

Exploring the Attractiveness of New Psychoactive Substances (NPS) among Experienced Drug Users

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Abstract—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). Using semi-structured interviews with 25 Dutch experienced recreational drug users, the role of the Internet and friends in gathering and exchanging information about NPS was elaborated. Furthermore, we investigated how NPS were acquired and which aspects make NPS more or less attractive, including their legal status. It appeared that the Internet was an important source of information about NPS in general. Personal experiences with NPS were preferably shared face-to-face with friends, as for privacy reasons users were cautious to post their experiences on web sites and forums. NPS were usually obtained or bought from friends or—to a lesser extent—purchased via the Internet. The preference for a specific NPS depended on the desired effects (mostly stimulant or psychedelic), price (similar to MDMA or amphetamine), duration of effect (preferably around four hours), and setting (at home, at festivals, or in nightlife). Legal status was not relevant for the decision to use NPS. Most NPS are not superior to the already marketed drugs, and do not displace conventional illicit drugs.

Keywords—designer drugs, Internet, legal highs, NPS, recreational use

INTRODUCTION

Between 2008 and 2012, the number of New Psychoactive Substances (NPS) notified through the European Union (EU) Early Warning System gradually increased from 13 to 73. In 2013, a new annual record was set at 81 NPS, leading to a total of over 350 NPS

(EMCDDA 2014). In the EU, NPS are defined as “synthetic or naturally occurring substances that are not controlled under international law, and often produced with the intention of mimicking the effects of controlled drugs” (EMCDDA 2014). The notified NPS represent a heterogeneous group of substances, including synthetic cannabinoids and cathinones, synthetic analogues of known drugs, and substances of plant origin. First observations of NPS often refer to customs and police seizures, or biological samples (fatal and non-fatal intoxications). However, such data tell little about the extent to which NPS (also called “designer drugs” or “legal highs,” though not all NPS are legal) are actually used.

Two general population studies examined the prevalence of NPS use in the EU, as part of telephone Eurobarometer surveys among those aged 15 to 24 years (Eurobarometer 2011; 2014). Respondents were asked if they had ever used “new substances that imitate the effects

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of illicit drugs that are being sold as legal substances in the form of—for example—powders, tablets/pills or herbs.” Between 2011 and 2014, lifetime use of NPS in the EU increased from 5% to 8% (range from 0% to 22%), whereas last month prevalence remained stable at 1% (range 0% to 5%) (Eurobarometer 2014). In The Netherlands, the rate of ever use of 6% in 2014 was below the European average of 8%. Note that in both Eurobarometer studies NPS were broadly defined, and self-reported use might largely refer to herbal preparations. Not surprisingly, selective samples of experienced (and often older) drug users show higher prevalence rates of NPS use. Also, they are more specific regarding the substances under study. For example, in a Spanish survey carried out at music festivals and an online drug forum, lifetime NPS use was highest for hallucinogenic phenethylamines (2C-B 80.0%, 2C-I 39.6%) and cathinones (methyldone 40.1%, mephedrone 35.2%) (Gonzalez et al. 2013).

The Internet has become a major source of information about drugs, and it also has been argued that “cyber drug communities are increasingly innovative in their capacities to retail and market drugs” (Van Hout & Bingham 2013). For instance, in the Eurobarometer surveys, the Internet (websites and chats) was the most popular source when looking for general information about new substances that imitate the effects of illicit drugs (30%, all respondents), followed by friends (18%) (Eurobarometer 2014). The Spanish survey (Gonzalez et al. 2013) showed a similar picture with regard to searching for information about NPS (drug forums 78%, specialized web pages 49%, and friends 23%). Interestingly, regarding the source of acquisition of NPS, in both surveys friends (54% and 68%, respectively) were more often reported than the Internet (7% and 3%, respectively). The purpose of the current study is to elaborate upon the role of the Internet and friends in gathering and exchanging information about NPS, as well as in acquiring NPS, and to assess aspects that make NPS more or less attractive, including their legal status.

METHODS

The present semi-qualitative study was conducted in 2012 with 25 experienced drug users. Inclusion criteria were ample experience with the use of a variety of recreational drugs, including the use of NPS in the past 12 months. The participants were recruited through privileged access of the authors to various social networks of users (both in nightlife and in private settings) and snowball sampling. Participants were mostly well-educated (80% had completed college or university), aged 20 to 42 (30.4 ± 5.3), and 66% were male. Two participants were unemployed; 23 were employed, owned a business, and/or were students.

In semi-structured face-to-face interviews, participants were asked about their drug use, their choice to specifically use NPS, which NPS they used, which type of NPS they

TABLE 1
Prevalence of Use of 17 Pre-Listed Drugs (N = 25)

Drug	Ever (%)	Last year (%)	≥ 25 times last year (%)
Cannabis	92	92	48
Amphetamine	96	88	28
Mephedrone*	96	84	8
2C-B*	92	80	0
MDMA powder/crystals	96	76	0
Laughing gas (N ₂ O)	92	76	12
Ketamine	84	76	0
LSD	84	72	4
Ecstasy	96	68	0
GHB	76	60	20
Psychedelic mushrooms/truffles	88	56	0
Cocaine	80	40	4
Methyldone*	48	36	0
Mescaline/peyote	44	20	0
Methamphetamine	24	16	0
Heroin	4	4	0
Crack	0	0	0

*Substances categorized as NPS.

preferred (stimulant vs. psychedelic, duration of effect), which aspects would make NPS attractive or not (including legal status), how they gather and exchange information about NPS, and how they acquire NPS. All participants provided verbal consent, were assured of anonymity, and allowed to withdraw if and when they wished.

RESULTS

Types of NPS Used

Participants had experience with a wide variety of both stimulant as well as psychedelic substances (Table 1), and were eager to try out psychoactive substances. None of the participants were “cannabis only users,” whereas they virtually all avoided addictive street drugs such as heroin and crack and did not use drugs intravenously. First, participants were asked about their use of the 17 substances listed in Table 1. This shows their experience with various stimulants, sedatives, and psychedelics, but not with heroin and crack. Many respondents had used the three pre-listed NPS (mephedrone, 2-CB, and methyldone). In response to an open-ended question about which NPS they had used other than those listed in Table 1, they reported the ever use of a large variety of NPS such as 2C-D, 2C-I, 2C-T-7, DMT, TMA-2, 4-Fmp, 4-FMC, 5-APBD, MDPV, JWH-18, phenibud, metoxetamine, and 2-DPMP. In total, 82 times a substance was reported (by its chemical name or street name) that could be categorized as NPS. In 52% of the answers this was a stimulant, in 39% a psychedelic, and

in 21% another substance (of which synthetic cannabinoids only once). When asked about NPS they had never used, but would want to try in the future, all but one participant reported one or more substances (or groups of substances; e.g., “benzofurians”) that could be categorized as NPS. Interestingly, psychedelics were much more often mentioned (83% of all 63 answers categorized as NPS) than stimulants (13%) or other NPS (5%, no synthetic cannabinoids).

Searching for and Exchanging Information about NPS

When searching for information about NPS in general, most participants (23 out of 25) turned to informative web-sites such as Erowid, half of them also visited drug forums, and four out of 25 asked friends. Before actually using an NPS unknown to them for the first time, the majority searched for information on the Internet, but friends often played a more prominent role. “I look at the Internet to find out how people talk about it. But friends who know me are more important and they are better to give me advice” (male, 33 yrs.). Five participants fully trusted their friends and did not (further) search for information on the Internet before taking an NPS for the first time. “I’ll only use it when a friend recommends it to me. When the stories are good and I trust that person, I’ll take it” (female, 29 yrs.). Most participants (19 out of 25) came into contact with NPS through friends; they told each other about new NPS, took some, or shared the drug. Five participants could be classified as pioneers who actively seek for new NPS and discovered new NPS through Internet forums and media.

Participants often shared experiences with new NPS only face-to-face with friends, because they were cautious about posting their experiences on web sites and forums. “I don’t share my experiences on the Internet. You never know who will read them and whether they can trace it back to you” (female, 22 yrs.). Experiences with NPS were shared with like-minded people within their own circle only, while others ($N = 9$) shared their knowledge with people both inside and outside their own circle of users. Enthusiasm aroused, for instance, when a certain NPS “gets you connected,” “broadens your own view,” or “gives nice experiences,” was a reason to share the experience.

Many participants felt responsible for the information they provided so that they shared their experiences with potentially dangerous NPS only with like-minded users, because certain NPS are not suitable for everyone. “For example control freaks or people who are susceptible for psychosis have to be very careful with psychedelic drugs” (male, 24 yrs.). Another reason for not sharing experiences was the fear that the NPS would become illegal when used more widely.

Sourcing, Pricing and Legal Status

Participants mostly purchased NPS (or got them as gifts) from friends. In general, the sale was a favor,

as no profit was made. Seven active buyers sometimes ordered NPS through Internet sites, either together with friends or alone, and two bought from a trustworthy dealer. Participants shared information about web addresses that sell NPS or they introduced a friend to a dealer. Only seven participants never told others how they purchased their NPS.

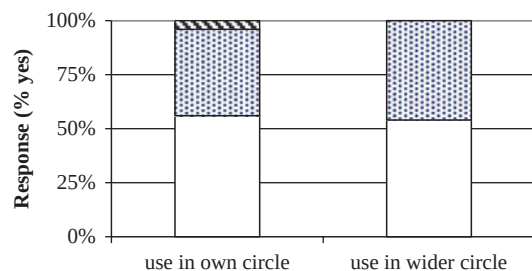
Though not crucial, users largely agreed that the price of NPS should be in the range of that of ecstasy (€5-10 per dose) or amphetamine (€10-15 per gram, compared to €50 per gram cocaine). For three users, the price was of less interest, because they wanted to try a variety of NPS and were willing to pay more for an NPS with very special effects. For most participants (23 out of 25), the legal status of a NPS played no role in their consideration to use NPS. In the opinion of a few, legality could probably provide more security and less stress when purchasing the drug. Participants agreed that the degree of availability is an important factor for an NPS to become used in wider circles.

Advantages and Disadvantages of NPS

When experimenting with an NPS, users focused on the desired and possible adverse effects, such as a hangover, and the ability to combine the NPS with other drugs. Basically, NPS users could be distinguished in their preference for either stimulant or psychedelic effects. If stimulant NPS were preferred, the drug also required a strong social component (feeling connected, communicative, not individually), had to be “manageable” and not make you go “too hard.” Those who preferred the mind-altering psychedelic NPS with the specific in-depth visual, hallucinogenic, and dissociative effects adhered less to a social component. The choice for an NPS also depended on the setting: stimulant NPS were preferred in nightlife and psychedelic NPS at home. In the perception of the participants, ecstasy is the substance that best unifies both effects (mild psychedelic and stimulant). The strong preference for either stimulants or psychedelics generally reflected the dominant preference of a particular group of friends or scene for certain substances. “The preference for psychedelic or stimulants varies among groups of friends, but also within one subject. But varies especially from one occasion to another” (male, 29 yrs.).

The following effects of NPS were not appreciated: (1) socio-psychological in nature; i.e., go inside yourself, ego-tripping, “go hard”; (2) acute physical adverse effects, such as prolonged hangover, drowsy feelings; and (3) chronic physical effects, such as craving and addiction. Half of participants (both when used their within own circle or in a wider circle of users) preferred a duration of action of up to four hours; the others preferred a longer duration, though it should not be longer than eight hours (Figure 1). The majority considered the duration of action of ecstasy as optimal.

FIGURE 1
Optimal Duration of the Effect of NPS (N = 25),
According to Users When the Setting of Use is in
their own Circle or in Wider Circle



Open bars: maximal four hours; dotted bars: five to eight hours; shaded bars: longer than eight hours.

DISCUSSION

The interviewed NPS users were experienced drug users and familiar with a variety of psychoactive drugs, similar to a Spanish survey carried out at music festivals and an online drug forum (Gonzalez et al. 2013). They also resembled a subgroup of regular Australian ecstasy users who also used NPS, and who used four times more frequently and more different drugs (nine or more classes of drugs in the last six months) than those who did not use NPS (Burns et al. 2014; Bruno et al. 2012). Participants in the present study were experienced users interested in experimenting with new substances. As such, the present sample is a targeted, non-normative sample and our findings are not representative for the much larger population of drug users. While for participants in our study the Internet was the most common source of information before trying a new NPS, they mostly rely on friends for information about the new substance. The two Eurobarometer surveys performed in normative samples of young people also found that the Internet was the primary source to collect information about NPS, whereas a normative sample of U.S. students preferred peers and not Internet sources to obtain information about new substances (Miller et al. 2011). For privacy reasons, participants were cautious about posting their own experiences with NPS on websites and forums, and they predominantly shared them face-to-face with friends. About a quarter of the participants sometimes ordered NPS through Internet sites, and some usually bought NPS from a trusted dealer. However, NPS were mostly received or bought from friends. The present results corroborate with previous findings obtained in young Europeans (Eurobarometer 2011; 2014) and in the U.K. (McElrath & O'Neill 2011) and Australia (Sindicich

& Burns 2013; Burns et al. 2014), where friends and reliable dealers were their main source of NPS.

The participants described here were highly interested in recreational drugs in general, implicating curiosity as one motive to try out new NPS, as was also concluded in previous studies (Van Hout & Brennan 2011; Kelleher et al. 2011). In addition, they largely agreed that the price should be in the range of that of ecstasy or amphetamine and the duration of effect should be up to four hours, which is in line with earlier findings (EMCDDA 2011; Winstock & Marsden 2010; Winstock, Marsden & Mitcheson 2010).

In this study, the legal status of NPS appeared to be hardly important to users, confirming previous reports from the U.K., where the legal status of NPS was a secondary rather than a primary motivating factor of its use (Dargan, Albert & Wood 2010; Measham et al. 2010; Wood, Measham & Dargan 2012; McElrath & O'Neill 2011). This is not surprising, given that NPS users already have experience with the use of illicit drugs such as ecstasy, cocaine, and amphetamines. This might also explain why not all users are familiar with the latest legal status of NPS they wish to use (Corazza et al. 2014). However, the legal status might be more relevant for other populations, such as military personnel, probationers, and athletes, who are regularly tested for substance use (Vandrey et al. 2012). In our study, choosing stimulant NPS with social components, such as empathogenic, communicative, and mild euphoric effects, or psychedelic NPS with hallucinogenic and visual effects, was largely a matter of personal preference and setting. Interestingly, while subjects more likely had ever used stimulant NPS than psychedelic NPS, in the future they predominantly intended to try psychedelic NPS. An explanation might be that the participants in our study represent a subgroup of drug users with a strong interest in mind-altering experiences, rather than to collectively enjoy the use of drugs in nightlife settings. This preference for hallucinogenic substances has also been observed in a previous Spanish survey carried out at music festivals and an online drug forum where hallucinogenic NPS showed the highest popularity (lifetime consumption rate of 80.0% for 2C-B and 39.6% for 2C-I) (Gonzalez et al. 2013).

The prevalence of NPS use in The Netherlands is relatively low. In 2013, last month prevalence of NPS among clubbers and ravers was 0.6% for mephedrone, 6.0% for 2C-B, and 1.4% for 4-fluoramphetamine versus 55.0% for ecstasy, 23.2% for amphetamine, and 19.4% for cocaine (Nabben, Benschop & Korf 2014). The interest in psychedelic NPS by clubbers and ravers is, however, increasing, as in 2008 the last month prevalence of 2C-B was only 0.9% (Nabben, Benschop & Korf 2014). Growing interest in psychedelic NPS was also found in regular Australian ecstasy users, where the last year use of 2C-I

and 2C-B increased between 2011 and 2014 from 2-3% to 8-14%, respectively (Burns et al. 2014). The high lifetime use of hallucinogenic 2C-B and 2C-I recently reported by a Spanish survey (Gonzalez et al. 2013) confirms such interest in psychedelic NPS.

In The Netherlands, the use of NPS is relatively low as compared to other European countries (Eurobarometer 2011; 2014), which may be partly due to the low use of synthetic cannabinoids. Selling cannabis in consumer amounts is condoned in so-called coffee shops, and this might explain why none of the participants reported the use of synthetic cannabinoids, and only one was interested in future use.

Most newly introduced NPS quickly disappear from the market because they are not superior to the already marketed drugs. In fact, NPS present no new (innovative) class of recreational drugs and do not therefore displace established drugs, but rather supplement them (Moore et al. 2013). In their active search for new NPS, a subgroup of experienced users predominantly wishes to experiment with (new) psychedelic NPS, but it seems unlikely that these drugs will become popular in mainstream users, because they are too dissociative and introverted. Since the legal status of NPS is not relevant for their decision to use NPS, demand reduction through criminalization seems questionable.

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