



Research Paper

The diverse reasons for using Novel Psychoactive Substances - A qualitative study of the users' own perspectives

Christophe Soussan*, Martin Andersson, Anette Kjellgren

Dept. of Psychology, Karlstad University, SE-651 88 Karlstad, Sweden

ARTICLE INFO

Article history:

Received 22 May 2017

Received in revised form 17 October 2017

Accepted 1 November 2017

Keywords:

novel psychoactive substances
motivation
drugs
legal highs
internet

ABSTRACT

Background: The increasing number of legally ambiguous and precarious Novel Psychoactive Substances (NPS) constitutes a challenge for policy makers and public health. Scientific and more in-depth knowledge about the motivations for using NPS is scarce and often consist of predetermined, non-systematic, or poorly described reasons deduced from top-down approaches. Therefore, the aim of the present study was to explore and characterize the users' self-reported reasons for NPS use inductively and more comprehensively.

Methods: The self-reported reasons of a self-selected sample of 613 international NPS users were collected via an online survey promoted at the international drug discussion forum bluelight.org and later analyzed qualitatively using inductive thematic analysis.

Results: The analysis showed that the participants used NPS because these compounds reportedly: 1) enabled safer and more convenient drug use, 2) satisfied a curiosity and interest about the effects, 3) facilitated a novel and exciting adventure, 4) promoted self-exploration and personal growth, 5) functioned as coping agents, 6) enhanced abilities and performance, 7) fostered social bonding and belonging, and 8) acted as a means for recreation and pleasure. The consumption of NPS was also driven by 9) problematic and unintentional use.

Conclusion: The present study contributed to a more comprehensive understanding of the users' own and self-reported reasons for using NPS, which needs to be acknowledged not only in order to minimize drug related harm and drug user alienation but also to improve prevention efforts and reduce the potentially counter-intuitive effects of strictly prohibitive policies.

© 2017 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Background

The number of easily accessible and legally ambiguous Novel Psychoactive Substances (NPS) is increasing, and the market for such drugs is assumed to keep growing. In 2015, the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA, 2016) identified 98 novel compounds, which brought the total number of currently monitored NPS to more than 560. The speed at which the market for drugs evolves is a challenge not only for researchers and public health agencies but also for policy makers. Regulatory action has in some cases proved to be ineffective, and sometimes even counterproductive, since clandestine chemists and vendors continually adapt to current legislations by introducing abandoned medical research candidates or yet new and molecularly altered substances with more adverse effects than the ones they replace

(Johnson, Johnson, & Portier, 2013; Winstock & Ramsey, 2010). In addition to the ensuing challenges of this cat and mouse game, scientific knowledge about toxicology, addiction potential and possible side-effects is scarce or absent (Gibbons, 2012; Wood & Dargan, 2012). Moreover, the community of users is poorly investigated and the prevalence-of-use rates are somewhat contradictory. A Eurobarometer survey (2014) revealed that the lifetime experience, on average, was eight percent among youth in Europe, which differed greatly from the 65.8% among a targeted population of nightclub visitors (Wood, Hunter, Measham, & Dargan, 2012). Studies have showed that the use of NPS occurs in nearly all age groups although the majority of users are believed to be young males (Barratt, Cakic, & Lenton, 2013; Soussan & Kjellgren, 2016). A number of studies have also highlighted that many users are generally well-informed, knowledgeable, and experienced in the world of drugs (Soussan & Kjellgren, 2014; Werse & Morgenstern, 2012).

Previous research has pointed out that the limited amount of scientific knowledge about NPS and the community of users also pertains to their motivations for use (Moore, Dargan, Wood, &

* Corresponding author.

E-mail addresses: Christophe.Soussan@kau.se (C. Soussan), Martin.Andersson@kau.se (M. Andersson), Anette.Kjellgren@kau.se (A. Kjellgren).

Measham, 2013; Soussan & Kjellgren, 2016). We argue that this needs to be addressed since a better understanding of why people use drugs is assumed to improve prevention efforts and enable a reduction of drug-related harms (Adams et al., 2003; Boys, Marsden, & Strang, 2001). For example, health promotion campaigns that neglect to acknowledge the pleasure incentive may be resisted and could paradoxically serve as motivation for engagement in drug use (Barratt, Allen, & Lenton, 2014). Hence, appreciating the intertwined relationship between the risks and the beneficial effects could make prevention messages more acceptable and credible (Pennay, 2015). A sophisticated understanding of the specific reasons for drug use is also believed to increase the ability to tailor messages relevant to the appropriate target groups (Boys et al., 2001; Sutherland et al., 2017). Motivation is, however, a vast and complex field of research including a range of human motivation models in general and drug use theories in particular. In addition, there is a branch of research focusing on the content of motivation by documenting the reasons for drug use. The literature on traditional drug use reasons lists several recurring incentives such as pleasure, enhancement, coping, self-assertion, habit and addiction, and self-exploration (e.g. Boys et al., 2001; Nicholson et al., 2002; Novacek, Raskin, & Hogan, 1991). The few available NPS-specific studies that take motivation into account focus exclusively on the content of motivation, and often emphasize external circumstances such as price, legal status, purity, availability or non-detectability in screening tests as crucial reasons for NPS use (Sutherland et al., 2017). A general view is that the users turn to NPS-substitutes when traditional drugs are prohibited or in other ways reduced in supply (Measham, Moore, Newcombe, & Welch, 2010). Studies surveying the users have also suggested that they are driven by curiosity, enhancement of social situations, the enjoyable effects, and a desire to “get high” (Corazza, Simonato, Corkery, Trincas, & Schifano, 2014; Johnson et al., 2013; Measham et al., 2010; Sande, 2016; Werse & Morgenstern, 2012; Winstock, Lawn, Deluca, & Borschmann, 2015).

Preceding investigations have revealed that the reasons for NPS use varied considerably between different types of NPS (Soussan & Kjellgren, 2016; Sutherland et al., 2017). For example, the use of novel hallucinogens was mainly motivated by self-exploration and insignificantly associated with dependency, while the use of novel opioids was motivated by coping and showed much higher levels of problematic use. Other studies support the notion of substance-specific motivations by associating certain motivations, such as the facilitation of social situations, euphoria, cognitive enhancement, and increased energy and motivation, with the use of novel stimulants in particular (Beharry & Gibbons, 2016; Zawilska, 2015). Furthermore, novel benzodiazepines are known for their sedative properties and addiction potential, and they attract users with the purpose to self-medicate or mitigate the “come down” effects of other drugs (Andersson & Kjellgren, 2017; Beharry & Gibbons, 2016). A drawback of the above mentioned studies is that they, in most cases, have a top-down methodology, and investigated the extent to which the users were motivated by predetermined incentives often appearing in a non-systematic manner. Considering that many drug use motivations found in the scientific literature are adopted from the body of alcohol research (Lee, Neighbors, & Woods, 2007), and that the reasons in many cases were arrived at by top-down approaches, it is important to investigate the users' self-reported reasons for NPS use inductively. Another expected benefit of analysing the users' experiences qualitatively in a bottom-up manner is the generation of richer and more in-depth knowledge about the reasons for using NPS.

The purpose of the present study was to explore and characterize the self-reported reasons for NPS use among a sample of international NPS users online.

Methods

Data collection

The data for the present study were extracted from a larger data set of NPS user characteristics which were collected through an online survey promoted at the international drug discussion forum bluelight.org. In addition to the already published survey results (see Soussan & Kjellgren, 2016), the 619 participants were asked to answer the following open-ended question: “What were your reasons for consuming novel psychoactive substances? Write as elaborately as you like”. Nearly all the participants (613) chose to reply by submitting their self-reported reasons for using NPS, which constituted the data for the present study. The open-ended question was presented before any other questions about motivation in the survey to ensure that the participants remained relatively unbiased. In total, the raw data amounted to 34 719 words of written text. The survey was online between November 2014 and February 2015.

Participants

The sample consisted of 613 self-selected participants (512 males, 101 females) from 42 countries. The ten most frequently occurring countries were: USA (48.9%), United Kingdom (14.2%), Canada (7.3%), Sweden (5.5%), Holland (3.8%), Australia (3.4%), Germany (2.6%), Finland (1.0%), France (1.0%), and Poland (1.0%). It was required that the participants were 18 years or older, and that they had used at least one NPS within the last two years. The mean age among the males was 27.2 years ($SD=9.3$, median = 25, range = 18–75) and the females were slightly older (mean = 29.8, $SD=10.1$, median = 27, range = 18–66). The mean age for all the participants was 27.6 years ($SD=9.5$) and the mode age for both genders was 18 years. The most frequently occurring types of NPS among the reported cases were hallucinogens (45%), stimulants (26%), dissociatives (11%), GABA (8%), synthetic cannabinoids (6%), and opioids (4%). Cases including use of clearly established drugs or combinations of drugs were excluded. However, novel does not necessarily mean new or legal but also includes long-existing substances “which have recently become popular in the drug market” (Corazza, Demetrovics, van den Brink, & Schifano, 2013).

Analysis

The raw data were analyzed qualitatively using the protocol for inductive thematic analysis outlined by Braun and Clarke (2006), which seeks to identify recurring patterns of responses or meaning in the data. The analysis was data-driven, and undertaken with as much openness and bias-free attitude as possible to avoid potentially deleterious effects of the researchers' preconceptions. The concept of reflexivity was taken into consideration throughout the process, which meant to sustain an attitude of attending to the effects of the researcher and minimize bias by: 1) following the research protocol outlined below scrupulously, 2) including two additional researchers to verify the analysis, and 3) circularly and systematically reviewing and refining higher levels of abstraction (categories and themes) by repeatedly returning to the raw data for verification and support of the themes. Moreover, the data within themes were continuously examined for internal coherence while a clear and identifiable distinction between themes was preserved. The data were primarily approached at the explicit or semantic level of meaning although a few occasional interpretations at the implicit or latent level were needed in order to distinguish what the participants meant to say.

In the first phase of the analysis, the material was thoroughly read and re-read several times to get familiar with the data. Next, the data were systematically divided into basic and meaningful units of information called coded elements (CEs). For example, the following data extract generated three CEs: *“They are easily available (1) with interesting effects (2) and of good quality (3)”*. In the subsequent step of the analysis, the 2 158 CEs were analyzed for resemblances and similar meaning, which resulted in the identification of categories of recurring patterns of broader meaning. Next, the interrelationship between categories was investigated at an even higher level of abstraction. Eventually, the categories were related and subordinated into nine overarching themes that characterized the self-reported reasons for using NPS.

Ethical considerations

The sample was self-selected and participation was completely voluntary. Prior to partaking in the survey, the participants were informed of the purpose of the study, and that they could withdraw participation at any time without specifying why, as long as the survey was uncompleted. Before taking the survey the participants were asked to verify being 18 years or older. No identity related questions were asked so that the participants could remain anonymous. The data did not contain any implicit or explicit identity markers. The collected data have been treated with integrity and no unauthorized people can access it. The study has been ethically reviewed by the Karlstad University Ethical Review Board with the reference number C2014/419.

Results

The analysis of 617 self-reports containing reasons for NPS use generated 2 158 units of meaningful information (CEs), which were sorted into categories of recurring motivations and further arranged into nine broader and overarching themes at a higher level of abstraction. In summary, the participants used NPS because these compounds reportedly: 1) *enabled safer and more convenient drug use*, 2) *satisfied a curiosity and interest about the effects*, 3) *facilitated a novel and exciting adventure*, 4) *promoted self-exploration and personal growth*, 5) *functioned as coping agents*, 6) *enhanced abilities and performance*, 7) *fostered social bonding and belonging*, and 8) *acted as a means for recreation and pleasure*. The consumption of NPS was also driven by 9) *problematic and unintentional use*. The themes and illustrative quotations are presented below.

Enabled safer and more convenient drug use

This theme summarizes the incentives related to the favorably experienced circumstances and extrinsic properties of NPS. Ease of acquisition, abundant availability, low prices and less perceived risks were commonly emphasized as essential reasons for NPS use. These factors were not directly related to the type of experience or effects sought by the participants; rather they enabled the use of drugs altogether or allowed for safer and more convenient use compared with traditional drugs. In some cases, the legal status or the lack of access to traditional drugs made the participants reluctantly turn to unclassified and more easily accessible NPS with corresponding effect profiles: *“Because of prohibition, I can’t obtain LSD. Unfortunately, NPS were the only option I had in obtaining psychedelics”*. In other cases, NPS were portrayed as having more desirable qualities than their traditional counterparts, and were viewed not only as inferior substitutes but as more favorable alternatives. For instance, the participants seemed concerned with personal safety and chose NPS because these substances, and the conditions surrounding them, were regarded as reliable and less

harmful. The general view was that NPS are manufactured more professionally, often labeled correctly and less likely to be cut with adulterants. The purity and quality of NPS were perceived as high and consistent and therefore dosing was generally also viewed as easier and safer: *“Buying defined amounts from online vendors allows me to dose correctly”*. Furthermore, the participants expressed that they maintained safety by avoiding interaction with the illegal market and street dealers: *“I don’t have to deal with the underground and criminal supply network for traditional drugs”*. Purchasing novel substances online purportedly entailed fewer risks, a more convenient means of acquisition, and greater certainty of getting the drug they actually intended to acquire. Even though the use of certain NPS, especially branded or blended products with unspecified content, were considered precarious, their legal status still made them an attractive choice. The reduced likelihood of legal consequences and the possibility of remaining lawful were commonly described as key factors for choosing NPS and often outweighed other risks: *“The perceived risk of legal trouble from using illicit drugs is far greater than the perceived risk of serious health issues resulting from occasional research chemical use”*. Furthermore, NPS were used to avoid positive drug screening tests and possible legal repercussions. Commonly, the participants mentioned several of the above factors in concert as reasons to use NPS: *“They are easy to find, cheap, legal, and usually have much more consistent quality than street drugs.”*

Satisfied a curiosity and interest about the effects

This theme frames the participants’ theoretically and practically oriented curiosity and interest about the drug effects. First and foremost, they expressed a desire to self-experiment with NPS in order to inquisitively examine what the effects were like and usable for. A basic sense of curiosity motivated many participants to sample the “buffet” of NPS. For some, the curiosity and interest had developed into a captivating hobby in the same way as any pastime while others displayed a profound academic and scientific-like interest that propelled their use of NPS. Conducting self-experiments with NPS was depicted as an obvious response to and elongation of the desire to learn about the effects first hand. The participants acted as both the researcher and the guinea pig when conducting these self-experiments: *“I was curious to see what the substance was going to do with me”/“The first-person perspective with something teach you more than any book can”*. The ambition to study and comprehend the effects included not only the actual taking of the drugs but also incorporated a dedicated interest in many other aspects of the psychoactive effects such as chemistry, pharmacology and psychology. Another facet of the participants’ interest had to do with the reflection upon the effects and how they compared to the effects of other compounds, both traditional and novel. The objective was to find personal favorites, optimize their subjective experiences, or to build a toolkit of different NPS to utilize for a variety of specific situations and occasions: *“To see if there is a compound that best fits with my unique physiological properties and personal perspectives”*. Some stated that they had committed their body and mind to the process of accumulating knowledge about the effects and characteristics of novel substances. Besides a mere personal interest, it was mentioned that they had an interest in documenting and reporting the experienced effects to other users of the community with the objective of reducing harm: *“I feel a sense of duty to educate those more reckless users in a way that will contribute to their safety and wellbeing”*.

Facilitated a novel and exciting adventure

This theme incorporates the described longing for excitement and novelty beyond the perceived boundaries of normality, which

were attained through the use of NPS. The wide array of available psychoactive drugs offered a tempting palette of unique and varied experiences, which the participants enthusiastically sought to subject themselves to: *"Novelty is exciting by principle"/"I believe each drug is unique and offers a range of effects that I am keen to experience"*. The everyday routine of modern day society was perceived as particularly lacking in the type of thrill and excitement that NPS provided. The act of going beyond the perceivably constraining rules and norms of society added to the desired sensations of fascination and excitement: *"It's the only real personal adventure left to us in our time-constrained, law-and-order, property-lined world"*. The adventurous and unknown aspect of trying new and unexplored drugs was described as exotic and intriguing. It appeared that the novelty seeking behavior involved a temptation to challenge oneself and experience something beyond the boundaries of normality: *"To help me break away from some of the everyday cultural and behavioral patterns"/"It's a thrilling feeling to partake in a substance that has been taken by few people in the existence of mankind"*. The participants emphasized that they were attracted by the non-ordinary and unpredictable nature of NPS. The excitement connected with novel, unknown and transboundary experiences appeared to outweigh the risks and dangers: *"Most people have a logical fear of getting on a roller coaster, but we still ride them"*. The participants were not oblivious to the potential harm. In fact, the conceivable risks of using NPS even appeared to contribute to the desired excitement and yearning for the edge of reality. The content of the drug experience seemed less important; it was rather the thrilling sensations of novelty and adventure per se that constituted the reason for use: *"There is great excitement when testing a novel substance, even if it turns out to be a dud"*. The participants viewed themselves as collectors of exciting and novel experiences, and stated that they eagerly wanted to expose themselves to a diversity of new sensations. Also, the drive for novelty extended to a sentiment of being on the frontline of human discovery and exploration. To experience something few others have experienced was in itself a motivational factor: *"I wanted to try something new, be a trail blazer and experience something few others have"*.

Promoted self-exploration and personal growth

This theme includes the participants' statements about NPS as avenues for self-exploration and personal growth. The mind-altering qualities of especially novel psychedelics seemed to be characterized by a radical shift in perception and the promotion of new perspectives and insights: *"I get a new vista of my mental landscape"*. It was expressed that these drugs entailed a sought after opportunity to explore the sense of self, and the experience of life in general, from otherwise unavailable standpoints: *"I learn to see the world in a new light compared to the sober mindset"/"I see my life and my thinking on different levels"*. The increased ability for introspection and observation of inner processes greatly appealed to the participants. Transcending the sense of personhood and their ordinary state of being, including habitual ways of behaving, was a prominent reason for use. Many descriptions concerned a desire for gaining self-knowledge, increasing awareness, and expanding the sense of self. In this regard, the participants used NPS in order to improve and grow as human beings towards greater self-realization: *"To become myself in ways that without drugs would be impossible"/"I seek to learn, grow, and expand consciousness"*. The use of NPS was also said to enable a vivid and more directly experienced recollection of unconscious or hidden aspects of the psyche: *"It's like a pathway into your own dark chambers which you have not noticed due to the fact you have been keeping yourself busy all the time"*. Furthermore, the participants gave the impression that a mental and emotional cleansing,

mentioned as a catharsis type of experience, was attainable. It appeared that some NPS allowed for a clarity in which the users were reminded of the important things in their life. In addition, NPS were used not only to elicit greater appreciation and compassion for life in general but also for themselves and their relationships to other people.

The inner exploration also extended to include existential and spiritual matters. Some of the participants used NPS as a part of an overall spiritual practice alongside meditation, yoga and similar techniques: *"I use psychedelics as part of a psychological/spiritual practice"*. A search for meaning and an interest in the nature of existence appeared to drive their use, and several participants stated that they wanted to induce a first-hand mystical experience. On occasion, certain psychedelic substances were elevated to sacraments and were viewed as vehicles to higher realms and a direct experience of God. *"I take these compounds, and I go to the afterlife, and I visit with God, and an entire ecology of souls face to face"*. The use of NPS for exploration and transformation were, for the most part, associated with psychedelic compounds, and the participants often emphasized an exclusive interest in the psychedelic experience and favored it over any other type of drug: *"I am a psychedelic connoisseur, clean from negative substances like heroin or cocaine"*.

Functioned as coping agents

This theme outlines how NPS in different ways were used for coping with life challenges and alleviating personal ailments. The participants described how they sought relief from physical and emotional conditions by attempting to self-medicate with NPS. Not only did they try to alleviate or manage experienced symptoms but they occasionally intended to treat themselves therapeutically. NPS were used for medicinal purposes and appeared to serve as an alternative pharmacy which offered new and attractive pharmacological effects, or acted as substitutes for prescription medicines. Purportedly, the participants turned to NPS as a solution to their perceived problems when a prescribed medicine was experienced as ineffective or when a preferred medicine was unobtainable due to e.g. restrictions in local health care policies. A sentiment of dissatisfaction with the traditional healthcare system and its reception and treatments emerged as a contributory reason to why the participants chose to handle the problems on their own with the help of NPS: *"The medical community has not been able to help me; they always give me drugs that make me feel awful"/"I need a CNS stimulant for my severe attention deficit, but sadly Swedish healthcare is just out to lecture and demean you"*.

Coping with psychological issues like anxiety and depression were the most common reasons for self-medicating: *"Helps me with chronic depression and prevented me from committing suicide countless times"*. Other conditions for which the participants sought relief were pain, stress, migraine, and various alleged neuropsychiatric syndromes such as attention deficit disorder and autistic spectrum disorder. Also, some participants stated that their use of NPS was motivated by a desire to escape the current life situation including boredom and past traumatic experiences. The different coping endeavors seemed closely linked to specific types of novel substances. For instance, coping with depression and neuropsychiatric problems was mainly associated with the use of novel stimulants: *"I consume stimulants in small therapeutic doses to treat my attention deficit"*. Other reports involved the use of novel benzodiazepines or opioids to cope with pain, insomnia or stress related problems: *"NPS is just another step in an endless quest for an end to the pain"*. Certain novel psychedelics were used to alleviate migraine or ocular hypertension. Also, the participants seemed to consider that some of the psychedelic substances had anti-inflammatory effects and other unspecified healing properties: *"I*

use low dose LSD, psilocybin mushrooms, and 4-AcO-DMT for medicinal purposes like anti-inflammation and most importantly the near complete abortion of severe migraine headaches". One group of participants used NPS to cope with withdrawals from drugs such as opioids and benzodiazepines: "As a relief from uncomfortable withdrawals". Also, novel stimulants were used to relieve hang-over effects after use of alcohol. Some attempted to cope with drug and alcohol dependency by substituting to a novel compound while others reportedly self-treated addiction and related issues with the help of especially novel psychedelic compounds: "I used to take anti-depressants for years; I drank daily until age 50. I have no use for either now. Psychedelics are medicine for me when used appropriately".

Enhanced abilities and performance

This theme describes how NPS were used to enhance a wide range of personal abilities such as increased motivation and better cognitive and physical performance: "Never to escape reality but to enhance it". Other stated reasons were increased energy and arousal levels, which the participants used for, among other things, working longer hours, exercising more efficiently, and sustaining the ability to stay awake at parties: "Looking for a nice boost for work and keep partying". In other cases, NPS were used for motivation to get otherwise tedious tasks and everyday duties done, or to more efficiently achieve life goals and pursuits. For example, appetite-regulation, weight loss and improved weight lifting performance were reasons to use NPS "To increase my appetite"/"For weight loss"/"to increase energy while lifting weights". The use of NPS for study aid and overall cognitive enhancement in the form of improved memory, focus and perseverance was also mentioned: "Mainly as an aid to enhance focus, energy and motivation when studying or when performing tedious tasks". In this regard, some NPS were depicted as means to enhance problem solving and decision making skills. Other participants described how they wanted to boost their creativity and artistic inspiration: "To enter psychedelic states of mind that inspire me in the creation of art". Moreover, NPS were used as catalysts for deeper contemplation and introspection abilities when practicing meditation or yoga. Some participants wanted to enhance their confidence, especially in the social domain of life. It was also mentioned that NPS were used to increase sexual performance and arousal: "Used for sexual aphrodisiac and related reasons such as to decrease penile sensitivity during sex to increase staying time".

Fostered social bonding and belonging

This theme consists of various socially and culturally motivated uses of NPS in different contexts. The participants reported how the use of novel substances was a group activity in which the sharing of a drug experience facilitated social bonding. Some participants mentioned how joining a particular circle of friends, to experience belonging and reciprocal sharing, was their main motivation for using NPS: "I wanted to join in the social experience of using them together"/"To share novel social experiences and assist bonding among friends". Besides the intentional drug use get-togethers, the participants were occasionally offered a drug spontaneously by a friend or in other ways acquired and consumed an NPS in the spur of a social moment: "I was offered at a party"/"It was merely out of opportunity"/"So I thought along the lines of 'when in Rome'". Some NPS appeared to function as social lubricants in the same way that alcohol commonly serves as a social enabler. Certain NPS reportedly lowered inhibitions and made the participants feel more sociable, receptive and open: "A small dose work for me as a substitute for alcohol, I become social"/"Some substances make me feel more open and chatty – who wouldn't want that?".

Another aspect of the socially centered motivations concerned the participants' interest in and identification with the culture that surrounds drugs. The wish to be a part of a community of like-minded peers was in itself an important attraction. The consumption of a particular NPS and the involvement in the respective subcultures, characterized by a mutual enthusiasm for NPS and a willingness to share experiences and knowledge, appeared to go hand in hand: "I like to share my experiences on the Internet and learn how other people are using NPS". The drug culture and communities also functioned as a source of purportedly reliable experience reports and recommendations that could spark an interest in using NPS: "Primary motivation has been that I have read a lot of positive trip reports". In this regard, to engage in online communities and interact with peers emerged as an underlying reason for using NPS. In other words, using NPS and sharing experiences in a community setting appeared to reinforce a sense of social belonging: "To develop a sense of community with other psychonauts". In some social contexts there seemed to be a certain social status associated with the experimentation of drugs and the ability to be in control under the influence of the effects, or to have experience and knowledge in a wide range of NPS: "Ability to say I've done a more extensive list of substances"/"Proving to others that I can handle myself on psychedelics".

Acted as a means for recreation and pleasure

This theme recaps the reasons concerning the described recreational value and potential pleasure-inducing qualities associated with NPS use. NPS appeared to represent opportunities for amusing, enjoyable and sense-arousing experiences. Many participants expressed that they used NPS simply because they wanted to have fun and a good time: "Of course we do it for fun"/"For shits and giggles"/"I wanted to use it to have fun, and I had a good time". It appeared that they pursued intoxication for the sake of intoxication and a break from everyday life. The experience of feeling "high" was in itself and for no other reason a motivating factor: "In search of a good buzz"/"Because I like to feel high". On the whole, the use of NPS was characterized as an activity of leisure, and the experiences were described as personal entertainment. In addition, NPS were used to feel greater pleasure and enjoyment when doing activities such as listening to music, dancing or being in nature. Aesthetic pleasure, hedonistic pleasure, intense euphoria and the party type of mood were also mentioned as motivations for use. The elevated feelings of pleasure and enjoyment appeared at least partly to derive from increased sensitivity and greater appreciation. Most types of substances were mentioned in the context of pleasure-seeking, but stimulants and opioids were noticeably prevalent in this regard: "For novel stimulants and opioids, the reason is more hedonistic". Other NPS stimulants, more similar in effects to MDMA, such as methylone, bk-MDMA or mephedrone, were also used by pleasure seeking participants. These drugs were described as giving the user a more tactile or emphatic experience. "One reason is entactogenesis, tactile sensations similar to that described by MDMA users such as 'orgasm skin' where touch became intensely pleasurable."

Problematic and unintentional use

This theme summarizes the participants' problematic, unintentional and regretful use of NPS, which in its most destructive form was stated as addiction and dependency: "Problematic stimulant addiction that showed up too late". Some participants described an abusive relationship with drugs in general and a few stated that a substantial addiction was their reason for using NPS. Novel benzodiazepines, opioids and stimulants seemed to preponderate over other types of substances in regard to

statements about habitual drug use and long-time addiction, and some of the participants had switched from using traditional drugs to NPS: *"What can I say? I'm an addict. It takes me chemicals to get out of bed in the morning"/"I am a heavy and problematic drug user. In recent years I have predominately moved from illegal drugs to legal drug use"*. Others mentioned a periodic or past pattern of problematic drug use, and did not give an account of addiction in the traditional sense but rather referred to it as a destructive and transient episode caused by disillusionment with life, which caused them to use drugs in a harmful and abusive way: *"I gave up on life and didn't care if I died or was harmed"*. A number of participants simply viewed their use of NPS as a past and juvenile experience caused by bad judgment. They also mentioned that the consumption of NPS was without deliberation, and that they did not have an explicit reason at the time. A more prevalent reason for reporting regrets was the unintentional act of acquiring and ingesting an NPS passed off as its traditional counterpart drug, which the participants originally had intended to use. For instance, they described being under the impression of buying a traditional drug but instead received a novel and unknown substance: *"These drugs were sold to me as LSD"/"Mephedrone and TMA were sold to me as amphetamine. I had no intention of consuming either of them"*.

Discussion

The purpose of the present study was to explore and characterize the self-reported reasons for NPS use among a sample of 613 international users online. The analysis revealed that the participants were moved to use NPS because these compounds reportedly: 1) *enabled safer and more convenient drug use*, 2) *satisfied a curiosity and interest about the effects*, 3) *facilitated a novel and exciting adventure*, 4) *promoted self-exploration and personal growth*, 5) *functioned as coping agents*, 6) *enhanced abilities and performance*, 7) *fostered social bonding and belonging*, and 8) *acted as a means for recreation and pleasure*. The consumption of NPS was also driven by 9) *problematic and unintentional use*. The present study contributed to richer and more comprehensively described reasons for NPS use than previous accounts. It also triangulates the research which emphasizes differences in motivations across drug types (Soussan & Kjellgren, 2016; Sutherland et al., 2017). For instance, the results are in line with our previous study showing that the novel benzodiazepines, opioids and stimulants are commonly used in conjunction with coping and problematic use while the psychedelics are associated primarily with self-exploration and spiritual attainment.

The findings suggest a partial congruence between the inductively generated reasons for NPS use in the present study and previous accounts. For example, the results confirmed the general view that supply reduction and substance displacement (Measham et al., 2010) is a key driver for the use of novel and unregulated substances. However, many NPS were not considered inferior substitutes to inaccessible traditional drugs; to the contrary, they reportedly allowed for safer and more convenient drug use circumstances. The discrepancy between the growing scientific emphasis on NPS as risky (e.g. Baumeister, Tojo, & Tracy, 2015) and the participants' inclination to use NPS for safety reasons is noteworthy. The scientific community may not fully have acknowledged that the perceived threat of criminalization, street dealer interactions, and substance impurities in many cases constituted a greater risk than the possible harmful drug effects. Prevention strategies relying solely on regulation and control may therefore benefit from the recognition that those strategies could push some users towards high-risk behaviors. Understanding the difference between "opportunistic" substance displacement and use of NPS in their own right could improve the ability to tailor

prevention efforts to the appropriate target groups (Sutherland et al., 2017).

Another less elaborately researched reason for NPS use was the yearning for novel and exciting adventures beyond the mundanity of everyday life. It appeared that many users were intrigued rather than deterred by the non-ordinary and unpredictable nature of NPS. Again, the unknown aspect of NPS commonly associated with high risk was an attractive feature for many participants. A strong predictor of risky behavior in general and adolescent drug use in particular is the sensation-seeking personality trait (Yanovitzky, 2005), which is recognized by an individual's disposition to take risks to attain precisely the type of varied, novel and experimental experiences that NPS provided. It has been suggested that sensation-seeking adolescents find not only the actual substance use stimulating but also the illegal risk-taking exciting (Yanovitzky, 2005). This puts prohibitive and one-sidedly risk oriented prevention policies in a quandary situation as both the number of increasing NPS and any attempt to regulate them most likely are seen as opportunities for new adventures by many users. It has been suggested that the development of appropriate harm reduction policies should incorporate a more nuanced understanding of the intertwined relationship between the risks and the beneficial effects in order to better resonate with drug users (Pennay, 2015), which is especially important considering the participants' high degree of risk-benefit awareness. This is line with the arguments of Ellis et al. (2012), which states that risky adolescent behavior should be understood as an evolutionary adaptive function rather than maladaptive or dysfunctional behavior. Successful prevention programs should therefore address the function of risky behavior while working with instead of against the adolescents.

In many cases, the quest for adventure per se appeared as a more important driver for NPS use than the actual outcome or content of the experience. This propensity for experience as such has been documented earlier (Kjellgren & Soussan, 2011), and was also prominent elsewhere in the results. For example, the use of NPS was often characterized as inherently recreational, and although the participants sometimes deliberately pursued pleasure, they also sought to experience NPS for the sake of enjoying the experience. Taken together, many participants seemed to engage in NPS for the rewards inherent in the activity itself, which according to the general human motivation model Self Determination Theory (SDT) are signs of intrinsically motivated persons (Ryan & Deci, 2000). The spontaneous curiosity and studious interest displayed by the users are also characteristics commonly associated with intrinsic motivation. The use of NPS as avenues for self-exploration and personal growth further reflects an inwardly oriented type of motivation among the users. SDT posits that the inherent tendency to take part in novelty, exploration and challenges is a basic need vital to cognitive and social development, which may explain the users' persistence in pursuing NPS. The freedom to be intrinsically motivated can, however, be inhibited by, for example, social demands and responsibilities (Deci & Ryan, 2008; Ryan & Deci, 2000). Hence, extrinsic motivation refers to the engagement in an activity in order to attain some separable outcome or instrumental value. The results showed that the participants were extrinsically motivated in that they actively sought to induce pleasure or wanted to enhance performance and abilities like focus, energy and social skills. Moreover, they used NPS to build a toolkit of drugs for instrumental purposes. The degree to which an externally regulated behavior is autonomous and personally endorsed can, however, vary between active commitment and complete unwillingness. A less internalized and more outcome-driven reason for NPS use was the coping with life problems, and at the very far end

of the externally regulated and non-self-determined spectrum we found addiction and dependency.

In sum, the self-reported motivations for NPS use appeared to fall along a locus of causality continuum ranging from self-determined to utter lack of control. Identifying a behavior's relative autonomy, in this case the extent to which an individual's drug use emanates from the self, could be of utmost importance for effective prevention. According to SDT (Deci & Ryan, 2008; Ryan & Deci, 2000), non-autonomous extrinsic motivation is known to thwart basic psychological needs while greater internalization is associated with significant behavioral benefits, well-being and life satisfaction. Drug users propelled by more extrinsic types of motivation such as enhancement, coping and addiction are therefore more likely to be exposed to abuse and harm potential, and vice versa. The participants' documented overall good emotional well-being (Soussan & Kjellgren, 2016) can be argued to support the notion of a hidden and relatively non-problematic population of more self-determined drug users. The importance of extending the typical broad brush view on drug use as merely a maladaptation or prefacing step to addiction with an account of non-addictive and relatively self-endorsed instrumental drug use has previously been suggested by Müller and Schumann (2011). Our proposal is that the identification of type of motivation, and the promotion of more self-endorsed forms of extrinsic motivation, could be an indispensable strategy for integrating social values and responsibilities, while hopefully reducing drug related harm, which, according to SDT, is accomplished by providing social conditions that nurture and respect the innate psychological needs of competence, autonomy, and relatedness rather than imposing considerable external control that could lead to alienation and ill-being (Deci & Ryan, 2008; Ryan & Deci, 2000).

The online NPS community seemed to provide ample support for relatedness and the sense of being connected with others. The analysis revealed that identification with the online drug culture and a desire to experience social belonging and reciprocal sharing was a prominent reason for NPS use. The strong group cohesiveness was further reflected by the participants who used NPS specifically to report about the effects to the community with the objective of reducing harm. Also, almost all the participants (99%) chose to leave a written account of their reasons for NPS use although that was the only non-required part of the survey, which suggests a devoted and accommodating community. However, research into these communities has documented an otherwise strong counter public attitude (Barratt et al., 2014), which may be a sign of an already occurring alienation and rejection of social values. Further supporting this notion was the participants' dissatisfaction with public health and their subsequent use of NPS for self-medicating purposes. The following quote from the data set perhaps illustrates the sense of alienation and resentment against public institutions as well as researchers: *"I feel certain you will lump together my answers under the heading addiction. You would rather drive people to abuse than listening to people because you feel it is degrading to lower yourself to their level by taking them seriously"*. The apparent mistrust and gap between the public and the drug user discourses are troublesome from a harm reductive perspective. SDT postulates that in order to facilitate the internalization of social values and responsibilities, and thereby bridging the gap between drug users and public institutions, the socializing agent needs to be autonomy supportive, which among other things begins with the acknowledgement of the socialized persons' own perspective (Ryan & Deci, 2000). This study hopefully contributed to an increased awareness of the users' own and self-reported reasons for NPS use and how determining the type of motivation could be essential for effective prevention policies and reduction of drug related harm.

Limitations

The survey was openly available worldwide and included participants from a broad spectrum of ages from 42 countries, but the specific demographics using the bluelight.org forum most likely makes for a selection of the more knowledgeable and knowledge-seeking NPS users. Drug users that are currently addicted or living under poor conditions are not likely to be the typical user of drug discussion forums. The sample being self-selected may have contributed to bias. Another limitation is the fact that the forum and the survey were in the English language, more or less excluding NPS users from non-English-speaking parts of the world. Thus the findings recognized may not allow full generalizability although we would claim that the study gives a valuable comprehensive understanding of the users' own and self-reported reasons for NPS use, at least in the English-speaking part of the world with access to the Internet. The present study design might also have limited the results in that we could not systematically investigate substance-specific motivations unless they appeared qualitatively. Future research should take that into account. Also, future research should more deeply investigate the relationship between the degree of self-determined drug use and relative harm. Future research should also explore a likely transition point between problematic and non-problematic drug use.

Conflict of interest

None.

Acknowledgements

The authors wish to acknowledge the Public Health Agency of Sweden, which supported the present study with unrestricted grants. The authors would also like to thank Elisabeth Wennö for proofreading the manuscript. The authors would also like to acknowledge the Internet forum bluelight.org for their supportive attitude towards research.

References

- Adams, J. B., Heath, A. J., Young, S. E., Hewitt, J. K., Corley, R. P., & Stallings, M. C. (2003). Relationships between personality and preferred substance and motivations for use among adolescent substance abusers. *Am J Drug Alcohol*, 29 (3), 691–712. <http://dx.doi.org/10.1081/ADA-120023465>.
- Andersson, M., & Kjellgren, A. (2017). The slippery slope of flubromazolam: Experiences of a novel psychoactive benzodiazepine as discussed on a Swedish online forum. *Nordic Studies on Alcohol and Drugs* 1–13. <http://dx.doi.org/10.3109/10826084.2013.852584>.
- Barratt, M. J., Cakic, V., & Lenton, S. (2013). Patterns of synthetic cannabinoid use in Australia. *Drug and Alcohol Review*, 32(2), 141–146. <http://dx.doi.org/10.1111/j.1465-3362.2012.00519.x>.
- Barratt, M. J., Allen, M., & Lenton, S. (2014). PMA Sounds Fun: Negotiating Drug Discourses Online. *Substance Use & Misuse*, 49(8), 987–998. <http://dx.doi.org/10.3109/10826084.2013.852584>.
- Baumeister, D., Tojo, L. M., & Tracy, D. K. (2015). Legal highs: staying on top of the flood of novel psychoactive substances. *Therapeutic Advances in Psychopharmacology*, 5(2), 97–132. <http://dx.doi.org/10.1177/2045125314559539>.
- Beharry, S., & Gibbons, S. (2016). An overview of emerging and new psychoactive substances in the United Kingdom. *Forensic Science International*, 267, 25–34. <http://dx.doi.org/10.1016/j.forsciint.2016.08.013>.
- Boys, A., Marsden, J., & Strang, J. (2001). Understanding reasons for drug use amongst young people: a functional perspective. *Health Education Research Theory & Practice*, 16(4), 457–469. <http://dx.doi.org/10.1093/HER/16.4.457>.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <http://dx.doi.org/10.1191/1478088706qp0630a>.
- Corazza, O., Demetrovics, Z., van den Brink, W., & Schifano, F. (2013). Legal highs an inappropriate term for Novel Psychoactive Drugs in drug prevention and scientific debate. *International Journal of Drug Policy*, 24(1), 82–83. <http://dx.doi.org/10.1016/j.drugpo.2012.06.005>.

- Corazza, O., Simonato, P., Corkery, J., Trincas, G., & Schifano, F. (2014). Legal highs: Safe and legal heavens? A study on the diffusion, knowledge and risk awareness of novel psychoactive drugs among students in the UK. *Rivista Di Psichiatria*, 49(2), 89–94. <http://dx.doi.org/10.1708/1461.16147>.
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie Canadienne*, 49(3), 182–185. <http://dx.doi.org/10.1037/a0012801>.
- EMCDDA (2016). *European Drug Report 2015. European Monitoring of Drugs and Drugs Addiction*. <http://dx.doi.org/10.2810/88175>.
- Ellis, B. J., Del Giudice, M., Dishion, T. J., Figueredo, A. J., Gray, P., Griskevicius, V., . . . Wilson, D. S. (2012). The evolutionary basis of risky adolescent behavior: Implications for science, policy, and practice. *Developmental Psychology*, 48(3), 598–623. <http://dx.doi.org/10.1037/a0026220>.
- Eurobarometer (2014). *Young people and drugs*. Retrieved from http://ec.europa.eu/commfrontoffice/publicopinion/flash/fl_401_en.pdf.
- Gibbons, S. (2012). Legal highs – novel and emerging psychoactive drugs: a chemical overview for the toxicologist. *Clinical Toxicology*, 50(1), 15–24. <http://dx.doi.org/10.3109/15563650.2011.645952>.
- Johnson, L. A., Johnson, R. L., & Portier, R. B. (2013). Current legal highs. *Journal of Emergency Medicine*, 44(6), 1108–1115. <http://dx.doi.org/10.1016/j.jemermed.2012.09.147>.
- Kjellgren, A., & Soussan, C. (2011). Heaven and Hell—A Phenomenological Study of Recreational Use of 4-HO-MET in Sweden. *Journal of Psychoactive Drugs*, 43(3), 211–219. <http://dx.doi.org/10.1080/02791072.2011.605699>.
- Lee, C. M., Neighbors, C., & Woods, B. A. (2007). Marijuana motives: Young adults' reasons for using marijuana. *Addictive Behaviors*, 32(7), 1384–1394. <http://dx.doi.org/10.1016/j.addbeh.2006.09.010>.
- Müller, C. P., & Schumann, G. (2011). Drugs as instruments: A new framework for non-addictive psychoactive drug use. *Behavioral and Brain Sciences*, 34(6), 293–310. <http://dx.doi.org/10.1017/S0140525X11000057>.
- Measham, F., Moore, K., Newcombe, R., & Welch, Z. (2010). Tweaking, bombing, dabbing and stockpiling: the emergence of mephedrone and the perversity of prohibition. *Drugs and Alcohol Today*, 10(1), 14–21. <http://dx.doi.org/10.5042/daat.2010.0123>.
- Moore, K., Dargan, P. I., Wood, D. M., & Measham, F. (2013). Do novel psychoactive substances displace established club drugs, supplement them or act as drugs of initiation? The relationship between mephedrone, ecstasy and cocaine. *European Addiction Research*, 19(5), 276–282. <http://dx.doi.org/10.1159/000346678>.
- Nicholson, T., Duncan, D., & White, J. (2002). Is recreational drug use normal? *Journal of Substance Use*. <http://dx.doi.org/10.3109/14659890209169340>.
- Novacek, J., Raskin, R., & Hogan, R. (1991). Why do adolescents use drugs? Age, sex, and user differences. *Journal of Youth and Adolescence*, 20(5), 475–492. <http://dx.doi.org/10.1007/BF01540632>.
- Pennay, A. (2015). What goes up must go down: An exploration of the relationship between drug-related pleasure and harm experienced by a sample of regular party drug users. *Drugs: Education, Prevention, and Policy*, 7637(January), 1–8. <http://dx.doi.org/10.3109/09687637.2015.1016398>.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <http://dx.doi.org/10.1037/0003-066X.55.1.68>.
- Sande, M. (2016). Characteristics of the use of 3-MMC and other new psychoactive drugs in Slovenia, and the perceived problems experienced by users. *International Journal of Drug Policy*, 27, 65–73. <http://dx.doi.org/10.1016/j.drugpo.2015.03.005>.
- Soussan, C., & Kjellgren, A. (2014). Harm reduction and knowledge exchange—a qualitative analysis of drug-related Internet discussion forums. *Harm Reduction Journal*, 11(1), 25. <http://dx.doi.org/10.1186/1477-7517-11-25>.
- Soussan, C., & Kjellgren, A. (2016). The users of Novel Psychoactive Substances: Online survey about their characteristics, attitudes and motivations. *International Journal of Drug Policy*, 32, 77–84. <http://dx.doi.org/10.1016/j.drugpo.2016.03.007>.
- Sutherland, R., Bruno, R., Peacock, A., Lenton, S., Matthews, A., Salom, C., . . . Barratt, M. J. (2017). Motivations for new psychoactive substance use among regular psychostimulant users in Australia. *International Journal of Drug Policy*, 43, 23–32. <http://dx.doi.org/10.1016/j.drugpo.2016.12.021>.
- Werse, B., & Morgenstern, C. (2012). How to handle legal highs? Findings from a German online survey and considerations on drug policy issues. *Drugs and Alcohol Today*, 12(4), 222–231. <http://dx.doi.org/10.1108/17459261211286636>.
- Winstock, A. R., & Ramsey, J. D. (2010). Legal highs and the challenges for policy makers. *Addiction*, 105(10), 1685–1687. <http://dx.doi.org/10.1111/j.1360-0443.2010.02934.x>.
- Winstock, A. R., Lawn, W., Deluca, P., & Borschmann, R. (2015). Methoxetamine: An early report on the motivations for use, effect profile and prevalence of use in a UK clubbing sample. *Drug and Alcohol Review*, 35(2), 212–217. <http://dx.doi.org/10.1111/dar.12259>.
- Wood, D. M., & Dargan, P. I. (2012). Understanding How Data Triangulation Identifies Acute Toxicity of Novel Psychoactive Drugs. *Journal of Medical Toxicology*, 8(3), 300–303. <http://dx.doi.org/10.1007/s13181-012-0241-3>.
- Wood, D. M., Hunter, L., Measham, F., & Dargan, P. I. (2012). Limited use of novel psychoactive substances in South London nightclubs. *QJM*, 105(10), 959–964. <http://dx.doi.org/10.1093/qjmed/hcs107>.
- Yanovitzky, I. (2005). Sensation seeking and adolescent drug use: The mediating role of association with deviant peers and pro-drug discussions. *Health Communication*, 17(1), 67–89. <http://dx.doi.org/10.1207/s15327027hc1701>.
- Zawilska, J. B. (2015). Legal Highs – An emerging epidemic of novel psychoactive substances. *International Review of Neurobiology*, 120, 273–300. <http://dx.doi.org/10.1016/bs.irn.2015.02.009>.