, amphetamine and MDMA affect, to differing degrees, the levels and action of the monoamine neurotransmitters dopamine, norepinephrine and serotonin. Many of the NPS that have emerged produce a similar range of actions on the levels and actions of these neurotransmitters, thus mimicking the effects of traditional stimulants. The majority of these NPS producing stimulant actions are of diverse chemistry and can be classified chemically as aminoindanes, phenethylamines, piperazines and synthetic cathinones. Together, substances within these four groups account for almost 40% of all reported NPS.

Figure 3: Number of NPS with stimulant effects by chemical group reported each year, 2009-2016



Source: UNODC Early Warning Advisory on NPS.



Source: UNODC

Circumventing national legislation

Addressing the fast emergence of NPS with legal controls is challenging. Of the 30 countries that were analysed by UNODC as having experienced challenges implementing legislation to control NPS, 23 reported that when certain NPS were put under national control, they were promptly replaced by new, uncontrolled substances. Substances under control in one country frequently resurfaced in countries with weaker legal NPS frameworks or on the internet. An example of NPS market resilience is provided by synthetic cannabinoids. This group of substances has evolved constantly in response to changes in national legislations. Chemical families with successive structural modifications have evolved continuously to keep those substances in an ambiguous legal status. For instance, the emergence of the naphthoylindoles (e.g. JWH-018) was quickly followed by the emergence of naphthoylindazoles (e.g. THJ-018) and more recently by indazole carboxamides (e.g. AKB-48).

Analyses of national legislative responses are based on information reported to UNODC, such as the Annual Reports Questionnaire and the 2014 NPS Questionnaire as well as on publicly available information from Government websites.

Kikura-Hanajiri R. et al. (July-August 2014) "Changes in the prevalence of new psychoactive substances before and after the introduction of the generic scheduling of synthetic cannabinoids in Japan." Drug Testing and Analysis 6 (7-8): 832-9.

major drawback of this approach is that adding substance by substance to the schedules of national drug laws can become a lengthy procedure, which may not provide a fitting response to the current fast-paced nature of the synthetic drug market.

A number of countries have adopted different types of legislation in response to the unprecedented proliferation of substances. These include legislation that allows the simultaneous control of clusters of substances, known as generic control. In practice, such a legislative approach defines specific variations, of a core molecular structure, which are controlled. In this way, synthetic substances can be controlled without being specifically referred to in the legislation by invoking the concept of "chemical similarity" to a drug that is already controlled. Other countries have experimented with analogue controls, which are much broader than generic controls since they address more general aspects of similarity in chemical structure to a 'parent' compound.¹⁷ However, the rapid proliferation of NPS on the market and the diversity of substances have prompted some governments to look for alternatives to existing drug control systems that are solely based on the chemistry of substances. For example, in the case of the United States, the Synthetic Drug Abuse Prevention Act of 2012 for the first time introduced controls of synthetic cannabinoids, not only based on their chemical nature, but also referring to the effects on the brain according to a "neurochemical definition". Psychoactive Substances Acts, such as those introduced in Ireland and the United Kingdom, also underline this transition from chemistry to psychoactive effects as a basis for control in a rapidly evolving synthetic drug market.

Control of precursor chemicals

The complexity and diversity of synthetic drug precursor chemicals poses a great challenge for

¹⁷ UNODC, "Legal responses to NPS: multiple approaches to a multifaceted problem", Global SMART Update, vol. 14 (September 2015).

law enforcement and international control efforts. These difficulties are exacerbated in the context of NPS given their large number and diversity. The challenge of NPS, with respect to controlling their precursors, begins at the point of attempting to identify core NPS precursor chemicals and manufacturing methods. While within certain NPS substance groups, it is possible to recognise some common approaches to synthetic methods, it is difficult to comprehensively examine their methods of manufacture, and identify and prioritise an overall set of key precursor chemicals due to their sheer number and chemical diversity. Since the advent of the NPS phenomenon in 2009, NPP and ANPP, which are precursors of a number of recently reported fentanyl analogues, are the only precursors of NPS placed under international control.

Ongoing challenges

Over a number of years, the synthetic drug market has transformed at an incredibly fast rate, making it particularly difficult to predict future developments with any degree of certainty. In particular, the recent unprecedented emergence of a large number of NPS, of diverse chemical nature, has radically challenged our understanding of the synthetic drug market. The synthetic drug market has evolved from one with a relatively small number of structurally similar substances to an extensive and ever-increasing array, comprised of hundreds of structurally diverse substances. This development has immense implications for *inter alia* monitoring of the synthetic drug market, identification and detection of substances, development of effective legislative and administrative measures at the national level and effective precursor control measures.

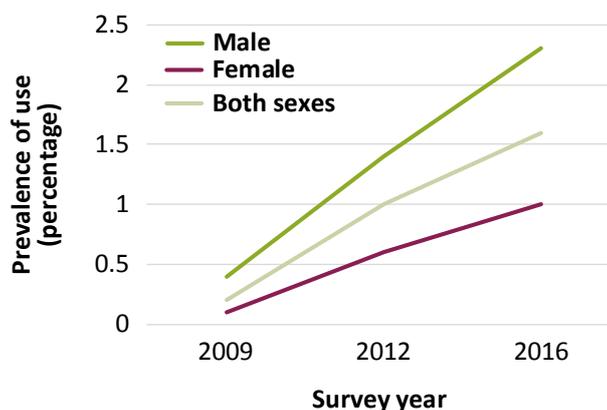
Notwithstanding the challenges presented by their sheer numbers and diversity, NPS produce effects within the six psychoactive effect groups, analogous to the traditional synthetic and plant-based drugs. Analysing the synthetic drug market in terms of psychoactive effect

Emergence of NPS with hallucinogenic effects in South America

A particular characteristic of the regional drug situation in South America – evidenced in general population and university student surveys – is the comparatively high prevalence of use of hallucinogenic drugs. The situation is complicated by the fact that drugs sold as “2C-B” or “LSD” do not always contain the expected psychoactive substances and a range of NPS have been identified in products sold under these drug names.

In the region, NPS with hallucinogenic effects that were either sold, or referred to, as “LSD” or “synthetic LSD”¹ have been associated with severe intoxications, including fatalities.² Moreover, in Chile, several NPS sold as “LSD” were seized by law enforcement authorities³ or identified in connection with emergency room admissions.⁴ Given the presence of hallucinogenic NPS in South America and the increased prevalence of LSD use, it is possible that a growing market for hallucinogens has opened up opportunities for traffickers to sell NPS with hallucinogenic effects (For more information, see the UNODC Global Synthetic Drugs Assessment 2017).

Figure 4: Annual prevalence of LSD use among university students in Bolivia, Colombia, Ecuador and Peru (average), 2009–2016



Source: UNODC, “III Estudio epidemiológico andino sobre consumo de drogas en la población universitaria, Informe Regional, 2016” (June 2017).

- ...
- 1 Will Lawn and others, “The NBOMe hallucinogenic drug series: patterns of use, characteristics of users and self-reported effects in a large international sample.” *Journal of Psychopharmacology*, vol. 28 no. 8 (2014): pp. 780-788.
 - 2 David Wood and others, “Prevalence of use and acute toxicity associated with the use of NBOMe drugs.” *Clinical Toxicology*, vol. 53 no. 2 (2015): pp. 85-92; UNODC Early Warning Advisory on New Psychoactive Substances.
 - 3 UNODC, Global SMART Programme Latin America, *Information Bulletin No. 1*, June 2016; See also Observatorio de drogas de Colombia, “Sistema de alertas tempranas: Aparición de nuevas sustancias psicoactivas en Colombia”, January 2017.
 - 4 Chile, Ministry of the Interior and Public Security, “NSP y precursores”, pp. 14-16; Available at www.interior.gob.cl (Spanish only).

groups rather than emphasizing differences in chemical structures could advance our understanding of the phenomenon – an essential step to any effective response to the synthetic drug problem.¹⁸ An improved

understanding would strengthen existing responses to the emergence of NPS and enrich the information available for drug policy formulation.

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- 18 Action Plan Against Illicit Manufacture, Trafficking and Abuse of Amphetamine-type Stimulants and Their Precursors. (General Assembly, 21 October 1998, A/RES/S-20/4).

Featured Publication

The 2017 Global Synthetic Drugs Assessment – Amphetamine-type stimulants and new psychoactive substances

The triennial Global Synthetic Drugs Assessment was launched in October 2017 and provides an analysis of the global synthetic drug market, in two parts. The first part consists of regional overviews that highlight context-specific dynamics relating to the demand and supply of amphetamine-type stimulants (ATS) and new psychoactive substances (NPS) in Africa, Central and Southwest Asia, East and South-East Asia and Oceania, Europe, the Near and Middle East, North and Central America, and South America. The second part of this report presents a global thematic analysis of the key trends and emerging developments of the synthetic drug market. With the emergence of NPS in traditional markets, the triennial assessment has analysed trends and significant developments in both the ATS market and emerging markets. An important aspect of the assessment is to highlight the links between the traditional ATS markets and emerging NPS markets.

Key Findings of the report are:

Expanding market for synthetic drugs

Unlike the manufacture of heroin and cocaine, the manufacture of synthetic drugs is not geographically constrained, as the process does not involve the extraction of active constituents from plants that have to be cultivated in certain conditions for them to grow. Yet any analysis of the synthetic drug market is complicated by the fact that information on synthetic drug manufacture is limited, which prevents the estimation of the volume of such drugs being manufactured worldwide. Nevertheless, data on seizures and use suggest that the supply of synthetic drugs is expanding.

An increasing number of countries are reporting seizures of synthetic NPS, with over 20 tons seized in 2015. Seizures of ATS doubled in the five years prior to 2015, to reach 191 tons in 2015. This was a result of sharp increases in the amounts of amphetamines seized, of which methamphetamine accounted for some 61-80 per cent annually during that period.

Methamphetamine accounts for considerable harm

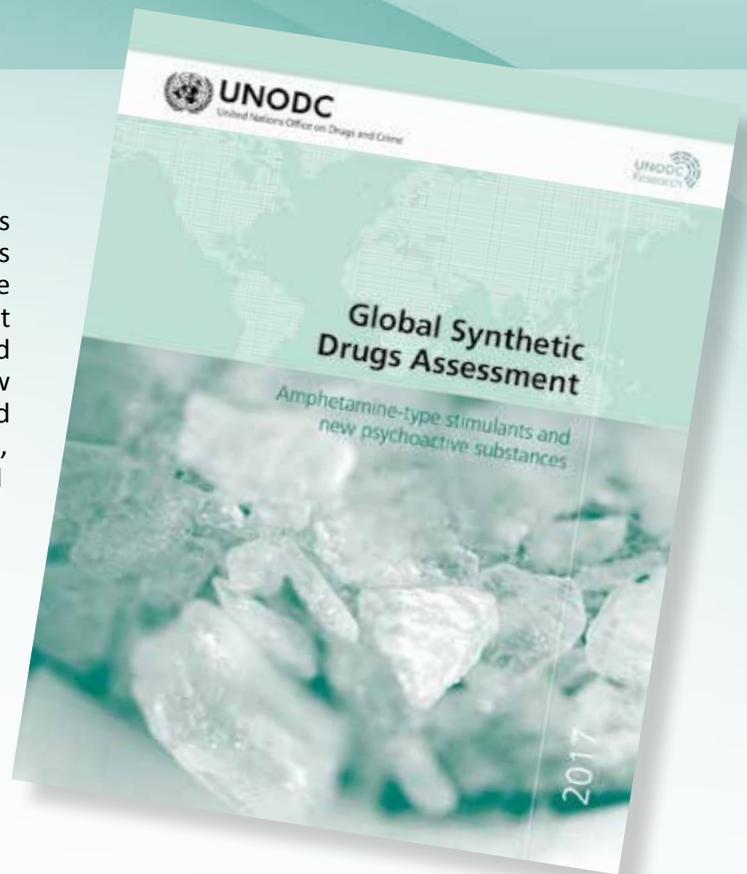
Disorders related to the use of amphetamines account for a considerable share of the global burden of disease attributable to drug use disorders, second only to those related to the use of opioids. Available data show that, among amphetamines, methamphetamine represents the greatest global health threat. Methamphetamine use is spreading and an increasing number of methamphetamine users are seeking treatment. In addition to the established and expanding market for

methamphetamine in East and South-East Asia and Oceania, there are growing concerns about methamphetamine use in North America, South-West Asia and parts of Europe.

Geographical shift in the methamphetamine market

A major geographical shift appears to have occurred in the methamphetamine market in the last five years. In 2015, the quantity of methamphetamine intercepted in East and South-East Asia surpassed the quantity intercepted in North America for the first time, making East and South-East Asia the leading subregions for methamphetamine seizures worldwide. While this may be a reflection of an increase in the effectiveness of law enforcement in East and South-East Asia, methamphetamine trafficking routes appear to be increasingly connecting previously unconnected markets in various subregions. Of particular note is the large increase in methamphetamine seizures in China.

The expansion of the methamphetamine market in East and South-East Asia is visible in the, albeit scarce, information available on methamphetamine use and treatment. In 2015, experts in several countries in the subregion reported a perceived increase in the use of both crystalline methamphetamine and methamphetamine tablets. They also considered methamphetamine to be the most commonly used drug in some of those countries. In the same year, people receiving treatment for methamphetamine use accounted for the largest



share of people treated for drug use in the majority of countries and territories in East and South-East Asia that reported on that indicator. In Oceania, there has been an increase in both the quantities of methamphetamine seized and the prevalence of its use.

Amphetamine trafficking expanding in Asia and Central America

In contrast to methamphetamine, amphetamine has been confined to fewer subregions, such as the Near and Middle East and Western and Central Europe. The quantities of amphetamine seized in 2015 point to a possible recent expansion of the amphetamine market in South-Eastern Europe, but this may be simply related to the large amphetamine market in the neighbouring Near and Middle East. Quantities of amphetamine seized also sharply increased in Central America and South-West Asia.

“Ecstasy” market becoming increasingly multifaceted

While smaller than the market for methamphetamine, the “ecstasy” market has grown in complexity and the variety of “ecstasy” products available to drug users has increased. The three main types are: (a) “ecstasy” tablets containing little or no MDMA (3,4-methylenedioxymethamphetamine); (b) “ecstasy” tablets with an extremely high content of MDMA; and (c) “ecstasy” sold in powder or crystal form, under different street names. “Ecstasy” tablets with a high MDMA content are of particular concern in Europe, where law enforcement entities have also discovered industrial-scale MDMA manufacturing facilities.

New psychoactive substances potentially more lethal than other drugs, but market still relatively small

Despite the large number of NPS present in drug markets, the overall size of the market for such substances is still relatively small when compared with other drug markets. However, one of the most troubling aspects of NPS is that users are unaware of the content and the dosage of the psychoactive substances contained in some NPS. This potentially exposes users of NPS to additional serious health risks. Little or no scientific information is available to determine the effects that these products may have and how best to counteract them.

A number of NPS have been implicated in fatalities, while the injecting of NPS with stimulant effects has been reported among high-risk groups of people who use drugs, further aggravating the health risks to which people in those groups are exposed.

New psychoactive substances continue to evolve, diversify and grow

The NPS market continues to be very dynamic and is characterized by the emergence of large numbers of new substances belonging to diverse chemical groups.

Between 2009 and 2016, 106 countries and territories reported the emergence of 739 different NPS to UNODC.

Marketed in many different ways and forms, new substances often emerge quickly and disappear again, while some become used regularly among a small group of users. Several countries have reported NPS being sold under the name of controlled drugs such as “LSD” and “ecstasy”. Often used for reasons similar to those for the use of traditional drugs, their easy availability and low prices have made certain NPS highly attractive to some groups of drug users. A market for some NPS in their own right now appears to have been established. A core group of over 80 NPS were reported every year during the period 2009-2015 and appear to have become established on the global market; a number of them have been placed under international control. On the other hand, about 60 NPS seem to have disappeared from the market since 2013. Problems in identifying them in a laboratory may be a factor, however, in the low level of reporting of these lesser-known substances.

Use of synthetic cannabinoid products associated with severe health risks

Synthetic cannabinoids are not simply synthetic versions of the substances occurring in herbal cannabis, as street names such as “synthetic cannabis” or “synthetic marijuana” may suggest. They are a diverse group of potent psychoactive compounds that are designed to mimic the desired effects of cannabis, of which there are also many new products on the market. Despite the predominance of synthetic cannabinoids on the spectrum of NPS, users of cannabis have reported that they prefer natural cannabis to synthetic cannabinoids.

There is growing recognition of the harm associated with intoxication resulting from the use of synthetic cannabinoids. While, in general, these health harms are not dissimilar to the intoxication caused by natural cannabis, the use of products containing certain synthetic cannabinoids has been associated with severe adverse health events including hospitalisations and fatalities. It cannot be concluded, however, that the untoward or undesirable effects of synthetic cannabinoids will limit their uptake or use.

Opioid market in a constant state of change

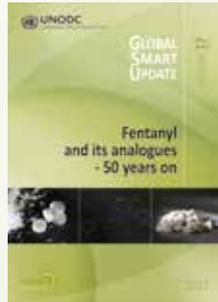
The opioid market is becoming more diversified: this is illustrated by the example of the United States, where the opioid market comprises a combination of internationally controlled substances, particularly heroin, and prescription medicines that are either diverted from the legal market or produced as counterfeit medicines on a large scale. These counterfeit medicines are made to look like pharmaceutical products while actually containing fentanyl and fentanyl analogues, as well as non-opioid substances such as derivatives of benzodiazepine and methylphenidate.

The report is available at: www.unodc.org/documents/scientific/Global_Drugs_Assessment_2017.pdf

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