

FEDERAL RESEARCH PROGRAMME ON DRUGS

NPS-care Understanding New Psychoactive Substance (NPS) use in Belgium from a health perspective

Tina Van Havere (University of Applied Sciences and Art Ghent), Freya Vander Laenen (University of Ghent, IRCP), Charlotte Colman (University of Ghent, IRCP), Peter Blanckaert (Sciensano), Lies Gremeaux (Sciensano), Sarah Simonis (Sciensano), Anton Van Dijck (University of Applied Sciences and Art Ghent)

NPS-care

Understanding New Psychoactive Substance (NPS) use in Belgium from a health perspective

Contract - DR/02/79

FINAL REPORT

PROMOTORS: dr. TINA VAN HAVERE (University of Applied Sciences and Art Ghent)
Prof. Dr. FREYA VANDER LAENEN (University of Ghent, IRCP)
Prof. Dr. CHARLOTTE COLMAN (University of Ghent, IRCP)
Dr. LIES GREMAUX (Sciensano)
Dr. PETER BLANKAERT (Sciensano)

RESEARCHERS: SARAH SIMONIS (Sciensano)

PRINCIPAL RESEARCHER:

ANTON VAN DIJCK (University of Applied Sciences and Art Ghent)

**HO
GENT**



 **sciensano**





Published in 2020 by the Belgian Science Policy Office (BELSPO)
WTCIII
Simon Bolivarlaan 30
Boulevard Simon Bolivar 30
B-1000 Brussels
Belgium
Tel: +32 (0)2 238 34 11 - Fax: +32 (0)2 230 59 12
<http://www.belspo.be>
<http://www.belspo.be/drugs>

Contact person: Aziz Naji
Tel: +32 (0)2 238 35 72

Neither the Belgian Science Policy Office nor any person acting on behalf of the Belgian Science Policy Office is responsible for the use which might be made of the following information. The authors are responsible for the content.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without indicating the reference :

Van Havere, T., Vander Laenen, F., Colman, C., Gremaux, L., Blankaert, P., Simonis, S., & Van Dijck, A. (2020). *Understanding New Psychoactive Substance (NPS) use in Belgium from a health perspective*. Final Report. Brussels : Belgian Science Policy Office 2020 – 162 p. (Federal Research Programme on Drugs)

ACKNOWLEDGMENTS AND LIST OF MEMBERS OF THE FOLLOW UP COMMITTEE

Thanks to our partners



MEMBERS OF THE FOLLOW UP COMMITTEE

Martijn Onsia & Eric Genbrugge (Safe 'n Sound), Lucia Casero (Eurotox), Katia Huard (FPS Public Health), Ferrara Maurizio (Info-drogues ASBL), Sarah Wille & Filip Van Durme (NICC), Paul Calle (Maria Middelaes & UGent), Marc Vancoillie & Stephanie Ovaere (DJSOC/Federal Police), Roy Somers (AZ Herentals), Tessa Windelinckx (Free Clinic, coördinator Flemish Needle & Syringe Programs), Bérénice Libois & Matthieu Mean (Modus Vivendi), Jochen Schrooten (VAD), Claude Gillard (FGOV Justice), Sara Van Malderen (FOD Justice), David Fraters (CAD-Limburg).

Table of content

TABLE OF CONTENT	5
CHAPTER 1: UNDERSTANDING NEW PSYCHOACTIVE SUBSTANCE USE IN BELGIUM FROM A HEALTH PERSPECTIVE	11
1. Introduction.....	11
2. What are New Psychoactive Substances?	11
2.1. Definition of ‘New Psychoactive Substances’ (NPS)	11
2.2. The origins and evolution of NPS	13
2.2.1. A brief historical perspective on NPS	13
2.2.2. Characteristics of the NPS phenomenon.	14
2.2.3. ‘Legal highs’; the legislative factor	15
2.3. Terminology and concepts	15
2.3.1. Synthetic or natural?	15
2.3.2. ‘New’ or old?	16
2.3.3. ‘Cross-overs’: ketamine and Gamma-Hydroxybutyric Acid (GHB)	16
2.3.4. ‘Psychoactive Substances’	17
2.4. New and newly used NPS	17
3. Classification of NPS	18
3.1. General taxonomy	18
3.2. Classes of NPS, forms and usage	19
3.2.1. Synthetic cannabinoids or Synthetic Cannabinoid Receptor Agonists (SCRA’s)	19
3.2.2. Stimulants	20
3.2.3. Empathogens	20
3.2.4. Synthetic Opioids (SO)	20
3.2.5. Depressants	20
3.2.6. Hallucinogens/psychedelics	21
3.2.7. Dissociatives	21
4. Legislation surrounding NPS.....	21
4.1. The international dimension of NPS legislation	21

4.2.	European legislation on NPS	21
4.3.	National NPS laws: from observer to conductor	22
4.4.	Belgium’s generic legislation targeting NPS	23
4.4.1.	The national Drug Law of 1921	23
4.4.2.	The generic Drug Law of 2017	24
4.5.	Prohibition as a precaution	24
5.	Current reports on NPS	25
5.1.	Epidemiology of NPS use	25
5.1.1.	Prevalence of NPS use around the world	25
5.1.2.	Prevalence of NPS use in Europe	26
5.1.3.	The use of NPS in Belgium	27
5.1.4.	Other information sources	29
5.2.	NPS as a (public) health issue	29
5.2.1.	The ‘unknowns’ surrounding NPS	29
5.2.2.	Substance (market) characteristics and health consequences	30
5.2.3.	Health hazards, acute and chronic effects of NPS use	30
5.2.4.	Challenges to the specialized health care field	31
6.	The NPS-care project	31
6.1.	General outline	32
6.2.	The user’s perspective (Part I)	32
6.3.	The professionals’ perspective (Part II)	32
6.4.	Inventory of good practices in prevention, treatment and harm reduction for NPS users and feasibility study (Part III).	33
6.5.	Research report	33
6.6.	Ethical considerations	33
CHAPTER 2: THE USE OF NPS AND THE NEEDS REGARDING PREVENTION, TREATMENT AND HARM REDUCTION: THE USER’S PERSPECTIVE		42
1.	Introduction.....	42
2.	Methods	43
3.	Results	44

3.1.	Context and motivations of NPS use	46
3.1.1.	Specific profile of NPS users	46
3.1.2.	Motivations of NPS use	47
3.1.3.	Connection between NPS, classic illicit substances and alcohol	52
3.1.4.	Mode of use, evolution in use and consequences	53
3.2.	Health needs	55
3.2.1.	Users' specific measures and harm reduction	55
3.2.2.	The users' perspective on (health) needs	57
3.2.3.	Online market	59
3.2.4.	Drug legislation and illegal status	60
3.3.	Conclusion	61
CHAPTER 3: THE USE OF NPS AND THE AWARENESS OF USERS: THE SAMPLE COLLECTION		75
1.	Introduction.....	75
2.	Methods	75
3.	Results	76
3.1.	Pharmacological aspects	76
3.2.	Social aspects	79
3.2.1.	The terminology	79
3.2.2.	Information	81
3.2.3.	Source of acquisition	82
4.	Conclusion	82
CHAPTER 4 - TAILORED PREVENTION AND CARE FOR NPS USERS: THE PROFESSIONAL'S PERSPECTIVE		85
1.	Introduction.....	85
2.	Methodology: two-step mixed method design	86
2.1.	The Nominal Group Technique	86
2.1.1.	Composition of the NGT's	86
2.1.2.	The NGT process	87
2.1.3.	Analysis	88
2.2.	The online survey	89

2.2.1.	The survey as part of a mixed method design	89
2.2.2.	Design of the NPS care survey	89
2.2.3.	Central content of the NPS care survey	89
2.2.4.	The inventory of needs presented in the NPS care survey	90
2.2.5.	The collection of survey responses	91
3.	Results NGT's.....	92
3.1.	General information: location, timing and sampling	92
3.1.1.	Dutch speaking NGT's (NGT1 and 2)	92
3.1.2.	French speaking NGT's (NGT 3, 4 and 5)	92
3.2.	Primary analysis: description of the NGT process	92
3.2.1.	From individual ideas to group consensus - NGT 1	92
3.2.2.	From individual ideas to group consensus - NGT 2	94
3.2.3.	From individual ideas to group consensus - NGT 3	96
3.2.4.	From individual ideas to group consensus - NGT 4	97
3.2.5.	From individual ideas to group consensus - NGT 5	98
3.3.	Quantitative analysis of the NGT's	100
3.3.1.	The ranking phase: summing of votes	100
3.3.2.	Ranking of needs in all NGT's after the summing of votes	100
3.3.3.	Similarities in main needs	102
3.4.	Secondary analysis of the NGT's: cross-group comparison	103
3.4.1.	The integration of multiple group data	103
3.4.2.	Content analysis of data	104
3.4.3.	Quantitative analysis: calculating combined ranks	114
4.	Results of the online survey	115
4.1.	Analysis of the survey data	115
4.1.1.	Socio-demographic characteristics	116
4.1.2.	Contextual factors: professional function and professional setting	117
4.1.3.	Survey results: ranking of professionals' needs	118

5.	Conclusion	121
5.1.	Comparison of NGT and survey data	121
5.2.	The professional's major NPS targeted needs according to method	121
CHAPTER 5 – CONCLUSIONS AND RECOMMENDATIONS NPS-CARE		127
1.	Introduction.....	127
2.	Theoretical framework underpinning research conclusions	127
2.1.	The nature and scope of the use of NPS	127
2.1.1.	NPS in a nutshell	127
2.1.2.	Conceptual issues: 'newness'	128
2.1.3.	Sign of the times	128
2.2.	The influence of NPS on drug policy and legislation	128
3.	The user's perspective on NPS	129
3.1.	Who are the users of NPS and what do NPS mean to them?	129
3.1.1.	Characteristics of the user's sample	129
3.1.2.	User's semantics and role of NPS	129
3.1.3.	Motivations for NPS use	129
3.2.	Guinea pigs	130
3.3.	Health needs of the NPS users	130
3.3.1.	The social and legal (policy) aspects of NPS use	130
3.3.2.	NPS targeted needs concerning prevention according to the users	131
3.3.3.	NPS tailored needs of harm reduction nature according to the users	131
3.3.4.	Treatment needs related to NPS use according to the users	131
4.	The use of NPS through the eyes of the Health Care Professionals (HCPs).....	131
4.1.	Inventory the main needs in terms of NPS tailored prevention, harm reduction and care	131
4.2.	Ranking of the inventory of professional needs according to importance	132
4.2.1.	The NPS care survey	132
4.2.2.	The sample of survey respondents	132
4.2.3.	The ranked list of professional NPS-targeted needs in prevention, harm reduction and care	132

4.3. Primary needs related to NPS use according to the health care professionals	133
5. Recommendations.....	134
ANNEX	161

CHAPTER 1: UNDERSTANDING NEW PSYCHOACTIVE SUBSTANCE USE IN BELGIUM FROM A HEALTH PERSPECTIVE

Authors: Anton Van Dijck, Tina Van Havere, Peter Blanckaert

1. Introduction

Alongside the technological evolution we see in the last decades, both the drug market and the culture surrounding drug use have evolved considerably. Next to alcohol and the ‘classic’ illegal drugs (cannabis, xtc, cocaine, etc.), the advent of New Psychoactive Substances (NPS) illustrates this. A century-long era characterised by a relatively limited and unchanged list of illicit substances, has made room for an increasingly complex reality, encompassing many molecular alternatives for these drugs. By the end of 2017, the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) monitored more than 670 NPS in Europe, with additions on a regular basis (EMCDDA, 2017b).

NPS provoke new patterns of use and pose unprecedented challenges to (drug) prevention-, care- and harm reduction efforts. Similarly, research into drug use needs to reinvigorate and review its practices as well, to address this new situation. At present, data on the epidemiology of NPS are scarcely- and often partially available. Specific knowledge about the use of new substances and the possible health and social impact on users and society, is minimal. Besides the issuing of alerts that involve the use of NPS in the context of European and national Early Warning Systems (EWS), many questions remain. Who uses NPS? How and to which degree? Why? Which substances are popular? What are long-term effects on the health of users? Which specific interventions can we think of? These and other health related issues are tackled by the largely qualitative research endeavour called ‘*Understanding New Psychoactive Substance use in Belgium from a health perspective*’; in short, the ‘NPS-care’ project. Its findings will contribute to formulate ‘recommendations regarding the organisation and provision of interventions targeting NPS along the continuum of care; from prevention over harm reduction to treatment’ (BELSPO, contract DR/02/79).

Data collection covers a two-year period between March 2017 and June 2019. Commissioned and funded by Belgian Federal Science Policy, NPS care was coordinated by the University College of Ghent, joined by Sciensano as co-coordinating partner. Two sociologists/researchers replicated every part of the study in respectively the Dutch- and French speaking part of the country. They were supported by a network committee, assembled by representatives of various organisations in the specialized (i.e. drugs and alcohol) field (cf. infra).

2. What are New Psychoactive Substances?

2.1. Definition of ‘New Psychoactive Substances’ (NPS)

The term NPS is not exempt from confusion. Even to the extent that some argue ‘there is no official definition of a new psychoactive substance’ (Cope, 2014). The acronym is often substituted by a variety of terms such as ‘research chemicals’, ‘designer drugs’, ‘legal highs’, etc. Merely trying to define the word already points to its complex nature; many NPS are not ‘new’, for one thing. However, in this report we consistently refer to the term ‘NPS’, if only because it is the most

prevalent label used in (international) research. And although no formal definition of NPS is universally accepted or without flaws, the following terminology prevails.

The roots of the NPS debate can be traced back to the 1980s, when the term ‘designer drugs’ found entrance in scientific literature (Measham & Newcombe, 2016). Originally in 1984, the nickname ‘designer drug’ was defined as: ‘(...) (1) synthesized from common chemicals, (2) exempt from control (...) because of their unique chemical structure, and (3) skilfully marketed under attractive, often exotic names’ (cited in: Brandt et al., 2014). Although 35 years old, this definition comes remarkably close to what current NPS are.

We find first mention of a similar concept in the context of the European Union (EU), notably in a Joint Action of 1997 where the term ‘New Synthetic Drugs’ (NSD) equals *‘[drugs] which are not currently listed in any of the Schedules to the 1971 United Nations Convention on Psychotropic Substances¹, and which pose a comparable serious threat to public health as the substances listed in Schedules I or II thereto and which have a limited therapeutic value’* (European Council, 1997). In 2005 this term was abandoned by a decision of the Council of the EU, repealing the Joint Action of 1997 and explicitly introducing the phrase ‘New Psychoactive Substance’: *‘A new narcotic drug or a new psychotropic drug in pure form or in a preparation; narcotic means a substance in pure form or in a preparation that has not been scheduled under the 1961 United Nations Single Convention on Narcotic Drugs², and that may pose a threat to public health comparable to the substances listed in Schedule I, II or IV; psychotropic means a substance in pure form or in a preparation that has not been scheduled under the 1971 United Nations Convention on Psychotropic Substances, and that may pose a threat to public health comparable to the substances listed in Schedule I, II, III or IV’* (Council of the European Union, 2005). The Council’s definition of 2005 is comprehensive and widely used. Therefore and concurring with Measham and Newcombe (2016) that it represents ‘perhaps the closest to a consensus’, we adopt this definition in our research. For practical reasons though, we resort to a slightly simplified version, presented by the EMCDDA: *‘A new narcotic or psychotropic drug, in pure form or in preparation, that is not controlled by the 1961 United Nations Single Convention on Narcotic Drugs or the 1971 United Nations Convention on Psychotropic Substances, but which may pose a public health threat comparable to that posed by substances listed in these conventions’* (EMCDDA, 2006).

In short and plain words, we could paraphrase the preceding as follows: ‘NPS is a generic term for the relatively recent phenomenon of substances produced to mimic the effects of traditional illicit drugs, while evading legal control’ (based on Stephenson and Richardson (2014)). Many NPS are chemical twins of a conventional (illicit) drug but due to a slightly altered molecular structure, they technically position themselves outside reach of drug laws (hence the term ‘legal highs’). Finally, and concludingly it is striking that in most definitions of NPS, emphasis is placed on legislative properties. The following paragraphs shed light on this particularity. But before clarifying relevant concepts and the role of legislation and policy in understanding the NPS issue, a glance at its history is meaningful.

¹ The 1971 UN Convention on Psychotropic Substances was adopted in response to the diversification and expansion of the spectrum of substances during the 1960s, i.e. predominantly psychedelics.

² The 1961 UN Single Convention on Narcotic Drugs (as amended by the 1972 Protocol) is regarded as the cornerstone of worldwide drug legislation. Together with the 1971 Convention (above) and the 1988 UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, they make up the international framework of drug control.

2.2. The origins and evolution of NPS

2.2.1. A brief historical perspective on NPS

The introduction of new substances on the global drug market is not a new phenomenon. We could even go back to the nineteenth century, when the arrival of morphine was praised as a 'new' alternative to opium-based substances; in its turn followed by heroin by the beginning of the twentieth century (Musto (1999); MacCoun and Reuter (2001). Other well-documented examples are the invention of LSD (1943) and its widespread use in the late 1960s or the comparable journey made by ecstasy or MDMA from 'underground' to 'establishment' of the recreational drug market in the late 1980s (Sumnall, Evans-Brown, & McVeigh, 2011).

Throughout the twentieth century, we observe an accelerating trend in newcomers to the world's drug repertoire (O. Corazza, 2017; Seddon, 2014). Looking at the scope of substances under international control, this trend is most visible since the 1980s (UNODC, 2014). 'New' in the latter decades of the twentieth century were substances such as ecstasy, 'crack' cocaine and methamphetamine ('crystal meth'). Today however, they are widely perceived as classic drugs (Corkery, Orsolini, Papanti, & Schifano, 2017). It makes you wonder; when does a substance cease to be a 'new' one? And what is it exactly, that suggests today's appearance of new substances, to be a phenomenon in its own right?

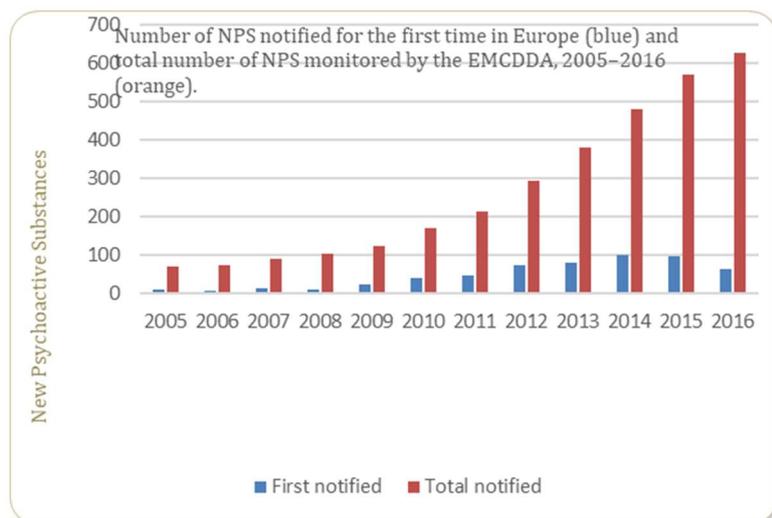
In search of defining characteristics of NPS, three (interrelated) factors return: the sheer *number* of substances involved, including their *rate of appearance*, their 'range' or *chemical diversity* and their *availability* (Brandt, King, and Evans-Brown (2014); Chatwin, Blackman, and O'Brien (2018); Corkery et al. (2017); EMCDDA (2015); Tettey, Crean, Ifeagwu, and Raitelhuber (2018); UNODC (2018a).

2.2.2. Characteristics of the NPS phenomenon.

a) Number of substances

For a start, never in history did hundreds of new drugs hit the market over a good ten-year period. The NPS issue is a recent one, originating around the mid-2000s in Europe³ (EMCDDA, 2016a). The ‘watershed moment’ occurred in the years 2008-2009 (Helander & Bäckberg, 2017). Between 2009 and 2012, the number of new substances notified to the EMCDDA tripled (Figure 1). At the peak of this expansion, new reports accelerated to two substances a week (EMCDDA, 2016a).

Figure 1.: Total and yearly number of NPS reported in Europe, 2005-2016



b) Range/chemical diversity

Secondly, the body of NPS is vast and chemically diverse (Corkery, Orsolini, Papanti, & Schifano, 2018). Contrary to the past emergence of new drugs belonging to a clear group (e.g. LSD to the hallucinogens (1960s) or ecstasy/MDMA to the empathogens (1990s), NPS can be part of any chemical ‘family’, from benzodiazepines to piperazines or any other of the nine categories proposed by UNODC (UNODC, 2014). However, the large majority (or two-thirds) of all NPS is grouped in only two popular classes: synthetic cannabinoids and synthetic cathinones (Zawilska and Wojcieszak, 2018; UNODC (2018b)). The former group is widely known as ‘spice’ while mephedrone is probably the ‘exemplar substance’ of the latter (Sumnall et al., 2011).

Furthermore, some authors point to the fact that most NPS unlike classic drugs, were not initially synthesized by pharmaceutical companies, nor do they have a history of clinical use (King & Kicman, 2011; Sumnall et al., 2011). Regardless of the few exceptions to this rule (e.g. ketamine) it is obvious that the broad landscape of NPS has made accurately classifying them a notoriously complicated affair (cf. infra).

c) Availability

Finally, the ample availability of NPS is universally cited, pointing to the development of various distribution networks distinct to illegal (street) markets (G. R. Potter & Chatwin, 2017; Winstock &

³ In 2005, methylone, an analogue of MDMA, was the first synthetic cathinone reported to the EMCDDA (UNODC, 2013).

Ramsey, 2010; Zamengo, Frison, & Zwitser, 2018). Although this includes so called 'head'- or 'smart shops' in some countries, essentially the worldwide internet(trade) is the paramount game changer here. Sumnall et al. (2011) put it simply -and somewhat simplistically- as: '*NPS are readily available to those who wish to buy them*'. Be it in reality more complex, the online market -situated on the Dark- or Internet- is undoubtedly intimately bonded to the NPS issue (Seddon (2014); Tzanetakis (2018); van der Gouwe, Brunt, van Laar, and van der Pol (2016). In its slipstream lies a unique opportunity in terms of an 'efficient mechanism for global marketing and sales' (Griffiths, Evans-Brown, & Sedefov, 2013).

In addition, some authors link the availability of NPS directly to the aspect of legislation, i.e. a situation where NPS can be traded in and openly sold just as any commodity, as so called 'legal highs'. Even though the NPS issue is basically not a legal phenomenon, it can be argued that legislation has (had) a lot to do with its dynamics.

2.2.3. 'Legal highs'; the legislative factor

Most of today's NPS originally appeared outside the confines of international control or drug laws (Chatwin, Measham, O'Brien, & Sumnall, 2017). Just as any new drug has, at some point. Overall, this is a consequence of the bureaucratic foundations of the international drug control system.

Upon appearance, each new substance is nominatively scheduled and prohibited (or otherwise) by the UN-Conventions, albeit after assessing its potential risks (Coulson & Caulkins, 2012; Kalant, 2010). This substance-by-substance process not only takes time (in which a new drug is potentially legal) but NPS suppliers engaged in creative strategies to continue evading legislation (Tetty et al., 2018). In practice they labelled new substances as 'not for human consumption' to bypass (next to drug laws) consumer and medicines laws and subsequently marketed them as 'legal highs' (Measham & Newcombe, 2016; Sumnall et al., 2011). Once such an NPS has passed the scheduling process and becomes prohibited, its chemical composition is (slightly) modified. Technically, this results in an entirely new substance that in turn, is not nominatively described and therefore *not* illegal.

Ultimately, this gave rise to a continuous cat-and-mouse game between clandestine chemists / laboratories and legal authorities. A game or 'chemicals arms race'⁴ that is generally described as the 'motor' of the NPS issue and that has led Helander and Bäckberg (2017) to dub NPS 'the Hydra monster of recreational drugs' (Colson, 2017; Measham & Newcombe, 2016; Rolles & Kushlik, 2014).

Today, the term 'legal highs' might still be appealing to media and NPS marketers, but it has little scientific value. Not only can the legal status of an NPS change over time (and space), the term has become largely outdated, given recent legislative changes in many countries (Winstock & Ramsey, 2010).

2.3. Terminology and concepts

2.3.1. Synthetic or natural?

A common error is the assumption that NPS are exclusively synthetic compounds. In reality, the majority of them is but they can just as well be natural or plant-based (Patel, 2019). Popular examples are plants (or extracted products) such as salvia, kratom or khat (Singh et al., 2017). In

⁴ The coining of this phrase is attributed to Treble (cited in: Archer, Treble, and Williams (2011)

fact, the khat plant that contains natural amphetamine-like 'cathine' and 'cathinone' is responsible for describing one of the larger groups of NPS, the (synthetic) cathinones (Feng, Battulga, Han, Chung, & Li, 2017)

2.3.2. 'New' or old?

More importantly, 'when we are struggling with terminology' (Griffiths & Götz, 2013), it is generally the word 'new' that seems problematic. The term appears to imply that NPS include exclusively newly invented or newly synthesized substances, which is not always the case. Some NPS are genuinely new as far as chemical composition goes, other have known a long history.

The case of mephedrone for instance, is an interesting one in several respects. Mephedrone was first synthesized in 1929 but laid dormant until it was rediscovered in 2003 (O'Hagan & Smith, 2017; Sumnall et al., 2011). Since then, mephedrone acquired a solid position as a popular recreational substance; e.g in the UK where it became the fourth most popular drug behind cannabis, cocaine and ecstasy in 2010 (O'Hagan & Smith, 2017). This evolution made Griffiths et al. (2013) quote that mephedrone has 'made the cross-over from 'legal high' to drug of choice', making it a prime example of the obscurity surrounding the question as to when a substance is no longer a new one but instead, becomes a traditional drug.

Other NPS were developed by academic laboratories or pharmaceutical companies as potential medicines; without ever gaining approval for use in humans. BZP (benzylpiperazine) and MDPV (3,4-methylenedioxypropylvalerone) are examples of such 'failed pharmaceuticals' (King & Kicman, 2011). Still others functioned as pharmacological tools in the study of biochemical, neural, etc. processes (Baumeister, Tojo, & Tracy, 2015; Zawilska & Wojcieszak, 2018). By the way, the scientific and patent literature of neurochemical research or 'the back catalogue of pharmaceutical and medical research industries' (Griffiths et al., 2013) in general, functions as a rich source of NPS production and potentially provides blueprints for thousands of compounds (Archer et al., 2011; Evans-Brown & Sedefov, 2018; Madras, 2017). In the same vein, the popular work of Dr. Shulgin is influential (King & Kicman, 2011; Koning & Niesink, 2013; Sumnall et al., 2011). Lastly, some NPS have indeed been synthesized as entirely new structures by (clandestine) chemists or laboratories.

Eventually, very few NPS gain a foothold on the recreational drug market. It is estimated that 98% of NPS are 'little more than one-night wonders' and quickly disappear or their use remains undetectable (Chatwin, 2017; Measham & Newcombe, 2016).

2.3.3. 'Cross-overs': ketamine and Gamma-Hydroxybutyric Acid (GHB)

Several NPS once knew a history of actual medical use but were replaced by analogues or different substances. An example is ketamine, which was approved for human use in 1970 under the brand name 'Ketalar[®]' (Li & Vlisides, 2016). Today, ketamine is still one of the most widely used anaesthetic medicines in veterinary practice worldwide and continues to be used therapeutically in humans. But only in recent years, it appears to be increasingly consumed as a recreational drug (Beharry & Gibbons, 2016; UNODC, 2017). Ketamine tends to be associated with dance music and is specifically popular in nightlife settings, at raves and in clubs (Stephenson & Richardson, 2014; VAD, 2017).

The same has been said about GHB, also -but erroneously- referred to as ‘liquid ecstasy’. Contrary to ketamine though, GHB is also mentioned in the context of ‘chemsex’⁵ (Stephenson & Richardson, 2014). Ketamine and GHB are what Mountney (2017) calls ‘substances that made the cross-over and stay’, i.e. from medical to recreational use. Both are examples of long existing drugs of which reports of recreational use prior to the turn of the millennium are scarce. Since then, their newly emerged usage patterns as ‘club drugs’⁶ are the reason why ketamine and GHB are often included into the body of NPS in re-search, as well as in this study (EMCDDA, 2017; UNODC, 2017).

2.3.4. ‘Psychoactive Substances’

The other constitutional components of the NPS acronym provoke less controversy, as a rule⁷. In basic sense, NPS are psychoactive in that ‘*they stimulate or depress the central nervous system*’ (EMCDDA, 2016b). This is a broad description of the term ‘psychoactive’ but in the context of this study, a pinpoint definition is not imperative. After all, by interviewing the users of NPS they are directly asked about the *actual* psychoactive effects they seek and/or experience when consuming NPS. Examples include ‘produce altered states of consciousness’, ‘increase physical energy’, ‘lower inhibitions’, etc.

Nonetheless, to avoid scientific contentious concepts sometimes included in defining ‘psychoactive substances’ -for instance the connection with ‘abuse’ (UNODC, 2013) or inducing ‘dependence’ (M.J. Barratt, Seear, & Lancaster, 2017)- we add a sentence of the World Health Organisation’s (WHO) lexicon of alcohol and drug terms: “*psychoactive*” *does not necessarily imply dependence-producing, and in common parlance, the term is often left unstated*’ (WHO, 1994).

This leaves us with a final note on the term ‘substance’. Next to the association with psychoactive, we will keep using ‘substance’ as a general term, interchangeably with variations used in literature such as ‘compounds’, ‘substances’ or notably ‘drugs’ (Measham & Newcombe, 2016). Being aware of the intrinsic nature of the latter term as a social and regulatory construct (for example, Seddon, 2016).

2.4. New and newly used NPS

To grasp the concept of NPS, it is important to look beyond the legal aspect of definitions. We should understand NPS more as substances with new evidence of sale and use on the drug market and/or having emerged relatively recent as recreational substances (EMCDDA, 2016b; UNODC, 2013; VAD, 2017). The acronym can point to both legal and illegal substances and should be interpreted from a phenomenological rather than a pharmacologic point of view.

As a final note to the conceptual knot, instead of the sometimes-used ‘*Novel*’, we stick to the term *New Psychoactive Substances*. Not only for reasons of consistency with most literature but also in recognition that ‘a definition which centres on the *novel* element overlooks the continuities between

⁵ ‘Chemsex’ refers to the use of drugs (including NPS) in a highly sexualised context to facilitate, enhance, disinhibit or sustain sexual pleasure (Bourne et al., 2014; Bourne et al., 2015; Shapiro, 2015, as cited in Deligianni, 2017).

⁶ A collective term given to substances typically used in bars and nightclubs, at concerts and parties (Ball, 2015).

⁷ Note that this an entirely different matter in the context of legislation, i.e. so called ‘blanket bans’.

pharmaceutical and recreational drug developments in recent years' (Measham & Newcombe, 2016).

3. Classification of NPS

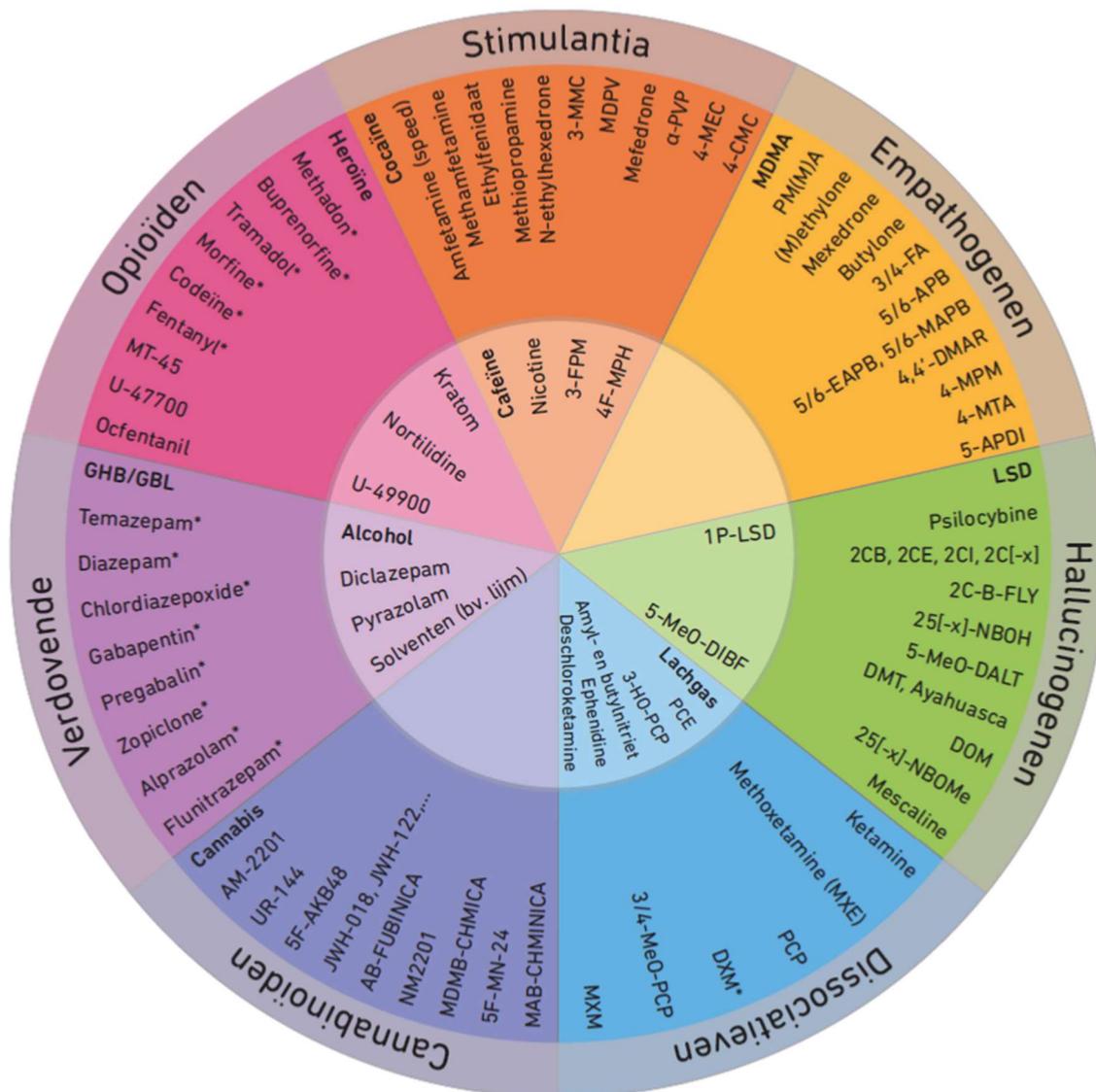
3.1. General taxonomy

Following their diverse chemical nature, NPS are not easy to categorise. Unlike many traditional illicit drugs, such as cocaine, cannabis and heroin which all have distinct effects, NPS can be part of various groups producing various effects (Stephenson & Richardson, 2014).

Many classification models can be found but few are widely accepted.

Overall, we distinguish four approaches based on four dimensions: by *source*, by *legal status*, by *psychoactive effect* or by *chemical structure* or group (G. R. Potter & Chatwin, 2017). A framework incorporating the third or fourth approach is most common, e.g. the charting of NPS by EMCDDA or UNODC (UNODC, 2014). Still, one problem persists and illustrates the intricacy of the matter: the category 'other'. Not only does this category represent a heterogeneous group of drugs, it also expands over time to have become the third largest group of NPS (EMCDDA, 2018a).

Figure 2: The Drugs Wheel: (N)PS by type and legal status in Belgium (2018)



At this point, we suggest to use Adley's 'Drug Wheel' (Adley, 2018). The drug wheel combines an outer ring of seven categories of psychoactivity with an inner ring of legal status. Also, two of the partners to our study joined efforts to create a version of the wheel adapted to the Belgian context (Figure 2). The inner ring groups the legal drugs in Belgium, the outer ring the illegal ones and prescription substances (*). In each group a classic analogue is added. Note that the drug wheel is a model that does not aim to be all-inclusive. However, it simplifies the complex collection of NPS while providing enough clarity for our purposes.

3.2. Classes of NPS, forms and usage

A second (Belgian) version of the wheel is dedicated to the (physical and mental) effects of NPS (VAD & Sciensano, 2016). What follows is a summary of the main effects tied to each of the seven categories of NPS of this second wheel, including forms, appearance and administration modes.

3.2.1. Synthetic cannabinoids or Synthetic Cannabinoid Receptor Agonists (SCRA's)
 Synthetic cannabinoids or SCRA's ('spice') are the largest group (one third) of NPS (EMCDDA, 2017c; Hill & Dargan, 2018). SCRA's pretend to produce cannabis-like effects and are smoked as herbal

mixtures or ‘vaped’ (as liquid in e-cigarettes). Mostly available as a powder which is dissolved in a solvent and sprayed on plant material (Peacock et al., 2019). They are a chemically diverse group with many of them *not* structurally related to cannabis (Abdulrahim & Bowden-Jones, 2016). In fact, the only similarity is that they target (some of) the same receptors as THC does, the active part of cannabis. However, effects can be very dissimilar, both in terms of potency and health (Lamy et al., 2017).

3.2.2. Stimulants

Stimulants are the second largest group of NPS, made up of substances that stimulate the central nervous system. The synthetic cathinones belong to this class, with mephedrone as prime representative (Papaseit et al., 2017). Other stimulants are *MDPV*, *4-FA* and *3-MMC* (Simmler & Liechti, 2018). They predominantly have cocaine and amphetamine-like features: increased heart rate and blood pressure, sense of euphoria, increased energy, anxiety (O'Hagan & Smith, 2017). Sold as powders or tablets, they can be swallowed, snorted, smoked (after converting in a base) and injected (UNODC, 2013).

3.2.3. Empathogens

Although there is an overlap between stimulants and empathogens, the latter induce fewer stimulant effects in favour of increased empathy and sociability (Adley, 2018; Hill & Dargan, 2018). Empathogens mimic the effects of ecstasy/MDMA. Examples are *4-MTA* and *5 and 6-APB*. Feelings of love, happiness, and closeness to others are typical. On a physical level, they increase heart rate and blood pressure, including reported cases of hyperthermia or ‘overheating’ (Simmler & Liechti, 2018). Empathogens are strongly associated with nightlife (Smith, Moore, & Measham, 2009). Sold as tablets, powder and crystals, they are usually taken orally but can be snorted and injected too.

3.2.4. Synthetic Opioids (SO)

Synthetic opioids (SO) mimic the effects of morphine and heroin: decreased heart rate and blood pressure, respiratory depression, potential dependence, relaxation and sedation (Karila et al., 2018). In many cases though, their potency is far greater than that of their classic counterparts. Examples are the *fentanyl analogues* and the drug *U 47700*; both received much attention due to many reports of fatal overdoses (Beardsley & Zhang, 2018). SO can be used as adulterants in heroin and are also sold as counterfeit pharmaceuticals resembling prescription medication (Beardsley & Zhang, 2018). They come in powder, tablet or liquid⁸ and can be swallowed, snorted, smoked or injected (Karila et al., 2018).

3.2.5. Depressants

This group covers primarily NPS resembling prescription benzodiazepines, e.g. diazepam (Valium[®]) or alprazolam (Xanax[®]). The first example appearing online without restrictions, was *phenazepam* in 2007 (Zawilska & Wojcieszak, 2019). Together with *etizolam*, it shares a history as legal available medicine. In contrast, the appearance of *pyrazolam* in 2012 marks the beginning of a long series of analogues without such a history (e.g. *clonazolam*, *flunitrazolam*, etc.) (Moosmann & Auwärter, 2018). Just as the prescribed, medicinal benzodiazepines, they have tranquillizing and (muscle-) relaxing properties and come as tablets. Another important member of this group is GHB⁹. Mainly

⁸ Sometimes in patches too, counterfeiting medicinal patches used for pain-relief purposes (Durogesic[®]).

⁹ Including its precursor GBL.

sold as a liquid, GHB has euphoric properties and sedative properties alike, depending on -among other- dosage (VAD, 2017).

3.2.6. Hallucinogens/psychedelics

Much like LSD is the hallucinogen 'par excellence'; the NBOMe's (*25C-NBOMe*, *25X-NBOMe*, etc) are the NPS alternative. *Mescaline*, a natural hallucinogen and *2CB* are other examples of this group. Main effects are long-lasting and comprise increased blood pressure, sensory experiences including synaesthesia (blending of senses), hallucinations, changed perception, etc (O'Hagan & Smith, 2017). Use of these substances can be found among so called '(e-)psychonauts'¹⁰ (O'Brien, Chatwin, Jenkins, & Measham, 2014). Hallucinogens come in liquid form, powders, tablets and 'blotters' or paper trips¹¹ and are usually taken orally. Dosage of many of them is expressed in micrograms and therefore a delicate matter.

3.2.7. Dissociatives

Finally, dissociatives combine hallucinogenic and dissociating effects. *PCP* or *phencyclidine* ('angel dust') and *ketamine* are popular examples (Wallach & Brandt, 2018). Physiological effects include increased heart rate and blurred vision while described subjective effects are dissociation from environment and body, unusual thought content, euphoria, weightlessness, etc. High dosage of ketamine can lead to the so called 'K-hole' effect, a sort of 'near death' or 'out of body' experience (Baumeister et al., 2015). Ketamine and analogues (e.g. *deschloroketamine (DCK)*, *methoxetamine*) are mostly crystalline powders and can be swallowed or snorted; PCP can be smoked or swallowed.

4. Legislation surrounding NPS

4.1. The international dimension of NPS legislation

Drug laws are basically international of nature in the sense that nearly all nations are a part to the global UN-based treaties or conventions regulating psychoactive substances (Bewley-Taylor & Jelsma, 2012). Due to the primacy of international (drug) treaty law ('*pacta sunt servanda*') and its basically prohibitive signature, national drug policies have limited wiggle room and are inevitably prohibition-oriented (Krajewski, 1999).

On an international (UN) level, the proliferation of NPS has pushed drug control laws to their limits. Since the first UN-scheduling of an NPS in 2015, only 26 others have been put under various control regimes (Tetty et al., 2018). This relatively low proportion of controlled NPS is a consequence of a slow, reactive process as described earlier. As a result, NPS have -for the first time in history- triggered the invoking of '*provisional temporary control measures*' (Tetty et al., 2018). These measures figure in the 1971 Convention and were designed to prevent distribution of substances in situations of urgency.

4.2. European legislation on NPS

Another peculiarity of the global NPS issue has to do with its birthplace. NPS were originally a European affair before showing up in the United States (US) or other parts of the world, not the

¹⁰ A term that describes users of primarily hallucinogenic drugs whose motivations have more to do with 'altered state of consciousness' than with recreational purposes. The term 'e-psychonaut' refers to 'psychonaut living in the information age', specifically related to the ones using NPS (L. Orsolini et al., 2017).

¹¹ A small piece of dense paper about the size of half a cm² and drenched in a micro dosage of liquid.

other way around (Bergeron, Milhet, & Hunt, 2011; Collins, 2017). This a unique observation in the post-war history of drug phenomena. By the way, in the US it took until 2009 to see the first reports of NPS (Madras, 2017).

Similar to the UN regulations, European NPS or drug legislation has been criticized as being 'reactive', 'lengthy', etc. to tackle the 'tsunami' of NPS (Chatwin, 2017). Although the EU decision of 2005 incorporates a three-step design including control protocols, it is mainly the functions of information exchange and risk assessment (e.g. the EU-Early Warning System) that have been successful so far. Actual bans have been limited: from BZP in 2008 to a total of 15 NPS by 2016. The lagging behind of the third step, control opportunities, can be partly attributed to the fact that EU drug policy is based on the principle of 'subsidiarity', leaving actual competencies to the Member States (Colson, 2017). The EU can only intervene in national decision making power when it can demonstrate that a European approach *adds value*, unachievable by national governments alone (Chatwin, 2017).

Recently, a legislative action at EU level was proposed by Framework Decision 2004/757/JHA (Stiegel, 2017). The decision retains the existing three-step approach but strengthens and streamlines it, while reinforcing and accelerating possible legislative initiatives (Stiegel, 2017).

4.3. National NPS laws: from observer to conductor

For the time being still, the national level is the stage of profound policy changes. Clearly, NPS have become a driver for diverging legislative and policy developments in several (European) countries. Before 2010, most governments relied on controlling new drugs on an individual case-by-case basis (Beltgens, 2017). However, rushed by the flood of NPS, an increasing number of countries abandoned this approach and transformed domestic drug and/or NPS laws.

Overall, the EMCDDA lists three types of controlling NPS on a national level (EMCDDA, 2016c):

- *Controls based on consumer safety or medicines laws*: among others, Poland, Italy and the UK used to apply this strategy. However, the European Court of Justice ruled against such laws in 2014, making them no longer available as forms of control of NPS.
- *Extending and adapting existing laws*: some countries managed NPS under existing drug laws; often after placing them under temporary class drug orders. Examples are Finland and Slovakia. Others chose to extend the scope of existing drug legislation to include defined groups of substances: definitions that can be generic or analogue of nature. *Analogue systems* are based on a broad definition of a group: 'chemical similarity and intended psychoactive effects to a substance already controlled by law' (e.g. US Federal Analogue Act). *Generic systems* include groups of substances based on a precise definition of core molecular structure (e.g. Poland, Luxemburg).
- *Devising new laws to tackle NPS*: the most comprehensive response, as undertaken by Ireland, Romania, UK, etc, is the creation of new punitive laws, called 'blanket bans'. A blanket ban can be defined as 'a system whereby all psychoactive substances (however legally defined) are pre-emptively subjected to a total ban¹²' (based on G. R. Potter and Chatwin (2017)). Naming of a psychoactive material is not required in order to become prohibited (because implicitly

¹² with exceptions for drugs that were already legal (e.g. alcohol) or already controlled (e.g. classic illicit drugs).

covered), neither is harmfulness (EMCDDA, 2016c; Stevens, Fortson, Measham, & Sumnall, 2015).

A famous example of an alternative approach is New Zealand's *Psychoactive Substances Act (PSA)* from 2013. It is the world's first law designed to control NPS by means of a regulated market (Rychert & Wilkins, 2016). The PSA leaves open the possibility to manufacture, distribute and sell NPS carrying a 'low risk', to be proven by the producer. However, this shift in 'burden of proof', an application fee of NZ\$ 180 000 and the costs of toxicological and clinical trials, combined with the lack of a definition of 'low risk', has prevented this from happening (Beltgens (2017); Wilkins (2014)¹³.

At this point in time, differences in approach have led to a situation in which the legal status of NPS may vary between (European) countries, even within EU Member States. An important similarity though, can be identified: *'it seems that countries are choosing not to use criminal sanctions for possessing a new substance for personal use'* (Hughes, Evans-Brown, & Sedefov, 2016). In other words, the supply side of the NPS market appears to be the main concern and the demand side -in terms of use and possession- is excluded from penal law.

4.4. Belgium's generic legislation targeting NPS

To tackle the flow of NPS, Belgian authorities recently opted for a combination of the second and third reaction of the division outlined above. More precisely, Belgium enacted a generic law targeting NPS, although shaped by a new piece of legislation, i.e. a Royal Decree.

4.4.1. The national Drug Law of 1921

Belgian legislation concerning illicit drugs is in line with both UN- and EU-treaties. That is, federal legislation forms an addendum to these treaties. The current Belgian drug legislation dates to the law of February 24, 1921, later adapted by laws of 1975, 1998, 2003, 2006 and 2014 (Belgisch Staatsblad/Moniteur Belge, 1921).

The law of 1921 concerns *'the trade in poisons, sedatives and narcotics, disinfectants and antiseptics'* and is a general law, governing general principles, responsibilities and procedures (BS/MB, 1921). This law was complemented by the Royal Decree of December 31, 1930 (BS/MB, 1931). Additionally, the law of 1975 and 1998 and a Royal Decree of 1998 all added psychotropic substances to the law of 1921 (BS/MB, 1975; 1998; 1999). Consequently, the drug law prohibits the import, export, production, trade, possession, sale and purchase of controlled substances (including the growing of plants containing any of these substances).

Next to these offences, the law also describes two specific situations, namely 'to incite or to facilitate drug use' and 'the misuse of prescription, administration or delivery of narcotics or psychotropic substances by a medical practitioner' (Van Espen & Vanthienen, 2016). Technically, by Royal Decree, the King can also determine conditions and control measures of the sale of some of these compounds.

¹³ At least up until December 2016; the most recent date we found (see: Wilkins et al. (2017).

4.4.2. The generic Drug Law of 2017

In the period before September 2017, no specific NPS legislation existed in Belgium. Instead the list of controlled substances was regularly updated by the addition of several new drugs. As in many countries, this nominative list proved inadequate to deal with the constant changing NPS structures.

On September 26th of 2017, a Royal Decree was published, aimed at controlling as many NPS as possible in a generic manner; by including the core structure for several classes of substances (BS/MB, 2017). By definition, of the remaining functional groups substituted on the chemical core structure, it is possible to already schedule substances that have not even appeared on the market yet. Compared to the earlier approach, when drug legislation had to be updated every single time a new drug was found, the generic approach is timelier and more proactive. The classes of substances defined in the generic legislation include cathinones, amphetamine derivatives, tryptamines, synthetic cannabinoids, piperazines and fentanyl derivatives. Additionally, preparatory acts for drug production and trafficking are sentenced as well.

To conclude, this means that in Belgium (manufacturing, distributing and consuming) all NPS are illegal now, including psychoactive drugs that are not designed yet. This can be considered a turning point in legislative measures aimed at NPS and by extension at all drugs, in our country. Something that has not been done before and that has implications no-one really can predict. In practice, the impact of this legislative novelty could turn out to be limited and enforcing it might seem hardly possible, in several ways (J. van Amsterdam, Nutt, & van den Brink, 2013). On another note, we preferred not to (deliberately) include this legislative change in our research because it materialised six months into the study. Instead, we accepted it as is, an independent external factor.

4.5. Prohibition as a precaution

To summarize, it is safe to say that the contemporary NPS issue has sent a historical shockwave through the landscape of (national) drug policies. What is most striking, is the predominant choice for an all-prohibitive approach at the expense of various alternative regulatory regimes (Reuter, 2011).

The justification of prohibiting NPS that are barely known and of which the potential harms have not yet been assessed, is generally grounded in the *precautionary principle* (Negrei et al. (2017); Reuter and Pardo (2017)). The idea is that, in absence of (risk) analysis of a new drug, banning it altogether will eliminate potential harms following its use (Buchanan, 2015; Rolles & Kushlik, 2014). A line of reasoning that has been questioned based on among other, the assumption that prohibition reduces use, the ignoring of harms resulting from prohibition, the limiting of developing safer new substances, etc. (Negrei et al., 2017; Winstock & Ramsey, 2010).

Some authors believe that the dynamics between the NPS market and policy change have changed, i.e. reversed. In other words: the speed of policy change/legislative control itself (as opposed to the lack thereof) has become a significant driving force of (future) NPS innovations (Measham & Newcombe, 2016; G. R. Potter & Chatwin, 2017). Specifically, it can be argued that generic or analogue legislation will push the ingenuity of NPS producers further to synthesize future compounds that fall outside the boundaries of such systems (J. van Amsterdam et al., 2013).

5. Current reports on NPS

5.1. Epidemiology of NPS use

Despite expressed concerns about the increasing availability of NPS, reliable epidemiological data are virtually non-existent. A critical parameter at this point such as prevalence of use is estimated using general population (or household) surveys (Khaled et al., 2016). However, consumption data based on such surveys are rarely interchangeable between countries due to: lack of a universal definition of NPS, dynamics of the NPS market (variety of brand names, etc.) and differences in legislation (Khaled et al., 2016; Sumnall, McVeigh, & Evans-Brown, 2013). A final and important critique of general population estimates points to their tendency to underrepresent key NPS using populations: deprived groups, young people, nightlife community, etc (A. e. a. Benschop, 2017; Khaled et al., 2016).

Based on general surveys, the UNODC reports country-level estimates of past year NPS use of typically <1% of the sampled population (Peacock et al., 2018; UNODC, 2017). EMCDDA reports last year prevalence figures of NPS use from 0,1% in Norway to 3,2% in the Netherlands (2016), concluding that 'consumption levels of NPS are low overall in Europe' (EMCDDA, 2019b). When looking to paint a complete picture of NPS use, alternative approaches might be helpful.

5.1.1. Prevalence of NPS use around the world

The Global Drug Survey (GDS) and Flash Eurobarometer use prevalence estimations in non-clinical populations through purposive sampling. Advantages are their sample size and inclusion of relevant subgroups (psychonauts, clubbers, etc.) although they are limited by self-selection (Khaled et al., 2016). The latest GDS incorporates data from more than 120 000 people from 35 countries, devoting a separate section to the use of NPS. However, no extrapolation can be made to national prevalence estimates and comparing country data is impossible (Winstock, 2019).

The 2019 GDS report makes mention of 11,4% of participants having ever used NPS while 2,6% reported use in the last twelve months ($n=3900$). Figure 3 shows last year use-rates of NPS by country. Globally, 4,2% reported use of NPS in the past 12 months (2015). In 2016, the figure rose to 4,8% and to 5% in 2017. In 2018, the number decreased to the level of 2015. GDS also addresses interesting groups such as people that use classic drugs (*Figure 4*).

Figure 3: % respondents having used NPS in the past year, by country (GDS 2019)

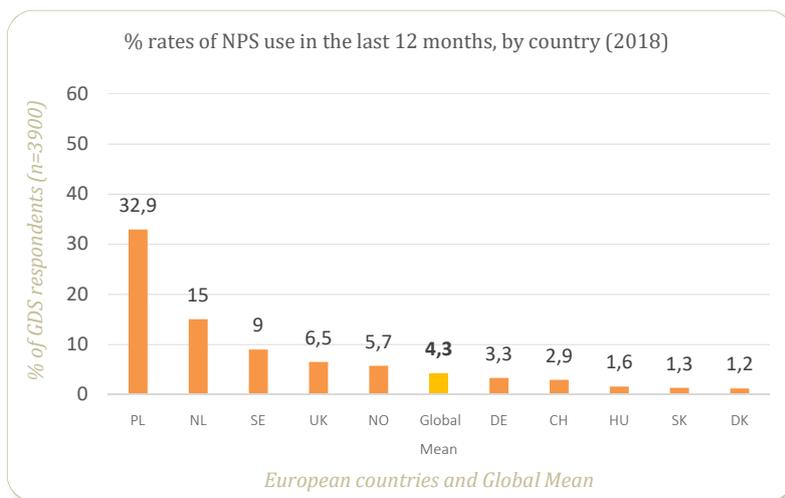
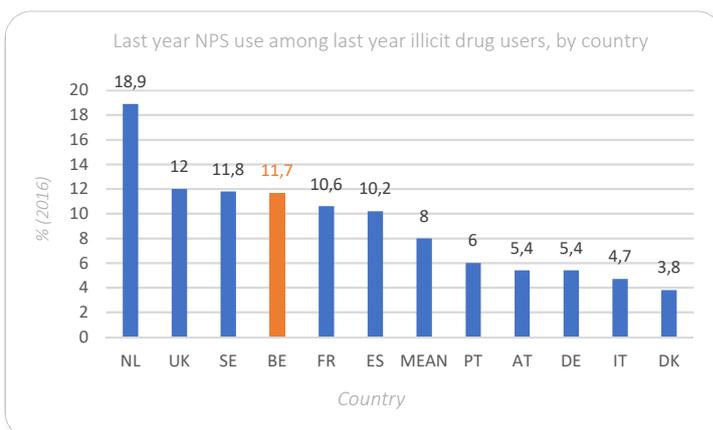


Figure 4: % of people who have used NPS in the past 12 months among last year users of illicit drugs, by country, excluding Belgium (GDS 2017)



5.1.2. Prevalence of NPS use in Europe

On a European level, two surveys include NPS use: *Flash Eurobarometer* and the *European School Survey Project on Alcohol and Other Drugs (ESPAD)*. The former investigates drug use among adolescents in EU Member States; the latter is the largest cross-national survey of adolescent drug use in the world, reporting every four years (Sumnall et al., 2013).

The *Flash Eurobarometer* is a telephone survey that covers the 15 to 24 years olds in all 28 EU Member States. NPS were included for the first time in 2011, revealing that overall, 5% of young people ($n > 12\ 00$) had ever used new substances¹⁴. The latest barometer (2014) also estimates prevalence to be low: in general, 8% reported lifetime use, 3% used NPS in the last 12 months and

¹⁴ The Flash Eurobarometer surveys use the phrasing of ‘new drugs’ or ‘new substances that imitate the effects of illicit drugs such as cannabis, ecstasy, cocaine, etc.’ (http://ec.europa.eu/public_opinion/flash/fl_330_en.pdf).

1% in the last 30 days. In all but four states, lifetime prevalence rates remain below 10% (TNS Political & Social, 2014).

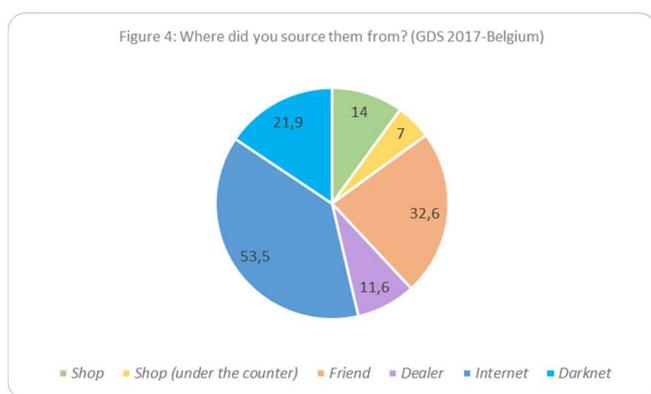
The most recent *ESPAD* survey dates from 2015 and was based on a population of more than 96 000 students aged 15 or 16 years, from 35 European countries (a.o. 24 EU Member States). The anonymous self-administered questionnaire revealed that 4% of the students reported lifetime use of NPS¹⁵, varying from 1% (Portugal, Flanders) to 10% (Estonia, Poland). Average last year-use was 3% (*ESPAD*, 2015).

5.1.3. The use of NPS in Belgium

Available data on the prevalence and/or use of NPS in Belgium are scarce. The latest *health survey* of Sciensano applies to the general population in Belgium and revealed that in 2013, just 0,1% of the sample ($n=10\ 000$) reported use of 'legal highs' in the last 12 months (Sciensano, 2013). Results of the 2018 edition are due for later in 2019. Apart from this, only partial figures exist about specific subgroups.

a) NPS use in Belgium among young people (*GDS, country reports*).

Figure 5: Source of NPS used by Belgian respondents to GDS (2017)



The 2017 *GDS country report* for Belgium involves a sample of 788 people with a mean age of 25 years (GDS & Van Havere, 2017). 16,2% reported having ever used NPS, with 11,7% having done so in the last year (Figure 4). Last year use rose from 8,4% in 2016 and 4,6 in 2015. Ketamine was the most popular new substance in 2016 with 18,2% of respondents reporting last year use, followed by 2CB (8,1%), 4FA (3,3%), GHB (2,8%) and DMT (2,7%) (GDS & Van Havere, 2017). To source their NPS, more than half of the consumers turns to the Internet; another 20% uses Darknet. One third of the sample gets their NPS from friends (*Figure 5*).

b) NPS use in Belgium among students and adolescents (*ESPAD*)

Data collected in the context of the *ESPAD* survey show hardly any use of NPS among 15 and 16 years olds¹⁶: 1% reported lifetime- and last year use of NPS (*ESPAD*, 2015). In 2017 in Flanders, students to all institutions offering higher education were asked about their substance use, including

¹⁵ The questionnaire refers to NPS as 'substances that imitate the effects of illicit drugs such as cannabis or ecstasy and are sometimes called "legal highs", "ethnobotanicals" or "research chemicals"'.

¹⁶ Belgian data in the *ESPAD* refer to Flanders only.

ketamine, GHB and NPS. Use was expected to be limited, with no specific data available (Rosiers et al., 2018)

c) NPS use in Flanders' nightlife

A quantitative survey on drug use targets people visiting clubs, dance events and music festivals in Flanders (Rosiers, 2018; Van Havere, 2012). It was replicated most recently in 2018. Average age of the study sample varies between 22 and 28,4 years old. Table 1.1 shows the relevant data on substance use.

Table 1.1: Last year NPS use among people in nightlife settings (dance-& music events, clubs, festivals), 2003-2018

	2003 (n=645)	2005 (n=670)	2007 (n=775)	2009 (n=607)	2012 (n=618)	2015 (n=770)	2018 (n=675)
Ketamine	0,9%	1,7%	3,3%	1,0%	3,8%	4,9%	5,8%
GHB	1,9%	1,7%	5,3%	2,3%	3,2%	1,6%	0,9%
NPS ¹⁷						3,4%	3,4%

The 2018 report concludes that NPS 'are not a big part of nightlife in Flanders' (Rosiers, 2018). Looking at the use of ketamine throughout the years, we see a clear, upward trend. Use of GHB appears to evolve in the opposite direction.

d) The use of NPS among PWID in Flanders

Several countries report the appearance of NPS among People Who Inject Drugs (PWID), known to care and harm reduction services (Grund, Vavrincikova, Fidesova, and Janikova (2016); Racz et al. (2016). A specific dataset originating in the NSPs in Flanders, supports this observation. Every year an anonymous self-administered survey is carried out among PWID of each provincial NSP. Table 1.2 marks lifetime use of NPS in this group as well as use in the 12 months leading up to the survey. Recently, around four out of ten have ever used NPS. When we take into account the year prior to the survey, it looks like most use is episodic, with 15 to 22% of clients confirming last year use of NPS (Windelinckx, 2018).

Table 1.2: % of PWID visiting Flemish NSPs that report lifetime and last year use of NPS, 2014-2017

	2014 (n=256)	2015 (n=226)	2016 (n=241)	2017 (n=243)
Lifetime use NPS	42,2%	33,7%	41,9%	40,3%
Last year use NPS	26,2%	18,8%	14,9%	21,8%

Upon consulting the complete survey reports, it becomes clear that clients of the Flemish NSPs continue to inject primarily classic drugs (cocaine, heroin, etc.). Use of NPS in this population seems ancillary, contrary to the situation in Hungary or Romania for instance, where large groups of PWID switched to mainly injecting NPS (Alexandrescu, 2017; Racz et al., 2016).

¹⁷ In this study defined as 'new psychoactive substances that mimic the effects of illicit drugs but (can) evade drug laws'.

e) The use of NPS in the Belgian driving under the influence of drugs (DUID) population

An interesting piece of data-collection by the National Institute of Criminalistics and Criminology (NICC) in 2017 is based on post-testing of 558 blood samples resulting from roadside controls in Belgium¹⁸. A total of 37 cases or 7% of the samples tested positive for NPS, most notably dissociatives (e.g. methoxetamine, ketamine) and cathinones (e.g. 4-FA, mephedrone). Note that this figure refers to samples already proven positive for classic drugs. Also, roadside controls are often installed near festival- or dancing sites, which may account for a relatively higher prevalence of NPS (Wille et al., 2018).

5.1.4. Other information sources

The lack of robust data inevitably results in an approximate view on NPS use. To gain a more complete insight into the extent and nature of it, supplementary indicators can be thrown in: emergency department cases, seizures by law enforcement, mortality data, poisons centres- and toxicology data, etc. (Peacock et al., 2018). Another piece of the puzzle can be formed by information systems based on sources like drug checking services, early warnings, internet (market) monitoring, wastewater analysis, etc. (see Sedefov, Gallegos, Mounteney, and Kenny (2013); Sumnall et al. (2013)).

Sedefov et al. (2013) conclude that ‘the combined use and triangulation of routine epidemiological standards, qualitative studies and leading-edge indicators’ is the best bet to obtain a holistic picture of the topic. In Belgium, the information gathered in the framework of the EWS for instance, is an important resource to keep track of trends and evolutions in use and supply of NPS.

5.2. NPS as a (public) health issue

5.2.1. The ‘unknowns’ surrounding NPS

Presently, 900 NPS have been reported worldwide (UNODC, 2019). A staggering number that is often cited in media reports and undoubtedly contributes to the highly publicised character of the NPS issue (Measham & Newcombe, 2016). But when it comes to drug use, media reports and scientific evidence rarely go hand in hand. In the case of NPS, many authors point to the danger of inflating size and scope of the problem (Chatwin et al., 2017; Measham & Newcombe, 2016; G. R. Potter & Chatwin, 2017). Indeed, available prevalence data do not suggest a problem of widespread use, ‘large numbers of infections and violent illegal markets’ (Chatwin et al., 2017; Reuter, 2011). What is the problem then?

Our main interest are the health concerns about NPS in scientific discourse. They can be summarized as the many ‘unknowns’ surrounding new drugs: ‘*almost nothing is known about their harmful properties*’ (King & Kicman, 2011). This is the key difference with established illicit drugs that are well-researched by now and the reason for J. Taylor (2015) to consider the use of NPS ‘arguably far more dangerous than the relative stable use of the traditional drugs they substituted for’. Eventually, we simply do not have the empirical data to draw upon, when evaluating the use and effects of many NPS.

¹⁸ Controls were performed from January to August 2015 in three different regions (Mons, Turnhout, Mechelen). NPS were defined according to the EMCDDA definition.

5.2.2. Substance (market) characteristics and health consequences

Zamengo, Frison, Bettin, and Sciarrone (2014) devoted a paper to cases of NPS intoxication analysed by a forensic toxicology laboratory. They report three situations in which unforeseen adverse effects after using NPS, led to hospitalization:

- *High variability of active ingredients concentration*: in this case a batch of 32 identical packages of herbal mixtures of JWH-018, a SCRA, in concentrations from 0,8 to 30% active component. This would make it impossible for the user to measure dosage, potentially leading to unpredictable health effects (e.g. memory and speech disorders);
- *Mislabelling of products*: in terms of active ingredients, for example packages labelled as 'MBZP' (1-methyl-4 phenylmethyl piperazine) and 'TFMPP', another piperazine derivative. Both NPS were found, although mixed with BZP; unmentioned and in five times the standard concentration.
- *Multiple NPS sold as one*: customers that bought SCRA as one individual molecule (JH-018), ended up simultaneously smoking a combination of up to three different active cannabinoids of which the pharmacodynamics are unknown and unexpected to the users.

Several sources mention similar findings, also stating that reports of harmful NPS use mostly involve SCRA's and stimulants (Guirguis, 2017; Measham, 2013; Sumnall et al., 2011). Basically, NPS related harms can be acute (e.g. intoxication, toxicity) or chronic (e.g. lung damage from smoking) or result in specific harms such as infectious diseases (e.g. hepatitis C) or addiction (Emerson & Haden, 2018).

5.2.3. Health hazards, acute and chronic effects of NPS use

Specifically on NPS, (public) health data focus mainly on acute toxicity described in case reports (Peacock et al., 2019). Obviously, there are many clinical similarities between classic drugs and NPS when it comes to positive (e.g. pursuit of well-being, (sexual) connection, etc.) and negative or adverse effects (e.g. vein damage, depression, social isolation, etc). One important exception are the synthetic cannabinoids. Contrary to natural cannabis, potential harms of SCRA's can be far more serious, including hypertension, seizures and even fatalities (Logan et al., 2017; Peacock et al., 2019). One specific phenomenon that caught a lot of attention are (lethal) overdoses attributed to the use of NPS.

In this context, the demise of 17-year old male in Belgium in 2015 illustrates the risks of the unknown tied to the use of NPS (Coopman, Cordonnier, De Leeuw, & Cirimele, 2016). The victim had experience with drug use, including cocaine, sleep tablets and possibly heroin but was known to be a recreational user (congruent with analytical post-mortem findings). He was no stranger to online (drug) markets for his supply. Near the body, a bag holding a brown powder was found, a mirror and a straw with residue of the same powder. Upon toxicological analysis, the substance turned out to be ocfentanil; a synthetic opioid sold as an NPS with around 90 times the potency of morphine (Coopman et al., 2016). In short: all findings and circumstantial evidence converged in a conclusive cause of decease that read: 'acute accidental intoxication after snorting a powder containing ocfentanil'. An example of a tragic turn of events after unwittingly consuming a potent opioid by an opioid-intolerant (or mildly tolerant) person. Widening our view, current reports of NPS-associated fatalities mention a rising mortality in Scotland, (partially) involving benzodiazepines, in the US due to opioids such as fentanyl analogues and in New Zealand following use of SCRA's

(cited in: Peacock et al., 2019). For a complete overview, we refer to a literature review undertaken by Kraemer, Boehmer, Madea, and Maas (2019).

We emphasize that such extreme occurrences are rare in our country and that unintended adverse effects can result from using any class of NPS. The point is that in the end, to rephrase J. Taylor (2015), people are unable 'to make informed decisions on their use of NPS'. Furthermore, besides acute health hazards, for the time being almost nothing¹⁹ is known about possible chronic harms from NPS use. Since the history of NPS use is short-lived, only time will tell what long term-effects of NPS use can imply.

5.2.4. Challenges to the specialized health care field

It is clear by now that the topic of NPS has a major influence on the drug policy landscape. On every level, in every country and to every stakeholder involved. However, altogether there has been little attention to the public health responses associated with the use of NPS in Europe (Meador, Mdege, & McCambridge, 2018). The case described above illustrates the intricacy of NPS to forensic toxicology. Besides, only recently and also in Belgium, the EWS got hold of a substance that was sold as heroin but tested positive for both ocfentanil and another synthetic opioid-NPS called W-018 (Degreef, Blanckaert, Berry, van Nuijs, & Maudens, 2019). Both examples underline the importance of monitoring systems and/or some form of pharmacovigilance against the background of an innovative and responsive NPS market. But it is obvious that more parties are affected.

Actors in the health care field that correspond to our interests, are all specialized organisations focused on prevention, harm reduction and care. Rather than discussing specific obstacles for each of them, we summarize the most recent research we could find on clinical and public health approaches of the issue. Next to the topics we focused on earlier (acute affects and overdoses), Peacock et al. (2019) quote the following challenges of a clinical and public health character, associated with NPS use:

- *Restricted capacity* for rapid confirmation of substances (e.g. in emergency settings);
- Sensationalist media reports increase even more the *need for information exchange* systems to supply accurate information about NPS to users and HCPs (and public);
- Recognising *additional needs and risks* associated with NPS (e.g. chemsex);
- Obscurity surrounding *long term health* effects of NPS, including risk of dependence and withdrawal related to specific stimulants (e.g. MDPV);

Linked to increasing globalisation and accelerating (information) technology, there is little doubt that the emergence of new substances will continue (Corkery et al., 2017; Griffiths, Sedefov, Gallegos, & Lopez, 2010; Peacock et al., 2019; Schifano, 2018). Despite the decline in the annual number of new drugs reported in Europe since 2016, challenges to the health care field do not seem to be declining (EMCDDA, 2019b). In what way the Belgian specialized field perceives these challenges and rises to them, is the subject of the following chapters. An overview of the NPS care project makes this point.

6. The NPS-care project

¹⁹ A few exceptions exist, such as increasing evidence of kidney injuries and urinary tract infections following long term ketamine use or existing knowledge on similarities between NPS and traditional drugs (e.g. addiction potential of opioids).

6.1. General outline

This study was commissioned by federal Science Policy (BELSPO) and coordinated by the University College of Ghent (HoGent) in a joint effort with Sciensano. An array of subcontracting partners brought their specific expertise to the table, acting as ‘network committee’:

- UGhent: University of Ghent, Institute for International Research on Criminal Policy (IRCP);
- Modus Vivendi: peer-driven organisation for prevention and harm reduction in recreational settings in Brussels and the French community;
- VAD: Umbrella organisation uniting the Flemish field of (drug) treatment and prevention;
- De Druglijn: Telephone helpline (mail, chat, etc.) focused on -among other- the use of drugs;
- Eurotox: socio-epidemiological observatory on alcohol and drugs in Wallonia and Brussels;
- Free Clinic/MSOC: Antwerp-based low threshold harm reduction and care centre, the GIG-project (Health Promotion and Injecting Drug Use) in particular.
- Safe ‘n Sound: Flemish peer-based organisation focused on harm reduction and substance use in nightlife and festive settings.

‘*Understanding New Psychoactive Substance use in Belgium from a health perspective*’, in short, ‘*NPS care*’, relies on a combination of mostly qualitative research methods in search of insights into the health aspects related to the use of NPS in Belgium. To start with, we consider two specific actors to be valuable sources of knowledge: the specialized Health Care Professional (HCP) and the NPS user.

6.2. The user’s perspective (Part I)

Part one of the project, consisting of two Work Packages (WPs), focuses on the user’s perspective and is built around the following research questions:

1. Why and how do people use NPS? (WP1)
2. What are their needs in terms of prevention, treatment and harm reduction? (WP1)
3. Are users aware of the nature and/or composition of the substances they use? How do they inform themselves and to what degree do they gain correct knowledge? (WP2)

In search for answers to these questions, we aim to interview a snowballed sample of NPS users by means of a semi-structured questionnaire. We turn to another piece of information in WP2, which is dedicated exclusively to the collection and analysis of NPS samples handed in by interviewees. The result is a unique comparison of users’ assumptions- and actual pharmacological composition of NPS.

6.3. The professionals’ perspective (Part II)

As the issue of NPS use gains importance, an increasing number of professional actors enters in contact with NPS users. WP3 targets the fourth research question:

4. What are the needs of professional prevention workers, caregivers and counsellors to develop, implement or continue tailored prevention and care for NPS users? (WP3)

We used a ‘mixed method’ design to tackle this topic. A first step consists of the Nominal Group Technique (NGT) to inventory the needs of HCPs. This collective inventory serves as the backbone of step two: an online survey presented to a broader group of professionals. Final goal: to obtain a ranked inventory of professional needs according to importance, when it comes to NPS (use).

6.4. Inventory of good practices in prevention, treatment and harm reduction for NPS users and feasibility study (Part III).

The third part of NPS care consists of WP4, that covers two research questions:

5. What are (good) practices in prevention, treatment and harm reduction for NPS users? (WP4)
6. How feasible are a selection of these good practices for implementation in the Belgian context? (WP4)

For starters, a literature study is undertaken to describe practices that focus on the use of NPS. Next, focus groups are set up, consisting of professionals on the one hand and users on the other. Both groups will debate over (good) practices that are achievable in the Belgian context. Finally, a closing part of NPS care absorbs all data collected throughout the study, translating them in specific recommendations of initiatives that target NPS use in Belgium.

6.5. Research report

All parts, WPs and research questions will be synthesized in a research report, followed by a summary to distribute within the field of professional actors and policy makers. The report revolves around the final research question:

7. What can we learn from the different WP's to develop Belgian care interventions to cope in an appropriate way with quickly changing developments on NPS?

The report is divided in different chapters, corresponding to the structure of the research. This first chapter is a general introduction to the theme of NPS, including main features; definition, legislation, public health, etc. The second chapter is devoted to the harvest of the user interviews and followed by a blueprint of the sample analyses in chapter three. In chapter four we collect all information on the professional's needs when it comes to the use of NPS. The fifth chapter identifies NPS targeted interventions in Belgium, based on literature and outcome of focus groups of NPS users and experienced professionals. Finally, the closing chapter presents an overview of all conclusions and recommendations.

6.6. Ethical considerations

The first thing we did was to file an application for approval of our research by the Ethical Commission of the University of Ghent. This seemed an obvious step, given the nature of the study and the population under scrutiny in general (notably the users of NPS). Furthermore, we cannot exclude having to deal with personal information (possibly of legal/medical nature) in the context of the user interviews. After taking note of the general ethical framework imposed by the Commission, we compiled a Specific Ethical Protocol for scientific research in Psychology and Educational Sciences.

This Protocol covers a host of issues; from the funding of our study over a 'who is who' of the project partners to approaching the populations we saw, including protection of anonymity, templates of informed consent and incentives. The final subject involved a modus operandi for the collection of NPS samples that may prove to be illegal at the time of collection. After re-editing a first version of the Protocol based on commission-ordered amendments, the Ethical Commission granted its final authorization of the *Specific Ethical Protocol for the NPS care project* in July 2017.

References

1. Abdulrahim, D. & Bowden-Jones, O. (2016). Harms of Synthetic Cannabinoid Receptor Agonists (SCRAs) and Their Management. London: Novel Psychoactive Treatment UK Network (NEPTUNE), 2016. In.
2. Adley, M. (2018). <http://www.thedrugswheel.com/?page=about>. In.
3. Alexandrescu, L. (2017). NPS and the methadone queue: Spillages of space and time. *Int J Drug Policy*, 40, 50-56.
4. Archer, R. P., Treble, R. & Williams, K. (2011). Reference materials for new psychoactive substances. *Drug Testing and Analysis*, 3, 505-514.
5. Ball, S. (2015). New Psychoactive Substance Use in Children and Young People: A Rapid Review of the Current Situation in Camden and Islington. Retrieved from
6. Barratt, M. J., Seear, K. & Lancaster, K. (2017). A critical examination of the definition of 'psychoactive effect' in Australian drug legislation. *Int J Drug Policy*, 40, 16-25.
7. Baumeister, D., Tojo, L. M. & Tracy, D. K. (2015). Legal highs: staying on top of the flood of novel psychoactive substances. *Ther Adv Psychopharmacol*, 5(2), 97-132.
8. Beardsley, P. M. & Zhang, Y. (2018). Synthetic Opioids. In S. D. B. e. H. H. Maurer (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology 252* (pp. 353-381). Switzerland: Springer International Publishing AG, part of Springer Nature 2018.
9. Beharry, S. & Gibbons, S. (2016). An overview of emerging and new psychoactive substances in the United Kingdom. *Forensic Sci Int*, 267, 25-34.
10. Beltgens, M. T. (2017). Legislative Measures' Impact on the New Psychoactive Substances Market. In O. a. R.-U. Corazza, A. (eds.) (Ed.), *Novel Psychoactive Substances; Policy, Economics and Drug Regulation* (pp. 171-180). Cham, Switzerland: Springer International Publishing AG.
11. Benschop, A. e. a. (2017). New Psychoactive Substances: transnational project on different user groups, user characteristics, extent and patterns of use, market dynamics, and best practices in prevention. Retrieved from HOME/2014/JDRU/AG/DRUG/7077
12. Bergeron, H., Milhet, M. & Hunt, G. (2011). *Drugs and Culture : Knowledge, Consumption and Policy*. Burlington, Vt: Routledge.
13. Bewley-Taylor, D. & Jelsma, M. (2012). *The UN Drug Control Conventions; The Limits of Latitude*. Retrieved from
14. Brandt, S. D., King, L. A. & Evans-Brown, M. (2014). The new drug phenomenon. *Drug Test Anal*, 6(7-8), 587-597.
15. Buchanan, J. (2015). Ending Drug Prohibition with a Hangover? *British Journal of Community Justice*, 13(1), 55-74.
16. Chatwin. (2017). Assessing the 'added value' of European policy on new psychoactive substances. *Int J Drug Policy*, 40, 111-116.
17. Chatwin, Blackman, S. & O'Brien, K. L. (2018). Intersections in (New) drug research. *Drugs: Education, Prevention and Policy*, 25(4), 297-300.
18. Chatwin, Measham, O'Brien & Sumnall. (2017). New drugs, new directions? Research priorities for new psychoactive substances and human enhancement drugs. *Int J Drug Policy*, 40, 1-5.

19. Collins, J. (2017). Regulation as global drug governance: how new is the NPS phenomenon? In *Novel Psychoactive Substances* (pp. 23-41): Springer.
20. Colson, R. N. (2017). Harmonizing NPS Legislation Across the European Union: An Utopia. In O. a. R.-U. Corazza, A. (eds.) (Ed.), *Novel Psychoactive Substances; Policy, Economics and Drug Regulation* (pp. 143-153). Cham, Switzerland: Springer International Publishing AG.
21. Coopman, V., Cordonnier, J., De Leeuw, M. & Cirimele, V. (2016). Ocfentanil overdose fatality in the recreational drug scene. *Forensic Science International*, 266, 469-473.
22. Cope, I. (2014). Legal highs: a problem of definitions? – Authors' reply. *The Lancet*, 383(9930), 1715-1716.
23. Corazza, O. (2017). The Proliferation of NPS as a 'Game Changer' for Public Health Policy. In O. Corazza & A. Roman-Urrestarazu (Eds.), *Novel Psychoactive Substances; Policy, Economics and Drug Regulation* (pp. xiii-xviii). Cham, Switzerland: Springer.
24. Corkery, Orsolini, Papanti & Schifano. (2017). From concept(ion) to life after death/the grave: The 'natural' history and life cycle(s) of novel psychoactive substances (NPS). *Hum Psychopharmacol*, 32(3).
25. Corkery, Orsolini, L., Papanti, D. & Schifano, F. (2018). Novel psychoactive substances (NPS) and recent scenarios: Epidemiological, anthropological and clinical pharmacological issues. In.
26. Coulson, C. & Caulkins, J. P. (2012). Scheduling of newly emerging drugs: a critical review of decisions over 40 years. *Addiction*, 107(4), 766-773.
27. Council of the European Union. (2005). Council Decision 2005/387/JHA of 10 May 2005 on the information exchange, risk-assessment and control of new psychoactive substances. (32005D0387). Luxembourg: Official Journal of the European Union Retrieved from <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32005D0387>.
28. Degreef, M., Blanckaert, P., Berry, E. M., van Nuijs, A. L. N. & Maudens, K. E. (2019). Determination of ocfentanil and W-18 in a suspicious heroin-like powder in Belgium. *Forensic Toxicology*.
29. EMCDDA. (2006). Monitoring new drugs [Press release]
30. EMCDDA. (2015). *New psychoactive substances in Europe; An update fom the EU Early Warning System*. Retrieved from Luxembourg: www.emcdda.europa.eu/publications/2015/new-psychoactive-substances
31. EMCDDA. (2016a). EMCDDA–Europol 2016 Annual Report on the implementation of Council Decision 2005/387/JHA (ISSN 1977-7841). Retrieved from
32. EMCDDA. (2016b). *Health Responses to New Psychoactive Substances*. Retrieved from Luxembourg:
33. EMCDDA. (2016c). Legal approaches to controlling new psychoactive substances. Retrieved from
34. EMCDDA. (2017a). High-risk drug use and new psychoactive substances; Results from an EMCDDA trendspotter study. Retrieved from Luxembourg:
35. EMCDDA. (2017b) Synthetic cannabinoids in Europe. In, *Perspectives on Drugs* (Update 6. 6 2017 ed.): EMCDDA.
36. EMCDDA. (2018). Fentanils and synthetic cannabinoids: driving greater complexity into the drug situation; An update from the EU Early Warning System. Retrieved from Luxembourg:
37. EMCDDA. (2019). *European Drug Report 2019; Trends and Developments*. Retrieved from Luxembourg: http://www.emcdda.europa.eu/system/files/publications/11364/20191724_TDAT19001ENN_PDF.pdf

38. Emerson, B. & Haden, M. (2018). Public Health and the Harm Reduction Approach to Illegal Psychoactive Substances☆. In *Reference Module in Biomedical Sciences*: Elsevier.
39. ESPAD. (2015). The 2015 ESPAD Report: Results from the European School Survey Project on Alcohol and Other Drugs. Retrieved from Luxembourg::
40. European Council. (1997). 97/396/JHA: Joint Action of 16 June 1997 adopted by the Council on the basis of Article K.3 of the Treaty on European Union, concerning the information exchange, risk assessment and the control of new synthetic drugs. (31997F0396). Luxemburg: Official Journal of the European Communities Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31997F0396&from=EN>.
41. Evans-Brown, M. & Sedefov, R. (2018). Responding to New Psychoactive Substances in the European Union: Early Warning, Risk Assessment, and Control Measures. In H. H. a. B. Maurer, S.D. (eds.) (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology* (2018/09/09 ed., Vol. 252, pp. 3-49). Switzerland: Springer International Publishing AG, part of Springer Nature.
42. Feng, L.-Y., Battulga, A., Han, E., Chung, H. & Li, J.-H. (2017). New psychoactive substances of natural origin: A brief review. *Journal of Food and Drug Analysis*, 25, 461-471.
43. GDS & Van Havere, T. (2017). *Global Drug Survey; country report for Belgium*. Retrieved from
44. Griffiths, P., Evans-Brown, M. & Sedefov, R. (2013). Getting up to speed with the public health and regulatory challenges posed by new psychoactive substances in the information age. *Addiction*, 108(10), 1700-1703.
45. Griffiths, P. & Götz, W. (2013). Forewords. In P. L. a. W. Dargan, D.M. (eds.) (Ed.), *Novel Psychoactive Substances: Classification, Pharmacology and Toxicology* (Vol. 252): Academic Press, Elsevier.
46. Griffiths, P., Sedefov, R., Gallegos, A. & Lopez, D. (2010). How globalization and market innovation challenge how we think about and respond to drug use: 'Spice' a case study. *Addiction*, 105(6), 951-953.
47. Grund, J.-P. C., Vavrincikova, L., Fidesova, H. & Janikova, B. (2016). New Psychoactive Substances among People Who Use Drugs Heavily. Towards Effective and Comprehensive Health Responses in Europe. (JUST/2013/DPIP 4000004774). Retrieved from www.npsineurope.eu
48. Guirguis, A. (2017). New psychoactive substances: a public health issue. *Int J Pharm Pract*, 25(5), 323-325.
49. Helander, A. & Bäckberg, M. (2017). New Psychoactive Substances (NPS) - the Hydra monster of recreational drugs. *Clin Toxicol (Phila)*, 55(1), 1-3.
50. Hill, S. L. & Dargan, P. I. (2018). Patterns of Acute Toxicity Associated with New Psychoactive Substances. In H. H. Maurer & S. D. e. Brandt (Eds.), *New Psychoactive Substances, Handbook of Experimental Pharmacology* (2018/06/14 ed., Vol. 252, pp. 475-494). Switzerland: Springer.
51. Hughes, B., Evans-Brown, M. & Sedefov, R. (2016). Legal Controls of Psychoactive Substances in Europe. *Handbuch Psychoaktive Substanzen*, 1-15.
52. Kalant, H. (2010). Drug classification: science, politics, both or neither? *Addiction*, 105(7), 1146-1149.
53. Karila, Marillier, M., Chaumette, B., Billieux, J., Franchitto, N. & Benyamina, A. (2018). New synthetic opioids: Part of a new addiction landscape. *Neurosci Biobehav Rev*.
54. Khaled, S. M., Hughes, E., Bressington, D., Zolezzi, M., Radwan, A., Badnapurkar, A. & Gray, R. (2016). The prevalence of novel psychoactive substances (NPS) use in non-clinical populations: a systematic review protocol. *Syst Rev*, 5(1), 195.

55. King & Nutt. (2014). *Deaths from "legal highs": a problem of definitions* (01406736). Retrieved from www.thelancet.com
56. King, L. A. & Kicman, A. T. (2011). A brief history of 'new psychoactive substances'. *Drug Testing and Analysis*, 3, 401-403.
57. King, L. A. & Nutt, D. J. (2014). Legal highs: a problem of definitions? – Authors' reply. *The Lancet*, 383(9930), 1715-1716.
58. Koning, R. & Niesink, R. (2013). Nieuwe Psychoactieve Stoffen (NPS): niets nieuws onder de zon. *Verslaving*, 9(1), 47-59.
59. Kraemer, M., Boehmer, A., Madea, B. & Maas, A. (2019, Feb 25). *Death cases involving certain new psychoactive substances: A review of the literature*. Literature review. [2019/03/30]. *Forensic Sci Int*, (298).
60. Krajewski, K. (1999). How flexible are the United Nations drug conventions? *International Journal of Drug Policy*, 10(4), 329-338.
61. Lamy, F. R., Daniulaityte, R., Nahhas, R. W., Barratt, M. J., Smith, A. G., Sheth, A., . . . Carlson, R. G. (2017). Increases in synthetic cannabinoids-related harms: Results from a longitudinal web-based content analysis. *International Journal of Drug Policy*, 44, 121-129.
62. Li, L. & Vlisides, P. E. (2016). Ketamine: 50 Years of Modulating the Mind. *Frontiers in Human Neuroscience*, 10, 15.
63. Logan, B. K., Mohr, A. L. A., Friscia, M., Krotulski, A. J., Papsun, D. M., Kacinko, S. L., . . . Huestis, M. A. (2017). Reports of Adverse Events Associated with Use of Novel Psychoactive Substances, 2013–2016: A Review. *Journal of analytical toxicology*, 41(7), 573-610.
64. MacCoun, R. J. & Reuter, P. (2001). *Drug War Heresies: Learning from Other Vices, Times, & Places*. USA: Cambridge University Press.
65. Madras, B. K. (2017). The Growing Problem of New Psychoactive Substances (NPS). *Curr Top Behav Neurosci*, 32, 1-18.
66. Meader, N., Mdege, N. & McCambridge, J. (2018). The public health evidence-base on novel psychoactive substance use: scoping review with narrative synthesis of selected bodies of evidence. *Journal of public health*, 40(3), e303-e319.
67. Measham, F. (2013). Social issues in the use of novel psychoactive substances: Differentiated demand and ideological supply. In *Novel Psychoactive Substances* (pp. 105-127): Elsevier.
68. Measham, F. & Newcombe, R. (2016). What's So 'New' About New Psychoactive Substances? Definitions, Prevalence, Motivations, User Groups and A Proposed New Taxonomy. In *The SAGE Handbook of Drug and Alcohol Studies* (pp. 576-596).
69. Moosmann, B. & Auwärter, V. (2018). Designer Benzodiazepines: Another Class of New Psychoactive Substances. In S. D. B. e. H. H. Maurer (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology* 252 (pp. 383-410). Cham, Switzerland: Springer International Publishing AG, part of Springer Nature 2018.
70. Mounteney, J. (2017). *Monitoring new substances at European level*. Paper presented at the NPS Seminar 'Old wine in new bottles', Brussel.
71. Musto, D. F. (1999). *The American Disease; Origins of Narcotic Control* (Third edition ed.). New York: Oxford University Press.

72. Negrei, C., Galateanu, B., Stan, M., Balalau, C., Dumitru, M. L. B., Ozcagli, E., . . . Tsatsakis, A. (2017). Worldwide legislative challenges related to psychoactive drugs. *Daru*, 25(1), 14.
73. O'Brien, K., Chatwin, C., Jenkins, C. & Measham, F. (2014). New psychoactive substances and British drug policy: A view from the cyber-psychonauts. *Drugs: Education, Prevention and Policy*, 22(3), 217-223.
74. O'Hagan & Smith, C. (2017). A New Beginning: An Overview of New Psychoactive Substances. *Forensic Research & Criminology International Journal*, 5(3), 13.
75. Orsolini, L., St John-Smith, P., McQueen, D., Papanti, D., Corkery, J. & Schifano, F. (2017). Evolutionary Considerations on the Emerging Subculture of the E-psychonauts and the Novel Psychoactive Substances: A Comeback to the Shamanism? *Curr Neuropharmacol*, 15(5), 731-737.
76. Papaseit, Molto, J., Muga, R., Torrens, M., de la Torre, R. & Farre, M. (2017). Clinical Pharmacology of the Synthetic Cathinone Mephedrone. *Curr Topics Behav Neurosci*, 32, 313-332.
77. Patel, N. B. (2019). Khat (*Catha edulis* Forsk) - And now there are three. *Brain Res Bull*, 145, 92-96.
78. Peacock, A., Bruno, R., Gisev, N., Degenhardt, L., Hall, W., Sedefov, R., . . . Griffiths, P. (2019). New psychoactive substances: challenges for drug surveillance, control, and public health responses. *The Lancet*, 394(10209), 1668-1684.
79. Peacock, A., Leung, J., Larney, S., Colledge, S., Hickman, M., Rehm, J., . . . Griffiths, P. (2018). Global statistics on alcohol, tobacco and illicit drug use: 2017 status report. *Addiction*, 113(10), 1905-1926.
80. Potter, G. R. & Chatwin, C. (2017). Not particularly special: critiquing 'NPS' as a category of drugs. *Drugs: Education, Prevention and Policy*, 25(4), 329-336.
81. Racz, J., Csak, R., Toth, K. T., Toth, E., Rozman, K. & Gyarmathy, V. A. (2016). Veni, vidi, vici: The appearance and dominance of new psychoactive substances among new participants at the largest needle exchange program in Hungary between 2006 and 2014. *Drug Alcohol Depend*, 158, 154-158.
82. Reuter. (2011). *Options for regulating new psychoactive drugs: a review of recent experiences*. Retrieved from United Kingdom: www.ukdpc.org.uk/publications.shtml
83. Reuter & Pardo. (2017). New Psychoactive Substances: The Regulatory Experience and Assessment of Options. In O. a. R.-U. Corazza, A. (eds.) (Ed.), *Novel Psychoactive Substances: Policy, Economics and Drug Regulation* (pp. 155-177). Cham, Switzerland: Springer International Publishing AG 2017.
84. Rolles, S. & Kushlik, D. (2014). Prohibition is a key driver of the new psychoactive substances (NPS) phenomenon. In U. Transform Drug Policy Foundation (Ed.), *Addiction* (Vol. 109, pp. 1587-1594): © 2014 Society for the Study of Addiction.
85. Rosiers. (2018). *VAD uitgaansonderzoek 2018*. Retrieved from Brussels:
86. Rychert, M. & Wilkins, C. (2016). What products are considered psychoactive under New Zealand's legal market for new psychoactive substances (NPS, 'legal highs')? Implications for law enforcement and penalties. *Drug Test Anal*, 8(8), 768-778.
87. Schifano, F. (2018). Recent Changes in Drug Abuse Scenarios: The New/Novel Psychoactive Substances (NPS) Phenomenon. *Brain Sciences*, 8(12), 221.
88. Seddon. (2014). Drug policy and global regulatory capitalism: The case of new psychoactive substances (NPS). *International Journal of Drug Policy*, 25, 1019-1024.
89. Seddon. (2016). Inventing drugs: A genealogy of a regulatory concept. *Journal of Law and Society*, 43(3), 393-415.

90. Sedefov, R., Gallegos, A., Mounteney, J. & Kenny, P. (2013). Chapter 2 - Monitoring Novel Psychoactive Substances: A Global Perspective. In P. I. Dargan & D. M. Wood (Eds.), *Novel Psychoactive Substances* (pp. 29-54). Boston: Academic Press.
91. Simmler, L. D. & Liechti, M. E. (2018). Pharmacology of MDMA- and Amphetamine-Like New Psychoactive Substances. In S. D. e. Maurer; H.H. and Brandt (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology* (Vol. 252, pp. 143-164). Switzerland: # Springer International Publishing AG, part of Springer Nature.
92. Singh, D., Narayanan, S., Vicknasingam, B., Corazza, O., Santacroce, R. & Roman-Urrestarazu, A. (2017). Changing trends in the use of kratom (*Mitragyna speciosa*) in Southeast Asia. *Human Psychopharmacology: Clinical and Experimental*, 32(3), e2582.
93. Smith, Z., Moore, K. & Measham, F. (2009). MDMA powder, pills and crystal: the persistence of ecstasy and the poverty of policy. *Drugs and Alcohol Today*, 9(1), 13-19.
94. Stephenson & Richardson, A. (2014). *New Psychoactive Substances in England; A review of the evidence*. United Kingdom: Home Office.
95. Stevens, A., Fortson, R., Measham, F. & Sumnall, H. (2015). Legally flawed, scientifically problematic, potentially harmful: The UK Psychoactive Substance Bill. *Int J Drug Policy*, 26(12), 1167-1170.
96. Stiegel, U. (2017). Legislating NPS in the European Union. In O. Corazza & A. Roman-Urrestarazu (Eds.), *Novel Psychoactive Substances: Policy, Economics and Drug Regulation* (pp. 13-22). Cham: Springer International Publishing.
97. Sumnall, Evans-Brown, M. & McVeigh, J. (2011). Social, policy, and public health perspectives on new psychoactive substances. *Drug Test Anal*, 3(7-8), 515-523.
98. Sumnall, McVeigh, J. & Evans-Brown, M. J. (2013). Epidemiology of use of novel psychoactive substances. In *Novel psychoactive substances* (pp. 79-103): Elsevier.
99. Taylor, J. (2015). The Stimulants of Prohibition: Illegality and New Synthetic Drugs. *Territory, Politics, Governance*, 3(4), 407-427.
100. Tettey, Crean, C., Ifeagwu, S. C. & Raithelhuber, M. (2018). Emergence, Diversity, and Control of New Psychoactive Substances: A Global Perspective. In S. D. B. e. H. H. Maurer (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology 252* (Vol. 252, pp. 51-67): Springer International Publishing AG.
101. TNS Political & Social. (2014). *Flash Eurobarometer 401 - Young people and drugs*. Retrieved from
102. Tzanetakis, M. (2018). Comparing cryptomarkets for drugs. A characterisation of sellers and buyers over time. *International Journal of Drug Policy*, 56, 176-186.
103. UNODC. (2013). *The challenge of new psychoactive substances*. Retrieved from Vienna, Austria: <http://www.unodc.org/unodc/en/scientists/smart.html>
104. UNODC. (2014). *Global Synthetic Drugs Assessment; Amphetamine-type stimulants and new psychoactive substances*. (E.14.XI.6). Vienna Retrieved from https://www.unodc.org/documents/scientific/2014_Global_Synthetic_Drugs_Assessment_web.pdf.
105. UNODC. (2017). World Drug Report 2017, Pt. 4; Market Analysis of Synthetic Drugs, Amphetamine-type stimulants, new psychoactive substances. (. E.17.XI.6). Vienna.
106. UNODC. (2018a). *Understanding the synthetic drug market: the NPS factor*. Retrieved from Vienna, Austria: www.unodc.org/documents/scientific/Global_Drugs_Assessment_2017.pdf

107. UNODC. (2018b). *World Drug Report 2018; Executive summary: conclusions and policy implications* (ISBN: 978-92-1-148304-8). Retrieved from https://www.unodc.org/wdr2018/prelaunch/WDR18_Booklet_1_EXSUM.pdf
108. UNODC. (2019). *UNODC Early Warning Advisory on New Psychoactive Substances*. Retrieved from Vienna, Austria: <https://www.unodc.org/LSS/Page/NPS>
109. VAD. (2017). *Factsheet Nieuwe Psychoactieve Stoffen (NPS)*. Retrieved from Brussels: <http://www.vad.be/materialen/detail/factsheet-smartdrugs--nieuwe-psychoactieve-stoffen>
110. VAD & Sciensano. (2016). Het Drugwiel; een nieuw model voor productinformatie - effecten per categorie. In H. Drugwiel (Ed.), www.thedrugswheel.com (Vertaald door VAD (www.vad.be) en WIV ed., pp. Fig.). UK: Designed in collaboration with DrugWatch.
111. VAD&Sciensano. (2018). Het Drugwiel: Een nieuw model voor productinformatie. In D. 2018 (Ed.), *The Drugs Wheel by Mark Adley is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 Unported License*. ([BE versie 1.0 • 17/01/2018] ed., pp. Aangepast aan de Belgische context door VAD en WIV op 17/01/2018.): www.thedrugswheel.com.
112. van Amsterdam, J., Nutt, D. & van den Brink, W. (2013). Generic legislation of new psychoactive drugs. *J Psychopharmacol*, 27(3), 317-324.
113. van der Gouwe, D., Brunt, T. M., van Laar, M. & van der Pol, P. (2016). Purity, adulteration and price of drugs bought on-line versus off-line in the Netherlands. *Addiction*, 1-9.
114. Van Havere, T. (2012). *Prevalence and prevention of substance use in nightlife*. Dissertation). Retrieved from [https://expertise.hogent.be/files/10345888 ...](https://expertise.hogent.be/files/10345888...),
115. Wallach, J. & Brandt, S. D. (2018). 1,2-Diarylethylamine- and Ketamine-Based New Psychoactive Substances. In H. H. Maurer & S. D. Brandt (Eds.), *New Psychoactive Substances; Pharmacology, Clinical, Forensic and Analytical Toxicology* (Vol. 252, pp. 305-352). Switzerland: Springer.
116. WHO. (1994). Lexicon of alcohol and drug terms. In (pp. 69). Geneva: World Health Organisation.
117. Wilkins. (2014). A critical first assessment of the new pre-market approval regime for new psychoactive substances (NPS) in New Zealand. *Addiction*, 109(10), 1580-1586.
118. Wilkins, Rychert, M., Byrska, B., Van Hout, M. C., Corazza, O. & Roman-Urrestarazu, A. (2017). Exploring Innovative Policy Responses to NPS and 'Legal Highs' in New Zealand, Poland, Republic of Ireland and the UK. In *Novel Psychoactive Substances* (pp. 57-74).
119. Wille, S., Richeval, C., Nachon-Phanithavong, M., Gaulier, J., Di Fazio, V., Humbert, L., . . . Allorge, D. (2018). Prevalence of new psychoactive substances and prescription drugs in the Belgian driving under the influence of drugs population. *Drug Testing and Analysis*, 10(3), 539-547.
120. Windelinckx, T. (2018). Evaluatieonderzoek partnerorganisatie Spuitenruil 2017. Retrieved from
121. Winstock. (2019). GDS 2019 Key Findings Report; executive summary. *Annual Survey Reports*, 12.
122. Winstock & Ramsey. (2010). Legal highs and the challenges for policy makers. *Addiction*, 105(10), 1685-1687.
123. Zamengo, L., Frison, G., Bettin, C. & Sciarrone, R. (2014). Understanding the risks associated with the use of new psychoactive substances (NPS): high variability of active ingredients concentration, mislabelled preparations, multiple psychoactive substances in single products. *Toxicol Lett*, 229(1), 220-228.

124. Zamengo, L., Frison, G. & Zwitter, G. (2018). Understanding and managing the new psychoactive substances phenomenon: a holistic approach. *Journal of public health policy*, 1-19.

125. Zawilska & Wojcieszak. (2018). Novel Psychoactive Substances: Classification and General Information. In *Synthetic Cathinones* (pp. 11-24): Springer International Publishing AG, part of Springer Nature 2018.

126. Zawilska & Wojcieszak, J. (2019). An expanding world of new psychoactive substances—designer benzodiazepines. *Neurotoxicology*, 73, 8-16.

CHAPTER 2: THE USE OF NPS AND THE NEEDS REGARDING PREVENTION, TREATMENT AND HARM REDUCTION: THE USER'S PERSPECTIVE

Authors : Sarah Simonis, Anton Van Dijck, Peter Blanckaert, Tina Van Havere

1. Introduction

In the first part of our study, we looked at the use of NPS through the eyes of the users. In the tradition of responsible research and innovation (RRI)²⁰, we approached the NPS users as resourceful partners possessing a unique body of knowledge and capable of contributing to the development of NPS targeted initiatives in the fields of prevention, harm reduction and care (BELSPO-DR/02/79, 2016). From an insiders' perspective, core lessons can be learned from currently applied prevention and harm reduction strategies when using NPS and associated needs unveiled.

In this chapter, the general aim was to gain a deeper understanding of the culture surrounding NPS and NPS use, including the profiles of NPS users, the substances they use and the experiences and meaning surrounding their use. The first key element in this chapter is defined by the research question: "why and how do people use NPS?"

Few data on the motivating factors for using NPS are available. Undoubtedly, the cost, (potential) legal status and easy access through online channels helped popularize the NPS phenomenon. Internal motivations though, are more intricate and can diverge considerably; different sets of users turn to NPS for a variety of reasons including cognitive enhancement, creativity, pleasure or self-medication (d'Angelo, Camilla, Savulich, & Sahakian, 2017). Furthermore, motives may vary depending on the class of substances and effects sought by NPS users. Motivational factors in the use of stimulants are enhancement and facilitating of social situations, amongst others, while the use of hallucinogens and dissociative substances is more connected to self-exploration. The use of opioids is said to be induced by (struggles in) coping with everyday life, physical or emotional issues such as pain, anxiety and sometimes addiction (Kjellgren, Jacobsson, & Soussan, 2016). Since motivations for using classic drugs and NPS tend to overlap, it is of importance to understand how the use of classic and new substances interconnects (Barnard, Russell, McKeganey, & Hamilton-Barclay, 2017; Campbell & O'Neill), and subsequently, how to determine the function of the latter (Measham & Newcombe, 2016).

A second objective of this chapter, determined by the second research question in this project, was to identify the specific needs of NPS users regarding support along their continuum of care, i.e. from prevention over harm reduction to care. To address this issue, an insight into different profiles of NPS users, including their reasons for using specific substances, will be helpful as well (d'Angelo et al., 2017). Overall, it will become clear that users are concerned by their health, looking for a safe experience by reducing the potential risks related to NPS consumption (Barnard et al., 2017).

²⁰ See for example the Horizon 2020 programme of the EU: <https://ec.europa.eu/programmes/horizon2020/en/what-horizon-2020>.

2. Methods

In order to touch upon both research questions we resorted to the use of semi-structured, in-depth interviews. The structured part covers basic socio-demographic and product variables, after which the actual interview was initiated. Guidelines for the interview were based on available literature on the topic and loosely centered around five themes (Tom Decorte, Mortelmans, Tieberghien, & De Moor, 2009 2009; EMCDDA & Europol, 2010; Jansen, 2010):

- NPS terminology;
- Motivation and context of use;
- Methods of use (rituals) and harm reduction strategies/informal social control;
- Attitude towards NPS (price, availability, purity, friends, legal status...) and personal experiences;
- Product and legal knowledge, policy and health care needs.

To recruit a diverse and heterogeneous sample of NPS users, the initial intention was to apply a snowball sampling technique. This is a non-probability sampling method used to identify and recruit future subjects of a specific population by existing subject participants. This sampling method works like a chain referral. After observing the initial subject, the researcher asks for assistance from the subject to help identify people with similar characteristics - in this case, the use of NPS – until reaching a sufficient number of subjects (Biernacki & Waldorf, 1981). To gain access to hidden groups, we relied on so-called ‘gatekeepers’: professionals working in services that (potentially) reach certain subpopulations (e.g. Modus Vivendi, NSPs, Drug Helpline, etc) and presenting a ‘zero chain’ respondent.

Initially, we aimed for a total number of 60 respondents (30 in the Dutch-speaking part and 30 in the French-speaking part of the country). The following two inclusion criteria had to be met by eligible participants: being 18 years or older at the time of the interview and having used NPS at least twice in the last 12 months prior to the interview. Finally, we excluded users that had only used ketamine or GHB. In such cases, at least one additional NPS had to be consumed in order to avoid an overrepresentation of exclusively ketamine or GHB users.

A financial compensation of €20 was given as an incentive, i.e. as a reward for knowledge and time. Duration of the interviews took between 35 and 90 minutes. Interview locations were agreed upon by both respondent and researcher, for example at a bar, the researcher’s office, treatment centers, respondent’s homes, etc.

Interviews were audio-recorded and transcribed verbatim. Subsequently, the interviews were subjected to analysis, which was performed using NVivo 10, a software tool for qualitative analysis, in order to underline specific themes and meanings that may have been manifest or latent (Vaismoradi, Turunen, & Bondas). Each researcher analysed his/her own interviews. Afterwards, a common coding tree was established, to increase reliability and validity, i.e. similarity of analysis (W. L.-D. Potter, D). Upon further coding, the initial tree was reviewed, enlarged and adapted as needed by adding new nodes, thereby mutually communicating each change to retain uniformity.

We finally ended up with a total of 45 valid respondent interviews on a national level. Between July 2017 and September 2018, 28 interviews were performed in the Dutch-speaking community, while

another 17 interviews were performed in the French-speaking community. Due to a different timeframe and several technical obstacles, a change in protocol was required to obtain a sufficient number of French-speaking participants. By incorporating additional gateways such as health promotion services, colleges and universities, art schools, MSM associations, medical houses, the network of the Belgian Early Warning System Drugs (BEWSD) and internet fora, extra zero-chain respondents of snowballs were identified and the necessary degree of confidence was established among them (Tom Decorte et al., 2009). At the end of the interview timeframe we reached a total population of 45 respondents, which represented different user profiles and displayed heterogeneity on various characteristics.

3. Results

Respondents characteristics as well as the reported use of NPS, classic illicit substances and alcohol are presented in Table 1 and Table 2.

Table 2.1 Characteristics of respondents in Belgium, and by regions

Number of respondents			
	Belgium	Flanders	Wallonia/Brussels
Respondents	45	28	17
Number of respondents by gender			
Gender	Belgium	Flanders	Wallonia/Brussels
Women	14	9	5
Men	31	19	12
Number of respondents by age category			
Age category	Belgium	Flanders	Wallonia/Brussels
18-24	5	3	2
25-30	11	8	3
31-35	14	10	4
36-45	12	4	8
45+	3	3	0

Considering the results presented in Table 2.1, NPS users are part of a young population, but not part of the youngest age group (18-24). Most users were between 25-45 years, with an average of 33.47 years. Few respondents with ages over 45 were included in the study. The population sample was predominantly male (with approximately 20% women). In total, eight participants followed an Opioids Substitution Treatment (OST).

Even though different sub-populations of NPS users are represented, a larger proportion of Flemish-speaking respondents in the sample is present. The recruitment of the French-speaking users was particularly difficult. Different assumptions can be made concerning these difficulties. First, NPS-use could be less common amongst French-speaking people than their Dutch-speaking counterparts. Second, the NPS terminology could have been unclear for a large part of the French-speaking sample (cf. Chapter 3) vs the Flemish-speaking sample. Therefore, communication between the researcher and the users was even more challenging. Third, the representation of NPS users inside treatment centers is very low (Antoine, 2018; EMCCDA, 2017), or at least they are not identified as such (outpatient and residential) in the Walloon part of Belgium. Finally, due to the large variety of NPS users, some of these users may prefer to remain anonymous, for example with respect to their professional or social life; especially in a context of stigmatization against any type of drug use.

Table 2.2 Reported use of NPS, classic illicit substances and alcohol by respondents in Belgium and by regions

Category of most used NPS (Last year)			
Category of NPS	Belgium	Flanders	Wallonia/Brussels
Stimulants	28	16	12
Dissociatives	23	15	8
Psychedelics	13	4	9
Empathogens	7	4	3
Depressants	14	11	3
Cannabinoids	6	0	5
Opioids	5	3	2
Category of NPS	Name of NPS reported by users		
Stimulants	4-FA; N-ethylhexedrone; 2-MMC; 3-MMC; 4-MMC; 3,4-CTMP; ethylphenidate; 3-FPM; ephedrine; alpha-PVP; hexedrone; 4 MEC; 3-FPM; 3-FEA; 3.4 DCMP		
Dissociatives	Ketamine; methoxetamine; deschloroketamine; 3-Ho-Pce; DXM		
Psychedelics	25I_NBOMe; 2C-B; 2C-E; 2C-I; AI-Lad; 4-HO-MET; LSD-like		
Empathogens	6-APB; 5MAPB		
Depressants	Etizolam; GHB; benzodiazepine-like (alprazolam, diazepam)		
Cannabinoids	Spice; JWH-018; JWH-073; AB-Fubinaca		
Opioids	Fentanyl; carfentanil; ocfentanil; U-47700		
Last year use of classic illicit drugs			
	Belgium	Flanders	Wallonia/Brussels
yes	45	28	17
Last year use of alcohol			
	Belgium	Flanders	Wallonia/Brussels
yes	41	27	14

When assessing the different categories (Table 2.2) of NPS as reported by the respondents, it becomes evident that stimulants are the most popular class of observed NPS substances. Dissociatives are frequently mentioned, followed by psychedelics and depressants. Some substances were cited several times by respondents, specifically for stimulants, dissociatives, psychedelics and empathogens. Remarkably, GHB is cited much more in Flanders than in Wallonia, a finding that is confirmed by the media reports on GHB, which are very frequent in Flanders but nearly absent in the Walloon region.

A reason that could explain this dissimilarity is the perception about NPS and the lack of common terminology about these substances; GHB might still be considered more as a new psychoactive substance in Flanders than it is in Wallonia. The opposite is observed concerning benzodiazepine analogues and synthetic cannabinoids: within the sample these classes of substances are cited more in Wallonia and Brussels than in Flanders. Opioids are the last category cited, including one unintentional use.

Regarding the categories, these were classified according to the Drugs Wheel (cf. Chapter 1), a new model of the drug classification that includes new psychoactive substances²¹. In older models of classification, some substances were still labelled as “other category”. With this new training tool, all

²¹ Source: <http://www.thedrugswheel.com/>

substances can be allocated to a specific group. The wheel is divided into the following 7 categories, namely: stimulants, empathogens, psychedelics, dissociatives, cannabinoids, depressants and opioids.

Table 2.3 Settings of NPS use in Belgium and by regions

Source of acquisition			
Source	Belgium	Flanders	Wallonia/Brussels
Online shop	28	17	11
Friends	14	11	3
Private dealer	13	9	4
Smartshops	3	0	3
Street dealer	1	0	1
Other	1	1	0
Location of NPS use			
Location	Belgium	Flanders	Wallonia/Brussels
Nightlife settings	29	18	11
Home	28	17	11
Friend's home	23	15	8
Public space	6	3	3
Anywhere	5	2	3
Street	4	2	2
School/Work	2	1	1
Residential care	1	1	0

In the following section, the results are discussed in a more detailed way, emphasizing the interconnection between motivations, contexts of use, category of NPS used, and therefore the effects desired and expected by the respondents. The term “NPS users”, which is utilized throughout the discussion, refers to the users included in the sample for (only) this specific study. In addition, the term “problematic use” was defined according to NPS users’ opinions. The term problematic was used by respondents to describe their own consumption, a necessity or even a constraint are qualifiers frequently mentioned to describe their current use.

3.1. Context and motivations of NPS use

3.1.1. Specific profile of NPS users

The study sample is characterized by a great diversity and heterogeneity of not only the respondents themselves, but also in the diverse contexts and motivations of using NPS as well. Despite this heterogeneity, 3 profile categories could be distinguished, based on several criteria including knowledge on NPS substances themselves, context of NPS use and whether problematic use was present.

i) First category: the experienced users.

Knowledge and experiences are the main criteria to describe them. They have a true expertise on the different products, effects and have consumed different NPS substances to explore and satisfy their own curiosity. Social context is a favored motivation, but also reasons such as personal exploration or creativity are important. Most of them use several NPS on different occasions and have had experience with different classes of NPS. Their access to information (internet, friends) and harm

reduction strategies is easier compared to the other categories. Problematic use was only mentioned by a minority at a certain point in time in their life. Their NPS use can be occasional or more intense.

ii) Second category: the deprived users.

The use of NPS is more ancillary to classic illicit substances, and most of the time NPS use intertwines with classic drug use. Focusing on their NPS use, the use of only one specific NPS is the rule, and generally NPS are limited to a few very specific products such as ketamine, GHB and fentanyl.

This category of users has less product information, and in general their access to information is limited. Despite this lack of information, some of them are still aware of harm reduction strategies. For most respondent of this group, the use of substances is problematic regardless of the type of substances used. This underprivileged group frequently attends low-threshold care (ambulatory) or Needle Exchange Programs (Neptune).

iii) Third category: the occasional users.

In this group, the use of NPS ensues mainly in nightlife settings and/or in a specific social context; as a result, the use of NPS is particularly controlled and occasional, and usually limited to 2 or 3 products. Knowledge on NPS is better than for the deprived group but they are not as experienced as the first group. They have adequate access to information and harm reduction strategies.

3.1.2. Motivations of NPS use

The multiplicity of NPS use patterns is directly intertwined with the motivations and context of NPS use. The term NPS covers a wide range of substances, hence the direct consequence of this is that not only the users, but also motivations, conditions and settings for use are versatile.

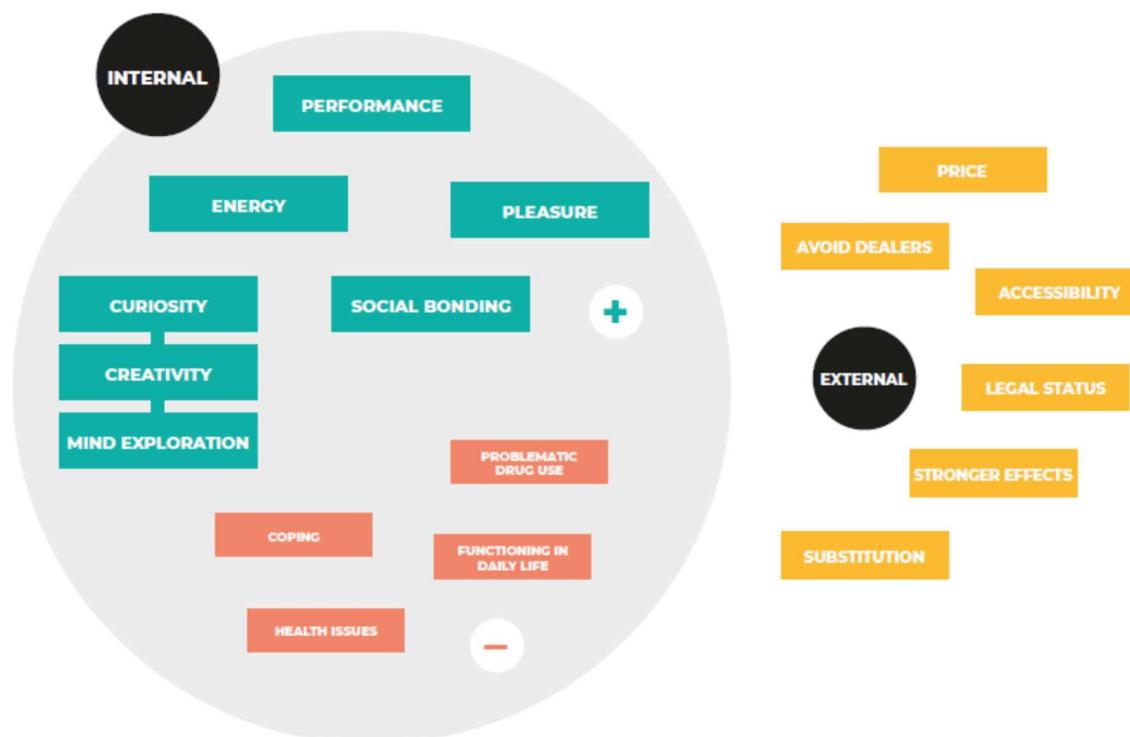
The type of NPS used can differ according to the respondent but also according to the situation. In addition to the diversity of the sample there is also a diversity in patterns of use. Different NPS can be used in diverse situations, consequently the desired effects may be various. A direct consequence of this multiplicity is that many respondents found it not easy to state just one NPS as favorite. A favorite product is however linked to a specific context of use.

Considering the location of NPS use (see Table 2.3), the mentioned favorite places to use NPS were nightlife settings, at home and at the home of a friend. Comparing these locations with the categories of most used NPS – being stimulants, dissociatives, psychedelics or empathogens - and their major intended effects – (respectively) increased energy, spiritual connection, sensation of disconnection with the body, connectedness - the context of use is clearly linked to specific substances. Having more energy and increasing the feeling of connectedness can be linked to the social context and nightlife settings. Likewise, intensifying spiritual connections and the connectedness in general reveals a more adapted use in private social contexts, such as friend's home. Spiritual connections as well as body disconnection particularly seem suited to the use of NPS at home settings.

Based on the in-depth interviews, contexts and reasons of use have been developed and categorized into several categories of motivations. These motivations were grouped around 15 clustered nodes, with the 8 most important themes being: *Pleasure, More convenient use, Energy/performance, Curiosity, Stronger and specific effects, Connection and social bonds, Problematic use and Mind exploration*. These elements have been listed in order of importance and according to the extent to which they have been mentioned.

These 8 themes have been divided in 3 types of motivation. A first distinction was made between the *internal and the external motivations* for using NPS (Deligianni, Corkery, Schifano, & Lione; Kjellgren et al., 2016; Soussan & Kjellgren, 2016; Zawilska & Wojcieszak, 2018). A second distinction has been realized within the internal categorization with a *division between the positive and the negative internal motivations*. The visualization of that categorization is depicted in figure 1.

Figure 1: Visualization of internal and external motivations to use NPS



Below, an overview of the 8 principal motives is provided and explained.

a) Positive internal motivations

*i) **Pleasure:*** was the most cited motive for using NPS. This theme is heavily linked to the nightlife context: to party, to dance, to have more energy, to connect with people, to loosen up, to “get high” and to lower inhibitions. The social context is a key element for this theme, as well as the connection with others and the social bonding. Associated products mainly are the stimulants and the empathogens (which increase feelings of connectedness amongst users) though also dissociatives and psychedelics were also mentioned. For some users, NPS may replace alcohol during a party aiming to stay up all night while remaining energetic or being more extroverted and having a sense of well-being. In addition to nightlife settings, using NPS with friends at home is also a favored setting. In this situation, social bonding with friends was important, meaning talking, having fun with friends but also possibly leading to sexual interactions. This “*Pleasure*” category is usually linked to the category “*Connection and social bonds*” but also to the “*Energy*” category. This factor of motivation is present for the 3 types of users, although it was less applicable for deprived users.

'Why I do MDPV? The thing is, I've always been interested in stimulants and when I convert it and smoke it... Well, you get an instant sort of gigantic arousal, even lechery; a giant flash. And that is pure pleasure, sheer bliss. In first instance, you are completely out of your head and you simply enjoy the ride. But what's so good about it, is that it works for a long period of time in which you feel euphoric and energetic. Then it is "let's go outside guys, let's do something. I'm gonna get my skateboard and let's get into town". And before we knew it we were out all day, having fun. That was MDPV for me, pure joy; this feeling like "the world is supercool, let's conquer it, so to speak" (Male, 32).

ii) **Energy /performance:** In this category, different components can be highlighted. While having enough energy in the nightlife context was cited, also the acquirement of energy in everyday life was mentioned. For instance, NPS were used to enhance job or study performance. In connection to these last two arguments, NPS can be used to deal with the day-to-day coping with daily tasks or difficulties. For this reason, in this particular situation, NPS use results in later problematic use. This motive concerns more the experienced or the occasional users.

"Cause without my dope, doing that job? I don't think so... I wouldn't even consider getting up. Of course not. Because I know, I could keep this up for a week or so but after that...? No, of course not. It also helps to listen to the small talk of customers; something you have to do, something which makes 'em come back. When I would be sober, I would probably say "Sure madam, you are totally right but you also told me this last week... And on gear, my reaction is like 'Really? Blablabla... Then the lady leaves and is happy and I am happy. I mean, not happy but I do my job really well and it helps me with it. Sure" (Male, 57).

iii) **Curiosity:** This classification includes, on the one hand, curiosity in a global context, being an interest to try something new and to discover new sensations. On the other hand, especially for the more experienced users, deepening the exploration of substances or a spiritual exploration of themselves was important. This can include the discovery of new effects, feeling the difference between the types of drugs used but also between NPS and classic illicit drugs. For some experienced users, experimenting with NPS can be compared to creating and expanding a collection, an assortment of senses, trying something rare or more dangerous as well as pushing back their own limits. Experienced users are more involved in this motivation.

« (...) I started to visit internet fora, mainly psychonaut.com, I think I have worked for a couple of years as a forum moderator. When reading my old posts again I realized again that there were really a lot of new products easily available, which made me curious. It was an almost scientific curiosity of knowing which were the existing products, so I became interested a lot in psychopharmacology, to become more informed about the effects before trying the substances. » (Male, +- 30)

iv) **Connection and social bonds:** Two dimensions can be considered in this category. First, the sense of belonging to a specific group (e.g. psychonauts) where respondents have the feeling of sharing the same experience and consider themselves to be a part of the same community. The feeling of being judged is non-existing, only the social experience is shared together. A second aspect is that respondents testify that their NPS-use reinforces the sociability between members of the group, diminishes the inhibitions and allows to be more voluble.

« The fact that it contributes to interaction and discussion, you become very talkative and social. For people with social anxiety, that barrier disappears, they are no longer inhibited and talk to everyone. That's what attracts me and like I said, I love it when that feeling lasts a long time. » (Male,29)

For each group, NPS use is mostly seen as a part of social context, regardless of the specific type of substance used. This is further illustrated by the fact that a large majority of users prefers using with a specific group of friends, preferring to share the moment with them. All 3 types of users are present in this category.

v) **Mind exploration:** Another often mentioned motive is mind exploration; this motivation is connected to the concept of looking at things in another way and learning more about oneself. Additional motivations include tempting to approach other levels of (un)consciousness or having a better understanding of their current life situation. Products associated with reaching that state of mind are essentially psychedelics, but ketamine is used for this purpose as well, dependent on dosage, tolerance and setting. The lack of coordination provoked by some substances, and the dissociative properties are determining factors for the location of use (e.g. home, friend's home). Only occasional and experienced users mentioned this motivation.

"I like it because I created my own 'safe haven'. When I come out of that trip, I have the feeling to have learned so much. The feeling of self-reflection, of increased understanding of the world. Just the feeling that all the pieces of the jigsaw puzzle come together. That I acquired new viewpoints, you know, that very particular doors opened inside my brain that normally remain closed. That is, when being sober or on other substances" (Female, 26).

b) External motivations

i) **More convenient use:** One of the most cited themes referred to the use of NPS in a structural way. The category "more convenient use" gathers several aspects regarding acquiring and buying NPS instead of classic illicit substances. Mentioned arguments for buying NPS were: NPS are less expensive than classic illicit drugs, NPS are more often easier to buy especially via channels like the internet or the dark web; the online market allows avoiding contact with dealers and the associated criminal atmosphere. In addition to increasing the accessibility of NPS, the online market maximizes anonymity as well.

Another mentioned reason is a lack or shortage of preferred classic illicit substances at a specific time, where as a result users buy something closely related to their desired first choice substance. With regards to the quality of NPS, opinions are heterogeneous. Two perspectives are present; if for some users NPS quality is considered as superior, and therefore the threat of cutting agents is diminished, for others the quality is described as inferior to the classic substance.

The legal aspect can also be mentioned for a minority of users where the risk or threat of prosecution when using classic illegal substances was mentioned as one of the reasons to prefer buying NPS. Though the deprived users are less represented, this motivation was cited by all 3 types of users.

« Sometimes I go for what is easiest to get, sometimes I don't feel like finding another contact to buy speed, a lot of times it's easier to just have NPS, easy and it's cheaper as well. Also, sometimes you are just not in the right scene, or you don't feel like mixing with that scene, finding another shady dealer

that you don't know who is going to give you some speed that weighs half of the original weight after drying and that is of bad quality. For 20€ you can buy a gram of ethylphenidate powder, an analog of ritaline, very high in purity and consistent quality, I receive it in the mail 3 or 4 days after ordering it. And that works very well, at least as good as anything else, it's more stable, a lot of times it's just better in fact. » (Male,29)

ii) **Stronger and more specific effects:** Looking for specific effects is the major catalyst for choosing and using NPS in this category. Certain NPS are considered to provide stronger effects, or more specific effects. Users look for products for which the effects are obtained more quickly and are of longer duration compared to the equivalent classic illicit drugs. In addition, users are also interested in the fact that a smaller amount of the product can lead to the same results. Some users also describe the effects of NPS as 'better' effects compared to classic illicit substances, for example qualifiers including "much more euphoric" were used. Only experienced and deprived users named this category.

« The effects last a lot longer than those of cannabis. » (Male,31)

c) *Negative internal motivations*

i) **Problematic use:** In this class, different notions are interconnected. Above all, the use of NPS is experienced as being a requirement. Using NPS is not particularly a pleasure but using NPS allows users to feel good or normal, to get up, to go to work and to deal with the everyday life in a normal way. Second, NPS can also be used just to get high and forget the life situation or personal issues. A connection is found with "Coping", "Functioning in daily life" and "Health issues" motives. Coping is one of the main functions mentioned among the more deprived users. In this group, all respondents confirmed a combining use of classic drugs and NPS, depending on the availability. Classic drugs are, without exception, more important to these users while NPS are merely an expansion of the gamma. NPS substances serve as a coping-mechanism, for yielding confidence and the ability to 'not care about what others think'. In addition, NPS serve to coping in an unfriendly world as well, or to be able to assume the familial or job-related responsibilities (e.g. the use of stimulants to study, the use of benzodiazepines to sleep). In a minority of cases, medical considerations play an important role, for example in providing pain relief and in one case mental sanity.

"I also am diagnosed with rheumatism. So, I got prescribed Contramal by my GP, which is super heavy. You instantly fall asleep from that stuff. Besides, combined with lots of other substances, it is something far more dangerous than ketamine. So, I'd rather do a key [small amount of ketamine snorted from a key-slot] or two, at home in my couch and be relieved from pain. That is the second function of ketamine for me, next to the psychonautic experiences" (Female, 29)

In addition to the main reasons for using NPS, amongst others the following motives were cited: medical use, unintentional use, coping, sex, peer pressure and music/artistic creativity. Peer pressure and social context, as well as curiosity are frequently cited as the initial motivations to start using NPS. For most people, curiosity lies at the basis of their drug use (both classic illicit drugs and NPS). Respondents felt an urge to experiment with psychoactive substances and in general their friends also

do so. Peer pressure was rather cited by Flemish-speaking respondents. This reason of use was only mentioned by the experienced and the deprived users.

3.1.3. Connection between NPS, classic illicit substances and alcohol

Each respondent confirmed to have used one or several classic illicit drugs in the previous year. A large majority of NPS users used also alcohol. In the specific case of Wallonia, only users who had a problematic use of alcohol in the past, didn't use alcohol in the last year.

Based on our results, the use of NPS and classic illicit drugs is usually intertwined; users start with one type and afterwards try another one, looking for the same or similar kinds of effects, or looking for something different or new. In that regard, the NPS market has increased the possibilities to find a custom product, with custom mind-altering properties tailored to each specific individual's preferences. Nevertheless, friends or acquaintances are often indicated as a gateway for trying new substances as well, including NPS.

" (...) I have always wanted to test everything, experience things, so I wanted to go there and so I made a stop at ecstasy station, but MDMA did not do much for me. As a result, I wanted to try something that still had some effect, and the molecule I have found that works for me, it's LSD, and people told me that 2-CE is not as strong as LSD but it is still an active psychotropic substance ». (Female, 20)

Since the advent of NPS, NPS users either use both classic illicit drugs and new psychoactive substances together, or they predominantly use classic illicit drugs with episodic use of NPS, depending only on availability. However, a minority, principally in Flanders, switched to NPS for various reasons already discussed higher in this chapter, such as better quality, less side effects or more specific wanted effects. However, most of these users also keep using classic drugs.

In Flanders, among the sample, 3 users only use NPS, which is not the case for Wallonia. On the contrary, in Wallonia, several users totally stopped using NPS after having bad experiences. Some of the Flemish respondents confirmed the role of alcohol in the use of NPS: alcohol is seen as part of the mix with NPS or as an incitement to use NPS.

"What I'm really struggling with, is that, when I drink alcohol, I get the urge to do cocaine and the other way around, actually. It is also scientifically proven that the combination alcohol-cocaine makes your body produce another, third substance [cocaethyleen]" (Male, 45)

However, alcohol is also seen adversely by other respondents as a substance less controllable and therefore alcohol is the main reason to switch to NPS use. In this case NPS are regarded as being safer alternatives.

"I just want to stay away from the physically addictive drugs, such as alcohol. When I do drugs, I don't do alcohol. I massively decreased my alcohol consumption because of my other substance use and I'm also weary from the combination alcohol-drugs. When you know the risks involved when drinking and you have some knowledge about the physiological damage alcohol can cause. For example, if you look at Tripsit, the website, on the combination sheet of alcohol, almost everything is harmful or dangerous. So...." (Female, 29)

Nevertheless, virtually everyone drinks alcohol in social settings. A minority of respondents demonstrated problematic use of alcohol and still closely monitors their alcohol intake. In the deprived group of NPS users, a minority does not drink because they do not like the effects or the high of alcohol.

“In the end, it [alcohol] costs you just as much as dope, while you prefer dope [heroin]. For me, it was an easy choice at that point. Besides, if you meet someone who has been drinking for 35 years: not looking that good. In most cases, anyway. I won’t say that I am the most freshly looking person but I only have a very small mirror at home, so things balance out...” (Male, 57)

3.1.4. Mode of use, evolution in use and consequences

a) Mode of use

Table 2.4 Mode of use and favorite formats of NPS

Number of respondents			
Mode of use	Belgium	Flanders	Wallonia
Snorting	19	12	7
Swallowing	16	8	8
Drinking	9	7	2
Smoking	6	3	3
Injecting	5	3	2
Vaporising	3	2	1
Number of respondents			
Form of the substance	Belgium	Flanders	Wallonia
Powders	27	15	11
Crystals	10	8	2
Liquids	9	5	4
Herbals	2	1	1
Pills	2	0	2
Paper strips	1	0	1
Other: « Pellets »	1	0	1

Looking upon Table 2.4, snorting and swallowing are the most common administration methods. Linked to the mode of use, the forms of the substance mainly used are powders, crystals and liquids. Favourite substances are not always used in the same form or in the same way, and the mode of use can vary depending on the context. Of the total number of respondents, five are nevertheless injecting users.

b) Evolution of NPS use

In the deprived group, problematic use is the rule for both NPS and classic illicit substances. Users had to deal with addiction issues, sometimes combined with mental health issues. As a result, in this group most of the respondents are in contact with outpatient services, including OST.

In the experienced group, a minority has experienced problematic use at a certain point in their life. Especially MDPV (Methylenedioxypropylvalerone) users experienced serious health issues (i.e. psychosis and other mental health problems), including addiction. Many of the respondents that experienced problematic use stopped using a specific substance or learned to control their prior excessive use and remained (or regained) in control over their NPS use. Others still need to use NPS or classic illicit substances to diminish physical pain (e.g. illness), to regain energy or to cope with everyday life. In this case, respondents consider their specific use to function, more than as a problem.

« Since over 10 years now I have a bad disease, really serious with a tremendous reduction in my physical capacities. So, I'm paralysed from the knees down and stuff. The substances help me to find the color I have lost. They allow me to make journeys where I can rule, where I can be active, awake, it's more these kinds of things I'm looking for. It's also a stimulant, you see. » (Male, 38)

In general, in the groups of experienced and occasional users, NPS use evolved from experimental use of both classic substances and NPS to regular recreational use (mostly in a party-context). Eventually, the use evolves to rational, less frequent use, on specific occasions and within specific social contexts (with certain friends or in nightlife) when professional and social obligations allow for it. For this subgroup of users, similar to conventional drug types, NPS use serves as an escape to a busy daily life and functions as a counterbalance. Their friends most often display the same patterns of use and are equally in control of their use. Accordingly, the informal social network is one of the decisive factors of the patterns of use.

"I work hard, and I try to be good in my job. So, every now and then, me and my friends get together at someone's house and we do our 4-MMC [mephedrone] and we go out. Because it feels so relaxed, you can forget about everything and that might sound negative because it is not about 'escape' or something but it's fun that you can connect with people. (...) Because normally, your mindset, the frustrations of life, it keeps on going and now you can switch it off, in your own little bubble, with all of us" (Female, 34)

c) Consequences

Negative consequences are noticed by respondents when the use of NPS becomes more than recreational, even problematic. Repercussions may be of a social, financial, professional or health-related nature.

Health consequences, including addiction is neither rule nor exception. Financial problems and social consequences were also mentioned, such as loss of friends, isolated use, or being left with fellow users rather than genuine friends.

Contact with justice because of use is the case for almost everyone in the deprived group, be it as a consequence of use of classic drugs rather than NPS use. On financial level, classic drugs dominate, and a sizeable amount of their money goes to substance use and users with users sometimes struggling to pay their bills.

In the Flemish-speaking experienced group, contact with justice only occurred among the users of MDPV. Some of them also mention financial problems and social deprivation, but a genuine long-lasting friendship eventually maintained their bonds and allowed them to get out of trouble.

Minor impacts and side effects on NPS use were also observed sometimes for users of each category, such as tiredness, bad trips, difficulty to recover after using NPS, nose or mouth rash and inflammation, insomnia, verbal inconsistency, panic attacks and, hallucinations.

Most of the respondents of the experienced and occasional groups never had dramatic issues as a result of NPS use. Financial or justice issues rarely occurred and social consequences also seemed rather positive. The mentioned bonding, creation of music, responsible use and shared positive experiences tend to reinforce their social functioning rather than corrode it.

3.2. Health needs

3.2.1. Users' specific measures and harm reduction

A large majority (75%) of users insisted on the importance of applying harm reductions strategies, more specifically in the experienced and occasional users. They are aware of the risks encountered and actively try to reduce them to a minimum. Information about the substance they used is particularly important in that context. Collected information on the product is cited as essential in the light of an effective harm reduction strategy. A recurring advice that was mentioned by many respondents is to inform yourself as much as possible, via friends, or through your own research on the internet, despite the apparent lack of information on the subject. This lack of info is even more perceived and pointed out in the French-speaking community, where the information on NPS are rarely available in French. A part of users indicated not being comfortable with another language. Furthermore, if a large majority has access to the internet, this access is not automatic or easy for everyone.

Besides the harm reduction strategies and the collected information, specific personal measures for maintaining control of the use are applied as well.

A moderate consumption, being particularly careful concerning the dosage as well as taking only small quantities of the products when going out, is frequently cited along with personal control measures. These specific measures vary from user to user and depend on the specific context. For example, these measures encompass to limit the use to weekends, when the children are not present, only in nightlife context, not with the family, when the occasion presents itself and only with close friends or in the presence of a responsible person-.

« From the beginning I was very careful, using a precision scale and looking for the known theoretical dosages on the internet. In case the product could be very pure I started with half of the dosage I was recommended, and weighing everything, not just taking a knife point full of powder without knowing the weight. So, when I see in all that information on the internet, but also in academical papers and forums, people say "Me, I have tried X milligrams", and when for me it works really well with x milligrams I think that's good. » (Male, 29)

For the experienced and the occasional users, taking time to recover, scheduling a free day after use, being aware of your limits, using responsibly, not using at work, avoiding certain substances (e.g. alcohol, benzodiazepines) are also specific measures that were frequently mentioned.

Concerning the group of vulnerable users, since a part of them are injecting users (People Who Inject Drugs (PWID)), specific harm reduction measures are mainly related to the injection: use clean equipment, don't share needles. But also, other measures in view of overdosing: have someone around when trying a new batch (e.g. fentanyl) or someone present as much as possible.

Another harm reduction measure repeatedly mentioned by the users, relates to the reliability and the quality of the substance used. Even if information is available on a particular substance on the internet, respondents question how to be sure that the substance bought is effectively the right substance? In that regard, drug checking and test kits are cited in the experienced and occasional users.

Each respondent stated that the quality of NPS is a priority above the price. Even if the possibilities in Belgium are restrained, drug checking is frequently cited as a real opportunity to verify substance identity, especially in the experienced and occasional groups. Test kits were also cited several times as an option as well. In contrast, in the deprived group and notably among the Walloon respondents, most of the NPS users are not aware of the existence of these testing facilities in Belgium.

Despite all these specific measures, a minority of NPS users, especially in the deprived group admitted not taking any specific measures or harm reduction strategies into account. Moreover, some users in the more experienced group confessed to have had a phase where they didn't care about harm reduction whatsoever, especially at the beginning period of their drug use. They were gradually informed and sensitized about the different substances (e.g. friends, internet) potential side effects, and related risks for infectious diseases. Harm reduction strategies are sometimes also simply applied to have better experiences with the substance and fully enjoy it. According to respondents, a real reflection about their use and the substance they use is frequently the starting point of a more responsible consumption pattern.

“When I started living on my own I also started drinking heavily. Then I got in to cocaine because I dated a dealer; you know very nice stories I can share with my family... At a certain point, something clicked in my mind: I saw what I was heading for and flushed the shit down the toilet.” (Female, 26)

“Online. I insist on checking out studies and scientific literature. I am really a nerd as far as that's concerned. Like Bruce Alexander's study on rats in their social environment [Rat Park], I thought that was extremely fascinating and it basically changed my life. In the sense of 'O, actually, he's right' (Female, 26)

Below, all the harm reduction measures already taken by the users are listed. Not all the measures are taken by all the users.

Table 2.5 Random list of the harm reduction measures cited by the users

Looking for information on the specific substances (Internet, friends)
Dosage: always weigh your product
Step by step: always start with a limited amount to progressively reach the intended effects
Never use NPS alone, look after one another
Polydrug use: Don't drink or limit alcohol intake / don't use other substances (benzodiazepine)
Avoid some substances (e.g. opioids)
Always try a small amount from a new delivery or product
Do not share straws, needles or paraphernalia
Have safe sex
When snorting: crush the product, rinse/clean your nose
Swallow by means of capsule or in a cigarette paper instead of snorting
Set a maximum amount of a substance and stick to it (leave the rest at home or when at home, put it away);
Never use something a stranger gives you
Don't use and drive
Someone stays sober
Use with responsible friends
Drink enough water
Do not inject
Anticipate drug checking
Consult the EWS alerts

3.2.2. The users' perspective on (health) needs

Before detailing the different categories of the measures cited by NPS users (prevention, harm reduction and treatment), global measures that impact these 3 categories are discussed.

First, research and information on NPS were clearly stated to be essential for users. In their opinions, little is known about the (health) effects of NPS, especially in the long term. And de facto, scientific knowledge on side effects and toxicology is poorly understood (EMCDDA, 2017b; Orsolini, Papanti, Corkery, & Schifano, 2017; Soussan, Andersson, & Kjellgren, 2018). Respondents were seriously concerned about the lack of reliable information and the potential effects of NPS on health. How can one be sure of the trustworthiness of the information? The difficulty to find reliable and objective information, easily accessible on NPS, strengthens them in their feelings of being viewed as “guinea pigs”.

«I am sure that new substances will appear that turn out to be much safer, healthier than existing ones and the other way around. Some NPS will probably be harmful after a couple years of use. 4 FA seems to have some undesired long-term effects for example (...) There is a real possibility that on the NPS list, there are some substances that will be harmful to humans..., that will cause personal catastrophes in some people's lives. That is the downside of this whole NPS story: that you can buy anything online and be your own guinea pig. » (Male, 31)

Second, the need for a better training of the (health) professionals, regardless of the specialization, was cited repeatedly by the study's respondents. The scarcity and inadequacy of cares and treatment focusing on NPS-use was one of the reasons why users tend to feel powerless when in need of personal support. For NPS users, support being counselling, treatment or simply availability of information on a product and/or related effects. A minority of the respondents indicated even to have been refused by a treatment center and/or by a general practitioner, by reason of not being very aware of the NPS phenomenon and the complexity of treating specifically NPS poly-use.

« Yes, there are two centers that have rejected me, it's... and I don't remember the name of the other one, where they told me that my case was much too complicated. » (Male, +-30)

a) Prevention

According to the respondents, prevention initiatives targeted on NPS use are scarce, and to some even completely absent. There is an obvious need for a concrete prevention strategy based on objective information, particularly at schools and universities, youngster being the main audience. Even if the young public is important, approaching the entire population concerning this phenomenon is necessary as well. Elements that were mentioned that could support users to be more thoughtful on their choices are: spreading more information on the different substances, such as the risks and the potential harm reduction strategies, but also the expected negative and positive effects. Users also emphasize the complexity of providing people with enough information without inciting or tempting them to the use of the substances.

« The best prevention method I think is dialogue and explaining things to people. I think no other approach than that one will be feasible, an approach that will function I mean. When you see the number of young people using psychotropic substances or who don't even know what they are consuming or what they are doing... » (Male, 43)

More information centers are also needed, where leaflets are available but preferably also professionals would be available to answer on specific questions, with valuable knowledge on the topic and capable to refer to the right service whenever deemed necessary.

b) Harm reduction

A serious concern for the respondent related to the reliability of the products, is the long and middle-long term effects of NPS, especially about potential toxicity. In that regard, the control of the quality of substances and the possibilities of drug checking would be of aid, as well as the number of locations. The possibility to check NPS must be linked and adapted to the place of use, and not only the weekend. Testing kits have been mentioned as a solution. According to respondents, the current offer of drug checking is not well adapted to each public: problematic users, non-recreational users and occasional users must be considered as well. Besides, to the opinions of respondents being aware of the composition of the substances, would be of support in making a responsible choice if a harmful substance is detected in the product.

« That's why it could be good if everybody could have access to kits that are recognized, guaranteed, for example in a pharmacy or a hospital setting but in any case, it needs to be accessible to anyone and explained in such a way that one does not have to be a pharmacist, biochemist or so to understand it. » (Male, 41)

« What bothers me sometimes is that it's only on Friday night, in some scenes, some people really don't feel like going out except on Friday night. » (Male, +-30)

Furthermore, more attention to harm reduction strategies can be developed and adapted to the use of NPS, with an emphasis on accessible and reliable information.

c) Treatment

According to the users, the current treatment system is completely centered around classic drugs and more tailored care for NPS use was cited multiple times. First, the offer must be developed and adapted around other types of users (e.g. problematic users, non-recreational users, occasional users,...) as well. Second, users get the impression that they are more informed on NPS than health care providers/professionals. Therefore, users suggest revising the training of health care professionals. Moreover, to this extent, when valorized, the cumulated knowledge of NPS users could be used by integrating professionals by experience or peers. And third, sometimes professionals are overwhelmed by the phenomenon and the spread of new molecules and therefore the difficulties to propose an adequate support to users.

Another suggestion for improvement could be to install a better psychological support or even fixed talking group to exchange experiences and/or difficulties amongst NPS users. At the current time, these types of initiatives are lacking.

« (...) but for drugs, the use of NPS, there effectively we don't know very well who to consult. To my knowledge there's not really a talking group. » (Female,36)

d) Social aspects

In addition to the health aspect, other dimensions were touched upon during the interviews. Public health and drug use have a societal dimension and hence, are interconnected to the social aspect.

For users, health targeted initiatives must go a step further in their elaboration. The accessibility to targeted interventions is also linked to a global society debate. Drug use and stigmatization need to be approached through prevention and harm reduction initiatives. Stigmatization generates a clear barrier to talk about drug use. Having a realistic view of the situation is essential to understand fully the NPS phenomenon, and therefore creating a dialogue with users.

Stigma is an everyday reality, especially in the deprived group. Similarly, in the other user type groups, NPS is used in specific contexts, not revealing it in public life and making sure it has no effect on professional life or in society is the rule.

“When I think about it, it freaks me out. Nobody wants to go to jail. And I think, I work fulltime, I am not a criminal person and would find it terrible to have to deal with justice or law enforcement because of my drug use. I also think that it is not correct. In the end I am doing nothing wrong and who am I doing any harm? It is totally absurd that drug use is seen as equal to criminal activities in our society” (Male, 28)

Next, the current generic drug policy is not perceived by respondents as well adapted to the Belgian context, alternatives (for instance regulation by the state) should be investigated. Most NPS users compare the current situation with the acceptance of alcohol and tobacco and therefore label the current drug policy as hypocritical. Users argument that drug use should not be identified only with problematic drug use when clearly, there are many users that succeed in including responsible and controlled drug use as part of their lifestyle. To a majority of respondents, the government should rather regulate the drug/NPS market and invest in care and prevention. The opening of a rational dialogue could create opportunity for initiatives with objective and controlled information, while being aware of the risks.

3.2.3. Online market

Even if, within the three groups, dealers and friends are still a source of acquisition, the online market (darknet and internet combined) seems to take a preponderant place. Our results indicate that the online market is used essentially by the experienced group and the occasional group. Some NPS users order larger batches with friends to maximize the anonymity, especially when the seller has good evaluations concerning the quality of the substance on fora. The online market brings to NPS users many advantages and allows to avoid the street market and the specific and shady atmosphere surrounding them (e.g. street use, crime). Therefore, respondents find it much safer. Five specific points are pointed out:

- Anonymity
- Quality
- Users feel safer, no contact with dealers
- Accessibility (easy way of ordering and delivery)
- The system of information via fora

“Darkweb, I think it’s awesome. Quality is good, you’ve got user reviews and through escrow²² you even get your money back when something is not right. The beauty about online is it is a ‘buyer’s market’ so what you get then, quality improves, service improves. That’s great. In contrast, the street market is a ‘seller’s market’s because you’ve got nothing to say.... People buy adulterated stuff, people get sick.... It causes a lot of fear and stress.” (Male, 36)

Nevertheless, concerning the quality of the NPS, opinions diverge. Even if a majority of NPS users is satisfied with the quality, another part (especially in Wallonia) is not convinced. First, quality and effects sought are not the same as for the classic illicit substances usually used. And sometimes, to their perceptions bad trips or negative affects happen more frequently. This issue leads to another essential downside discussed with NPS users, being the lack of control on quality and composition of the NPS, especially the absence of health information about long term use/effects, as discussed previously (see the section 2.2 health needs). How to be sure that the substance bought on the internet is effectively the claiming substance?

« But about half the time you don’t receive what you have ordered, because you can see that it’s a brown powder, where before it was a white powder, or it are crystals even though you are buying the exact same product each time. » (Male, 38)

The future of the online market is seen as either, less activity and innovation because of the new generic law or the opposite, even more ingenuity and innovation. In the French-speaking part, the opinions are less clear-cut, and this may be imputable to the fact that French-speaking users are clearly less informed on the current illegal status of NPS. For them, the online market unmistakably plays an important role in the fast evolving NPS market. Moreover, this market is seen as a real issue for the future and the growing lack of control and quality on the substances, and by this a lack of reliability in purchases is meant.

« For me, with RC substances; big problems are ahead, that is clear. It will become a public health problem, if only because it normalizes substance use. It’s normal, you don’t have to deal with shady dealers anymore, but just the regular internet, and not even the darknet anymore, totally legal. It’s also not expensive. Sometimes some substances are more expensive than their illegal counterparts, but some substances are a lot cheaper when you buy larger quantities; also sometimes the product names are funny. Soft, Spice and comparable names. » (Male, 38)

3.2.4. Drug legislation and illegal status

Almost every respondent had a negative view on current drug policy. As can be expected, hardly anybody reflects upon themselves as criminals and users clearly underline that their NPS use causes no harm to anyone. The absence of public debate and the resulting fact that they are simply criminalized is regrettable. Most of the NPS users reject prohibition and propose a system of regulation. According to users, by eliminating prohibition, one would help to eliminate criminal organizations and would eliminate a control mechanism on production and distribution, as well as negative effects of the market system.

²² An online protocol that freezes a money transfer until the customer indicates to be satisfied and warrants full execution of the payment.

“Drug use should be decriminalized. It is just not a solution to arrest people, lock them up, alone, away from everybody and from all support and then label them as “you are a criminal, you don’t belong in our society, we don’t want to have anything to do with you”. You are only making things worse, there’s nobody who wins, only the kingpins of the fucking criminal organizations that you want to fight. The way to do it is to create support from the public;” (Female, 26)

Though the legal status may have affected use and attraction towards NPS at a certain point in time, the illegal status has currently no or little influence on their use, except for two cases. If for some users in the Dutch-speaking group the new generic law as a positive aspect, being -clarity- the situation is quite different in the French-speaking part of the country. Most of them wasn’t aware of the generic law and the current illegal status of NPS. Some users thought that NPS were still legal in Belgium. Apparently, a blurred area surrounds the legal status of NPS by lack of communication or knowledge on the subject.

3.3. Conclusion

The aim of this chapter was to obtain a deeper understanding of the culture surrounding NPS as well as the corresponding needs of NPS users for support along the continuum of care.

The analysis revealed a diversity of profiles among NPS users but first and foremost a diversity in the motives to use NPS. Whether users are occasional, more experienced or even problematic users, the reasons to use new substances mainly vary according to personal reasons. Recurring examples are the use for pleasure, mind exploration, being connected to others or out of curiosity. In addition, other structural external reasons are also of influence, such as: price, accessibility, purity or merely for the specific effects procured by certain NPS.

In literature, motivations for using classic illicit substances recurrently cited are pleasure, energy and enhancement, social bonds and connections, coping, as well as self-exploration (Boys, Marsden, & Strang, 2001; Soussan et al., 2018). These factors of motivations are similar as the ones for taking NPS. However, external factors such as price, specific effects and more convenient use seems to be more specific to the use of NPS (d’Angelo et al., 2017; Kjellgren et al., 2016; Soussan et al.).

Studies confirmed also that pleasure or enjoying the effects are the first motivation for using both, classic illicit substances(Boys et al., 2001) and new psychoactive substances (Ornella Corazza, Simonato, Corkery, Trincas, & Schifano; Soussan & Kjellgren, 2016)

Our results on motivations for using NPS confirm outcomes from a qualitative study on users’ perspectives. The data from the latter were collected via an online survey in which 613 respondents from 42 countries (512 men, 101 women) participated. Motives such as more convenient use, curiosity, self-exploration, coping/problematic use, enhanced performances, social bonding/sense of belonging, as well as pleasure were mentioned (Soussan et al.). Another point of interest found in that study and correlating to our results was the fact that motivations to use NPS may vary according to types of NPS and contexts. The results obtained by Barnard et al. (Barnard et al.) suggest also that users tend to have several favorite NPS according to the context of use.

Moreover, the online NPS community brought a sense of belonging to users, and a reciprocal sharing. In that regard, this aspect demonstrates the importance of the NPS phenomenon as a social

experience (Soussan et al.). Another study highlights the diversity of NPS users. Indeed, the type of users' groups (e.g. psychonauts, night-clubbers, self-medicate people, vulnerable groups, chemsex, high-risk drug users,...) increases with the type of substances available (EMCDDA, 2017b); Martinez 2018).

Comparing our results with the recent NPS-T study (A Benschop et al.), motives such as availability and affordability of NPS are frequently cited as well. Other reasons mentioned by two groups of NPS users in the NPS-t study (nightlife group and online community) that correlate with our results are social and expansion motives, enhancement and new experiences. Coping is frequently cited but only by the problematic group of users. The main locations of use are the same as for our study for the nightlife group and the online community, being nightlife settings, home and friends' home (private contexts).

Among the diversity of motives, an essential element is the social factor of the phenomenon. Most NPS users pointed out the importance of sharing the moment of use as well as the objective of being part of a specific community and relating to others, independently of the type of NPS used. Consequently, using NPS is also seen as a social process shared with friends that allows a specific connection and bond. However, based on our results problematic use must be taken into account as a reason of use as well. It remains essential to understand why the use can become problematic or act as a coping agent that helps overcome the everyday life or relieve pain. By determining the types of motivations, NPS targeted interventions in prevention and harm reduction can be set up or improved (Kjellgren et al., 2016; Soussan et al.).

Based on our results, amongst the respondents, stimulants seem to be the most popular class of substances, followed by dissociatives, psychedelics and depressants. Again, the class of substances used has to be linked to the context and the multiplicity of patterns of use, suggesting that NPS targeted interventions need to be adapted to socio-cultural characteristics of users (recreational, chemsex,..), patterns of use, contexts, as well as their specific risk behaviors (e.g. injecting users) (Pirona et al., 2017).

Concerning the users' needs, everything has still to be done in term of health practice. Meaning, objective and reliable information easily accessible for everyone, from sound prevention, including a real dialogue and a destigmatization of users, to harm reduction strategies focused on substance quality must be implemented. An essential concern for users was the importance of using 'safe' substances, namely: "Do we use what we think we are using?", "Is there another potentially dangerous substance in the NPS"? Moreover, more research on long-term effects was cited repeatedly. According to users, knowing the side-effects and the potential threat of a specific substance can lead to a more responsible consumption, or at least be a trigger to apply specific harm reduction strategies. Additionally, the middle and long-term health consequences of NPS use deserve to be further explored in order to have a complete view of the phenomenon (d'Angelo et al.).

On the specific treatment topic, in accordance with users' opinions, the offer is clearly limited and not well-adapted to specific NPS-related problems. Targeted initiatives such as medical and psychological support, with staff trained on NPS, are lacking according to the respondents. Respondents are generally aware of the potential risks associated with the use of NPS, which could explain the high rate

of harm reduction strategies and personal control measures applied by users. (Soussan & Kjellgren, 2014)

The online market is cited as a key element in the development of the NPS phenomenon. Several studies confirm the importance of the development of the NPS phenomenon in relation with the online drug market. Internet is playing a significant role in the marketing and the spread of legal/illegal drugs, knowing that NPS are usually sold online (Assi, Gulyamova, Ibrahim, Kneller, & Osselton; Belackova et al.; Laura Orsolini et al.). Therefore the “Web 2.0 allowed the spread of an anarchic free-market world in which drug legislation is being outpaced by chemistry and technology” (Baumann et al., 2013). Two studies confirm that the use of NPS is also influenced by the supply reduction and substance displacement, as well as the quality of the classic substances available on the market (Belackova et al., 2017; Soussan et al., 2018). Furthermore, the NPS-t study reveals that the main vector for purchasing NPS is via the internet for two groups of users (nightlife and online community). As the respondents of our study mentioned, internet allows also to avoid a personal contact with dealers (Measham & Newcombe, 2016) and in some cases to maintain the use of drugs separated from their direct social environment (M. J. Barratt).

In contrast, if the legal status has affected the use and the attraction towards NPS at a certain point in time, users mention that aspect as secondary, or minor, in the long run. Even now when the substances are illegal, the use of NPS continues except for a minority of persons, whether it is by choice or by lack of information on the subject. The new drug legislation clearly is not a decisive factor for their choice to use NPS, according to the respondents. A semi-qualitative study conducted in The Netherlands in 2012 (J. van Amsterdam, Nutt, Phillips, & van den Brink; J. G. van Amsterdam, Nabben, Keiman, Haanschoten, & Korf) confirmed the tendencies that legal status is not a primary driving factor of use. Another survey (Kjellgren et al., 2016) reached the same conclusion, an explanation could be that a majority of NPS users, consumed also classic illicit substances, highlighting therefore the importance of understand the interconnection of classic and new drugs.

Finally, the societal dimension of NPS was considered important by NPS users through the significance of a real and open dialogue on the subject and the stigma they suffer from, especially within the deprived group. The criminalization of NPS use and drug use heavily affects access to objective information and, more generally, to care, mostly by fear of judgment or lack of professional’s knowledge and training. Reducing social stigma against users will be helpful in diminishing feelings of guilt and will therefore provide an opportunity to users to maximize their access to reliable objective information (M. J. Barratt).

References

- Abdulrahim, D., & Bowden-Jones, O. (2016). Harms of Synthetic Cannabinoid Receptor Agonists (SCRAs) and Their Management. London: Novel Psychoactive Treatment UK Network (NEPTUNE), 2016. In.
- Adley, M. (2018). <http://www.thedrugswheel.com/?page=about>. In.
- Alexandrescu, L. (2017). NPS and the methadone queue: Spillages of space and time. *Int J Drug Policy*, 40, 50-56.
- Archer, R. P., Treble, R., & Williams, K. (2011). Reference materials for new psychoactive substances. *Drug Testing and Analysis*, 3, 505-514. doi:10.1002/dta.317
- Assi, S., Gulyamova, N., Ibrahim, K., Kneller, P., & Osselton, D. (2017). Profile, effects, and toxicity of novel psychoactive substances: A systematic review of quantitative studies. *Hum Psychopharmacol*, 32(3).
- Ball, S. (2015). *New Psychoactive Substance Use in Children and Young People: A Rapid Review of the Current Situation in Camden and Islington*. Retrieved from
- Barnard, M., Russell, C., McKeganey, N., & Hamilton-Barclay, T. (2017). The highs and lows of NPS/"Legal High" use: Qualitative views from a UK online survey. *Drugs: Education, Prevention & Policy*, 24(1), 96-102.
- Barratt, M. J., Ferris, J.A., Winstock, A.R. . (2016). Safer scoring? Cryptomarkets, social supply and drug market violence. *International Journal of Drug Policy*, 35. doi:10.1016/j.drugpo.2016.04.019
- Barratt, M. J., Seear, K., & Lancaster, K. (2017). A critical examination of the definition of 'psychoactive effect' in Australian drug legislation. *Int J Drug Policy*, 40, 16-25. doi:10.1016/j.drugpo.2016.10.002
- Baumann, M. H., Partilla, J. S., Lehner, K. R., Thorndike, E. B., Hoffman, A. F., Holy, M., . . . Schindler, C. W. (2013). Powerful cocaine-like actions of 3,4-methylenedioxypyrovalerone (MDPV), a principal constituent of psychoactive 'bath salts' products. *Neuropsychopharmacology*, 38(4), 552-562.
- Baumeister, D., Tojo, L. M., & Tracy, D. K. (2015). Legal highs: staying on top of the flood of novel psychoactive substances. *Ther Adv Psychopharmacol*, 5(2), 97-132.
- Beardsley, P. M., & Zhang, Y. (2018). Synthetic Opioids. In S. D. B. e. H. H. Maurer (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology 252* (pp. 353-381). Switzerland: Springer International Publishing AG, part of Springer Nature 2018.
- Beharry, S., & Gibbons, S. (2016). An overview of emerging and new psychoactive substances in the United Kingdom. *Forensic Sci Int*, 267, 25-34.
- Belackova, V., Pazitny, M., Drapalova, E., Martinez, M., van der Gouwe, D., Begley, E., . . . Kmetonynova, D. (2017). Assessing the impact of laws controlling the online availability of 25I-NBOMe, AH-7921, MDPV and MXE – outcomes of a semi-automated e-shop monitoring. *Drugs: Education, Prevention and Policy*, 25(2), 109-117.
- BELSP0-DR/02/79. (2016). Understanding New Psychoactive Substance (NPS) use in Belgium from a health perspective. In.

- Beltgens, M. T. (2017). Legislative Measures' Impact on the New Psychoactive Substances Market. In O. a. R.-U. Corazza, A. (eds.) (Ed.), *Novel Psychoactive Substances; Policy, Economics and Drug Regulation* (pp. 171-180). Cham, Switzerland: Springer International Publishing AG.
- Benschop, A., Bujalski, M., Dabrowska, K., Demetrovics, Z., Egger, D., Felinczi, K., . . . Korf, D. (2017). New Psychoactive Substances: transnational project on different user groups, user characteristics, extent and patterns of use, market dynamics, and best practices in prevention (NPS-transnational Project; HOME/2014/JDRU/AG/DRUG/7077). *Final Report. Amsterdam: Bofinger Institute of Criminology, University of Amsterdam.*
- Benschop, A. e. a. (2017). *New Psychoactive Substances: transnational project on different user groups, user characteristics, extent and patterns of use, market dynamics, and best practices in prevention.* Retrieved from HOME/2014/JDRU/AG/DRUG/7077
- Bergeron, H., Milhet, M., & Hunt, G. (2011). *Drugs and Culture : Knowledge, Consumption and Policy.* Burlington, Vt: Routledge %@ 978-1-4094-0543-6 978-1-138-27442-6 978-1-317-14772-5 978-1-317-14773-2.
- Bewley-Taylor, D., & Jelsma, M. (2012). *The UN Drug Control Conventions; The Limits of Latitude.* Retrieved from
- Biernacki, P., & Waldorf, D. (1981). Snowball Sampling: Problems and Techniques of Chain Referral Sampling. *Sociological Methods & Research, 10*(2), 141-163.
- Boys, A., Marsden, J., & Strang, J. (2001). Understanding reasons for drug use amongst young people: a functional perspective. *Health Educ Res, 16*(4), 457-469.
- Brandt, S. D., King, L. A., & Evans-Brown, M. (2014). The new drug phenomenon. *Drug Test Anal, 6*(7-8), 587-597.
- Buchanan, J. (2015). Ending Drug Prohibition with a Hangover? *British Journal of Community Justice, 13*(1), 55-74.
- Campbell, A., & O'Neill, N. (2017). *Service providers' perceptions of new psychoactive substance use in Northern Ireland.* Retrieved from Belfast:
- Chatwin. (2017). Assessing the 'added value' of European policy on new psychoactive substances. *Int J Drug Policy, 40*, 111-116.
- Chatwin, Blackman, S., & O'Brien, K. L. (2018). Intersections in (New) drug research. *Drugs: Education, Prevention and Policy, 25*(4), 297-300. doi:10.1080/09687637.2018.1466867
- Chatwin, Measham, O'Brien, & Sumnall. (2017). New drugs, new directions? Research priorities for new psychoactive substances and human enhancement drugs. *Int J Drug Policy, 40*, 1-5. doi:10.1016/j.drugpo.2017.01.016
- Collins, J. (2017). Regulation as global drug governance: how new is the NPS phenomenon? In *Novel Psychoactive Substances* (pp. 23-41): Springer.
- Colson, R. N. (2017). Harmonizing NPS Legislation Across the European Union: An Utopia. In O. a. R.-U. Corazza, A. (eds.) (Ed.), *Novel Psychoactive Substances; Policy, Economics and Drug Regulation* (pp. 143-153). Cham, Switzerland: Springer International Publishing AG.

- Coopman, V., Cordonnier, J., De Leeuw, M., & Cirimele, V. (2016). Ocfentanil overdose fatality in the recreational drug scene. *Forensic Science International*, 266, 469-473.
- Cope, I. (2014). Legal highs: a problem of definitions? – Authors' reply. *The Lancet*, 383(9930), 1715-1716.
- Corazza, O. (2017). The Proliferation of NPS as a 'Game Changer' for Public Health Policy. In O. Corazza & A. Roman-Urrestarazu (Eds.), *Novel Psychoactive Substances; Policy, Economics and Drug Regulation* (pp. xiii-xviii). Cham, Switzerland: Springer.
- 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).
- Corkery, Orsolini, Papanti, & Schifano. (2017). From concept(ion) to life after death/the grave: The 'natural' history and life cycle(s) of novel psychoactive substances (NPS). *Hum Psychopharmacol*, 32(3). doi:10.1002/hup.2566
- Corkery, Orsolini, L., Papanti, D., & Schifano, F. (2018). Novel psychoactive substances (NPS) and recent scenarios: Epidemiological, anthropological and clinical pharmacological issues. In.
- Coulson, C., & Caulkins, J. P. (2012). Scheduling of newly emerging drugs: a critical review of decisions over 40 years. *Addiction*, 107(4), 766-773.
- Council of the European Union. (2005). *Council Decision 2005/387/JHA of 10 May 2005 on the information exchange, risk-assessment and control of new psychoactive substances*. (32005D0387). Luxemburg: Official Journal of the European Union Retrieved from <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32005D0387>.
- d'Angelo, L., Camilla, S., Savulich, G., & Sahakian, B. J. (2017). Lifestyle use of drugs by healthy people for enhancing cognition, creativity, motivation and pleasure. *British Journal of Pharmacology*, 174(19), 3257-3267.
- Decorte, T., Mortelmans, D., Tieberghien, J., & De Moor, S. (2009). *Drug use: overview of general population surveys in Europe*: EMCDDA %@ 92-9168-375-2.
- Degreef, M., Blanckaert, P., Berry, E. M., van Nuijs, A. L. N., & Maudens, K. E. (2019). Determination of ocfentanil and W-18 in a suspicious heroin-like powder in Belgium. *Forensic Toxicology*.
- Deligianni, E., Corkery, J. M., Schifano, F., & Lione, L. A. (2017). An international survey on the awareness, use, preference, and health perception of novel psychoactive substances (NPS). *Hum Psychopharmacol*, 32(3).
- Deluca, P., Davey, Z., Corazza, O., Di Furia, L., Farre, M., Flesland, L. H., . . . Schifano, F. (2012). Identifying emerging trends in recreational drug use; outcomes from the Psychonaut Web Mapping Project. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 39(2), 221-226 %U <https://linkinghub.elsevier.com/retrieve/pii/S0278584612001844>.
- EMCDDA. (2006). Monitoring new drugs [Press release]

- EMCDDA. (2015). *New psychoactive substances in Europe; An update from the EU Early Warning System*. Retrieved from Luxembourg: www.emcdda.europa.eu/publications/2015/new-psychoactive-substances
- EMCDDA. (2016a). *EMCDDA–Europol 2016 Annual Report on the implementation of Council Decision 2005/387/JHA* (ISSN 1977-7841). Retrieved from
- EMCDDA. (2016b). *Health Responses to New Psychoactive Substances*. Retrieved from Luxembourg:
- EMCDDA. (2016c). *Legal approaches to controlling new psychoactive substances*. Retrieved from
- EMCDDA. (2017a). *High-risk drug use and new psychoactive substances; Results from an EMCDDA trendspotter study*. Retrieved from Luxembourg:
- EMCDDA. (2017b) Synthetic cannabinoids in Europe. In, *Perspectives on Drugs* (Update 6. 6 2017 ed.): EMCDDA.
- EMCDDA. (2018). *Fentanils and synthetic cannabinoids: driving greater complexity into the drug situation; An update from the EU Early Warning System*. Retrieved from Luxembourg:
- EMCDDA. (2019). *European Drug Report 2019; Trends and Developments*. Retrieved from Luxembourg: http://www.emcdda.europa.eu/system/files/publications/11364/20191724_TDAT19001ENN_PDF.pdf
- EMCDDA, & Europol. (2010). *EMCDDA–Europol 2010 Annual Report on the implementation of Council Decision 2005/387/JHA*
- Emerson, B., & Haden, M. (2018). Public Health and the Harm Reduction Approach to Illegal Psychoactive Substances☆. In *Reference Module in Biomedical Sciences*: Elsevier %@ 978-0-12-801238-3.
- ESPAD. (2015). *The 2015 ESPAD Report: Results from the European School Survey Project on Alcohol and Other Drugs*. Retrieved from Luxembourg::
- European Council. (1997). *97/396/JHA: Joint Action of 16 June 1997 adopted by the Council on the basis of Article K.3 of the Treaty on European Union, concerning the information exchange, risk assessment and the control of new synthetic drugs*. (31997F0396). Luxembourg: Official Journal of the European Communities Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31997F0396&from=EN>.
- Evans-Brown, M., & Sedefov, R. (2018). Responding to New Psychoactive Substances in the European Union: Early Warning, Risk Assessment, and Control Measures. In H. H. Maurer & Brandt (Eds.), *New Psychoactive Substances, Handbook of Experimental Pharmacology* (Vol. 252, pp. 3-49 %@ 0171-2004 (Print) 0171-2004 (Linking)). Switzerland: Springer International Publishing AG, part of Springer Nature.
- Feng, L.-Y., Battulga, A., Han, E., Chung, H., & Li, J.-H. (2017). New psychoactive substances of natural origin: A brief review. *Journal of Food and Drug Analysis*, 25, 461-471. doi:10.1016/j.jfda.2017.04.001
- GDS, & Van Havere, T. (2017). *Global Drug Survey; country report for Belgium*. Retrieved from

- Griffiths, P., Evans-Brown, M., & Sedefov, R. (2013). Getting up to speed with the public health and regulatory challenges posed by new psychoactive substances in the information age. *Addiction*, *108*(10), 1700-1703.
- Griffiths, P., & Götz, W. (2013). Forewords. In P. L. a. W. Dargan, D.M. (eds.) (Ed.), *Novel Psychoactive Substances: Classification, Pharmacology and Toxicology* (Vol. 252): Academic Press, Elsevier.
- Griffiths, P., Sedefov, R., Gallegos, A., & Lopez, D. (2010). How globalization and market innovation challenge how we think about and respond to drug use: 'Spice' a case study. *Addiction*, *105*(6), 951-953.
- Grund, J.-P. C., Vavrincikova, L., Fidesova, H., & Janikova, B. (2016). *New Psychoactive Substances among People Who Use Drugs Heavily. Towards Effective and Comprehensive Health Responses in Europe*. (JUST/2013/DPIP 4000004774). Retrieved from www.npsineurope.eu
- Guirguis, A. (2017). New psychoactive substances: a public health issue. *Int J Pharm Pract*, *25*(5), 323-325.
- Helander, A., & Bäckberg, M. (2017). New Psychoactive Substances (NPS) - the Hydra monster of recreational drugs. *Clin Toxicol (Phila)*, *55*(1), 1-3.
- Hill, S. L., & Dargan, P. I. (2018). Patterns of Acute Toxicity Associated with New Psychoactive Substances. In H. H. Maurer & S. D. e. Brandt (Eds.), *New Psychoactive Substances, Handbook of Experimental Pharmacology* (2018/06/14 ed., Vol. 252, pp. 475-494). Switzerland: Springer.
- Hughes, B., Evans-Brown, M., & Sedefov, R. (2016). Legal Controls of Psychoactive Substances in Europe. *Handbuch Psychoaktive Substanzen*, 1-15.
- Jansen, H. (2010). *The logic of qualitative survey research and its position in the field of social research methods*. Paper presented at the Forum Qualitative Sozialforschung/Forum: Qualitative Social Research.
- Kalant, H. (2010). Drug classification: science, politics, both or neither? *Addiction*, *105*(7), 1146-1149.
- Karila, Marillier, M., Chaumette, B., Billieux, J., Franchitto, N., & Benyamina, A. (2018). New synthetic opioids: Part of a new addiction landscape. *Neurosci Biobehav Rev*. doi:10.1016/j.neubiorev.2018.06.010
- Khaled, S. M., Hughes, E., Bressington, D., Zolezzi, M., Radwan, A., Badnapurkar, A., & Gray, R. (2016). The prevalence of novel psychoactive substances (NPS) use in non-clinical populations: a systematic review protocol. *Syst Rev*, *5*(1), 195.
- King, & Nutt. (2014). *Deaths from "legal highs": a problem of definitions* (01406736). Retrieved from www.thelancet.com
- King, L. A., & Kicman, A. T. (2011). A brief history of 'new psychoactive substances'. *Drug Testing and Analysis*, *3*, 401-403. doi:10.1002/dta.319
- King, L. A., & Nutt, D. J. (2014). Legal highs: a problem of definitions? – Authors' reply. *The Lancet*, *383*(9930), 1715-1716.
- Kjellgren, A., Jacobsson, K., & Soussan, C. (2016). The quest for well-being and pleasure: experiences of the novel synthetic opioids AH-7921 and MT-45, as reported by anonymous users online. *Journal of Addiction Research & Therapy*, *7*(4).

- Koning, R., & Niesink, R. (2013). Nieuwe Psychoactieve Stoffen (NPS): niets nieuws onder de zon. *Verslaving*, 9(1), 47-59.
- Kraemer, M., Boehmer, A., Madea, B., & Maas, A. (2019, Feb 25). *Death cases involving certain new psychoactive substances: A review of the literature*. Literature review. [2019/03/30]. *Forensic Sci Int*, (298).
- Krajewski, K. (1999). How flexible are the United Nations drug conventions? *International Journal of Drug Policy*, 10(4), 329-338.
- Lamy, F. R., Daniulaityte, R., Nahhas, R. W., Barratt, M. J., Smith, A. G., Sheth, A., . . . Carlson, R. G. (2017). Increases in synthetic cannabinoids-related harms: Results from a longitudinal web-based content analysis. *International Journal of Drug Policy*, 44, 121-129.
- Li, L., & Vlisides, P. E. (2016). Ketamine: 50 Years of Modulating the Mind. *Frontiers in Human Neuroscience*, 10, 15. doi:10.3389/fnhum.2016.00612
- Logan, B. K., Mohr, A. L. A., Friscia, M., Krotulski, A. J., Papsun, D. M., Kacinko, S. L., . . . Huestis, M. A. (2017). Reports of Adverse Events Associated with Use of Novel Psychoactive Substances, 2013–2016: A Review. *Journal of analytical toxicology*, 41(7), 573-610. doi:10.1093/jat/bkx031
- MacCoun, R. J., & Reuter, P. (2001). *Drug War Heresies: Learning from Other Vices, Times, & Places*. USA: Cambridge University Press.
- Madras, B. K. (2017). The Growing Problem of New Psychoactive Substances (NPS). *Curr Top Behav Neurosci*, 32, 1-18.
- Meador, N., Mdege, N., & McCambridge, J. (2018). The public health evidence-base on novel psychoactive substance use: scoping review with narrative synthesis of selected bodies of evidence. *Journal of Public Health*, 40(3), e303-e319.
- Measham, F. (2013). Social issues in the use of novel psychoactive substances: Differentiated demand and ideological supply. In *Novel Psychoactive Substances* (pp. 105-127): Elsevier.
- Measham, F., & Newcombe, R. (2016). What's So 'New' About New Psychoactive Substances? Definitions, Prevalence, Motivations, User Groups and A Proposed New Taxonomy. In *The SAGE Handbook of Drug and Alcohol Studies* (pp. 576-596 % @ 978-571-4462-9866-4464 4978-4461-4739-2198-4466).
- Moosmann, B., & Auwärter, V. (2018). Designer Benzodiazepines: Another Class of New Psychoactive Substances. In S. D. B. H. H. Maurer (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology 252* (pp. 383-410). Cham, Switzerland: Springer International Publishing AG, part of Springer Nature 2018.
- Mounteney, J. (2017). *Monitoring new substances at European level*. Paper presented at the NPS Seminar 'Old wine in new bottles', Brussel.
- Musto, D. F. (1999). *The American Disease; Origins of Narcotic Control* (Third edition ed.). New York: Oxford University Press.

- Negrei, C., Galateanu, B., Stan, M., Balalau, C., Dumitru, M. L. B., Ozcagli, E., . . . Tsatsakis, A. (2017). Worldwide legislative challenges related to psychoactive drugs. *Daru*, 25(1), 14.
- Neptune. (2015). *Guidance on the Clinical Management of Acute and Chronic Harms of Club Drugs and Novel Psychoactive Substances*. Retrieved from <https://www.drugsandalcohol.ie/24292/>
- O'Brien, K., Chatwin, C., Jenkins, C., & Measham, F. (2014). New psychoactive substances and British drug policy: A view from the cyber-psychonauts. *Drugs: Education, Prevention and Policy*, 22(3), 217-223.
- O'Hagan, & Smith, C. (2017). A New Beginning: An Overview of New Psychoactive Substances. *Forensic Research & Criminology International Journal*, 5(3), 13.
- Orsolini, L., Papanti, D., Corkery, J., & Schifano, F. (2017). An insight into the deep web; why it matters for addiction psychiatry? *Human Psychopharmacology*, 32(3). doi:10.1002/hup.2573
- Orsolini, L., St John-Smith, P., McQueen, D., Papanti, D., Corkery, J., & Schifano, F. (2017). Evolutionary Considerations on the Emerging Subculture of the E-psychonauts and the Novel Psychoactive Substances: A Comeback to the Shamanism? *Curr Neuropharmacol*, 15(5), 731-737.
- Papaseit, Molto, J., Muga, R., Torrens, M., de la Torre, R., & Farre, M. (2017). Clinical Pharmacology of the Synthetic Cathinone Mephedrone. *Curr Topics Behav Neurosci*, 32, 313-332. doi:10.1007/7854_2016_61
- Patel, N. B. (2019). Khat (*Catha edulis* Forsk) - And now there are three. *Brain Res Bull*, 145, 92-96.
- Peacock, A., Bruno, R., Gisev, N., Degenhardt, L., Hall, W., Sedefov, R., . . . Griffiths, P. (2019). New psychoactive substances: challenges for drug surveillance, control, and public health responses. *The Lancet*, 394(10209), 1668-1684.
- Peacock, A., Leung, J., Larney, S., Colledge, S., Hickman, M., Rehm, J., . . . Griffiths, P. (2018). Global statistics on alcohol, tobacco and illicit drug use: 2017 status report. *Addiction*, 113(10), 1905-1926.
- Pirona, A., Bo, A., Hedrich, D., Ferri, M., van Gelder, N., Giraudon, I., . . . Mounteney, J. (2017). New psychoactive substances: Current health-related practices and challenges in responding to use and harms in Europe. *Int J Drug Policy*, 40, 84-92.
- Potter, G. R., & Chatwin, C. (2017). Not particularly special: critiquing 'NPS' as a category of drugs. *Drugs: Education, Prevention and Policy*, 25(4), 329-336. doi:10.1080/09687637.2017.1411885
- Potter, W. L.-D., D. (1999). Rethinking validity and reliability in content analysis. 27, 258-284. doi:10.1080/00909889909365539
- Racz, J., Csak, R., Toth, K. T., Toth, E., Rozman, K., & Gyarmathy, V. A. (2016). Veni, vidi, vici: The appearance and dominance of new psychoactive substances among new participants at the largest needle exchange program in Hungary between 2006 and 2014. *Drug Alcohol Depend*, 158, 154-158.
- Reuter. (2011). *Options for regulating new psychoactive drugs: a review of recent experiences*. Retrieved from United Kingdom: www.ukdpc.org.uk/publications.shtml
- Reuter, & Pardo. (2017). New Psychoactive Substances: The Regulatory Experience and Assessment of Options. In O. a. R.-U. Corazza, A. (eds.) (Ed.), *Novel Psychoactive Substances: Policy, Economics and Drug Regulation* (pp. 155-177). Cham, Switzerland: Springer International Publishing AG 2017.

- Rolles, S., & Kushlik, D. (2014). Prohibition is a key driver of the new psychoactive substances (NPS) phenomenon. In U. Transform Drug Policy Foundation (Ed.), *Addiction* (Vol. 109, pp. 1587-1594): © 2014 Society for the Study of Addiction.
- Rosiers. (2018). *VAD uitgaansonderzoek 2018*. Retrieved from Brussels:
- Rychert, M., & Wilkins, C. (2016). What products are considered psychoactive under New Zealand's legal market for new psychoactive substances (NPS, 'legal highs')? Implications for law enforcement and penalties. *Drug Test Anal*, 8(8), 768-778.
- Schifano, F. (2018). Recent Changes in Drug Abuse Scenarios: The New/Novel Psychoactive Substances (NPS) Phenomenon. *Brain Sciences*, 8(12), 221.
- Seddon. (2014). Drug policy and global regulatory capitalism: The case of new psychoactive substances (NPS). *International Journal of Drug Policy*, 25, 1019-1024.
- Seddon. (2016). Inventing drugs: A genealogy of a regulatory concept. *Journal of Law and Society*, 43(3), 393-415.
- Sedefov, R., Gallegos, A., Mounteney, J., & Kenny, P. (2013). Chapter 2 - Monitoring Novel Psychoactive Substances: A Global Perspective. In P. I. Dargan & D. M. Wood (Eds.), *Novel Psychoactive Substances* (pp. 29-54). Boston: Academic Press.
- Simmler, L. D., & Liechti, M. E. (2018). Pharmacology of MDMA- and Amphetamine-Like New Psychoactive Substances. In S. D. e. Maurer; H.H. and Brandt (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology* (Vol. 252, pp. 143-164). Switzerland: # Springer International Publishing AG, part of Springer Nature.
- Singh, D., Narayanan, S., Vicknasingam, B., Corazza, O., Santacroce, R., & Roman-Urrestarazu, A. (2017). Changing trends in the use of kratom (*Mitragyna speciosa*) in Southeast Asia. *Human Psychopharmacology: Clinical and Experimental*, 32(3), e2582.
- Smith, Z., Moore, K., & Measham, F. (2009). MDMA powder, pills and crystal: the persistence of ecstasy and the poverty of policy. *Drugs and Alcohol Today*, 9(1), 13-19.
- Soussan, C., Andersson, M., & Kjellgren, A. (2018). The diverse reasons for using Novel Psychoactive Substances - A qualitative study of the users' own perspectives. *Int J Drug Policy*, 52, 71-78.
- Soussan, C., & Kjellgren, A. (2014). Harm reduction and knowledge exchange—a qualitative analysis of drug-related Internet discussion forums. *Harm Reduction Journal*, 11(25), 9.
- Soussan, C., & Kjellgren, A. (2016). The users of Novel Psychoactive Substances: Online survey about their characteristics, attitudes and motivations. *Int J Drug Policy*, 32, 77-84.
- Stephenson, & Richardson, A. (2014). *New Psychoactive Substances in England; A review of the evidence*. United Kingdom: Home Office.
- Stevens, A., Fortson, R., Measham, F., & Sumnall, H. (2015). Legally flawed, scientifically problematic, potentially harmful: The UK Psychoactive Substance Bill. *Int J Drug Policy*, 26(12), 1167-1170.

- Stiegel, U. (2017). Legislating NPS in the European Union. In O. Corazza & A. Roman-Urrestarazu (Eds.), *Novel Psychoactive Substances: Policy, Economics and Drug Regulation* (pp. 13-22 %@ 978-973-319-60600-60602). Cham: Springer International Publishing.
- Sumnall, Evans-Brown, M., & McVeigh, J. (2011). Social, policy, and public health perspectives on new psychoactive substances. *Drug Test Anal*, 3(7-8), 515-523.
- Sumnall, McVeigh, J., & Evans-Brown, M. J. (2013). Epidemiology of use of novel psychoactive substances. In *Novel psychoactive substances* (pp. 79-103): Elsevier.
- Taylor, J. (2015). The Stimulants of Prohibition: Illegality and New Synthetic Drugs. *Territory, Politics, Governance*, 3(4), 407-427.
- Tetty, Crean, C., Ifeagwu, S. C., & Raitelhuber, M. (2018). Emergence, Diversity, and Control of New Psychoactive Substances: A Global Perspective. In S. D. B. e. H. H. Maurer (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology 252* (Vol. 252, pp. 51-67): Springer International Publishing AG.
- TNS Political & Social. (2014). *Flash Eurobarometer 401 - Young people and drugs*. Retrieved from
- Tzanetakis, M. (2018). Comparing cryptomarkets for drugs. A characterisation of sellers and buyers over time. *International Journal of Drug Policy*, 56, 176-186. doi:10.1016/j.drugpo.2018.01.022
- UNODC. (2013). *The challenge of new psychoactive substances*. Retrieved from Vienna, Austria: <http://www.unodc.org/unodc/en/scientists/smart.html>
- UNODC. (2014). *Global Synthetic Drugs Assessment; Amphetamine-type stimulants and new psychoactive substances*. (E.14.XI.6). Vienna Retrieved from https://www.unodc.org/documents/scientific/2014_Global_Synthetic_Drugs_Assessment_web.pdf.
- UNODC. (2017). *World Drug Report 2017, Pt. 4; Market Analysis of Synthetic Drugs, Amphetamine-type stimulants, new psychoactive substances*. (. E.17.XI.6). Vienna.
- UNODC. (2018a). *Understanding the synthetic drug market: the NPS factor*. Retrieved from Vienna, Austria: www.unodc.org/documents/scientific/Global_Drugs_Assessment_2017.pdf
- UNODC. (2018b). *World Drug Report 2018; Executive summary: conclusions and policy implications* (ISBN: 978-92-1-148304-8). Retrieved from https://www.unodc.org/wdr2018/prelaunch/WDR18_Booklet_1_EXSUM.pdf
- UNODC. (2019). *UNODC Early Warning Advisory on New Psychoactive Substances*. Retrieved from Vienna, Austria: <https://www.unodc.org/LSS/Page/NPS>
- VAD. (2017). *Factsheet Nieuwe Psychoactieve Stoffen (NPS)*. Retrieved from Brussels: <http://www.vad.be/materialen/detail/factsheet-smartdrugs--nieuwe-psychoactieve-stoffen>
- VAD, & Sciensano. (2016). Het Drugwiel; een nieuw model voor productinformatie - effecten per categorie. In H. Drugwiel (Ed.), www.thedrugswheel.com (Vertaald door VAD (www.vad.be) en WIV ed., pp. Fig.). UK: Designed in collaboration with DrugWatch.

- VAD&Sciensano. (2018). Het Drugwiel: Een nieuw model voor productinformatie. In D. 2018 (Ed.), *The Drugs Wheel by Mark Adley is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 Unported License*. ([BE versie 1.0 • 17/01/2018] ed., pp. Aangepast aan de Belgische context door VAD en WIV op 17/01/2018.): www.thedrugswheel.com.
- Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*, 15(3), 398-405. doi:10.1111/nhs.12048
- van Amsterdam, J., Nutt, D., Phillips, L., & van den Brink, W. (2015). European rating of drug harms. *J Psychopharmacol*, 29(6), 655-660. doi:10.1177/0269881115581980
- van Amsterdam, J., Nutt, D., & van den Brink, W. (2013). Generic legislation of new psychoactive drugs. *J Psychopharmacol*, 27(3), 317-324. doi:10.1177/0269881112474525
- van Amsterdam, J. G., Nabben, T., Keiman, D., Haanschoten, G., & Korf, D. (2015). Exploring the Attractiveness of New Psychoactive Substances (NPS) among Experienced Drug Users. *J Psychoactive Drugs*, 47(3), 177-181. doi:10.1080/02791072.2015.1048840
- van der Gouwe, D., Brunt, T. M., van Laar, M., & van der Pol, P. (2016). Purity, adulteration and price of drugs bought on-line versus off-line in the Netherlands. *Addiction*, 1-9. doi:10.1111/add.13720
- Van Havere, T. (2012). *Prevalence and prevention of substance use in nightlife*. Dissertation). Retrieved from [https://expertise.hogent.be/files/10345888 ...](https://expertise.hogent.be/files/10345888...),
- Wallach, J., & Brandt, S. D. (2018). 1,2-Diarylethylamine- and Ketamine-Based New Psychoactive Substances. In H. H. Maurer & S. D. Brandt (Eds.), *New Psychoactive Substances; Pharmacology, Clinical, Forensic and Analytical Toxicology* (Vol. 252, pp. 305-352). Switzerland: Springer.
- WHO. (1994). Lexicon of alcohol and drug terms. In (pp. 69). Geneva: World Health Organisation.
- Wilkins. (2014). A critical first assessment of the new pre-market approval regime for new psychoactive substances (NPS) in New Zealand. *Addiction*, 109(10), 1580-1586. doi:10.1111/add.12484
- Wilkins, Rychert, M., Byrska, B., Van Hout, M. C., Corazza, O., & Roman-Urrestarazu, A. (2017). Exploring Innovative Policy Responses to NPS and 'Legal Highs' in New Zealand, Poland, Republic of Ireland and the UK. In *Novel Psychoactive Substances* (pp. 57-74).
- Wille, S., Richeval, C., Nachon-Phanithavong, M., Gaulier, J., Di Fazio, V., Humbert, L., . . . Allorge, D. (2018). Prevalence of new psychoactive substances and prescription drugs in the Belgian driving under the influence of drugs population. *Drug Testing and Analysis*, 10(3), 539-547.
- Windelinckx, T. (2018). *Evaluatieonderzoek partnerorganisatie Spuitenruil 2017*. Retrieved from
- Winstock. (2019). GDS 2019 Key Findings Report; executive summary. *Annual Survey Reports*, 12.
- Winstock, & Ramsey. (2010). Legal highs and the challenges for policy makers. *Addiction*, 105(10), 1685-1687. doi:10.1111/j.1360-0443.2010.03163.x
- Zamengo, L., Frison, G., Bettin, C., & Sciarrone, R. (2014). Understanding the risks associated with the use of new psychoactive substances (NPS): high variability of active ingredients concentration,

mislabelled preparations, multiple psychoactive substances in single products. *Toxicol Lett*, 229(1), 220-228. doi:10.1016/j.toxlet.2014.06.012

Zamengo, L., Frison, G., & Zwitter, G. (2018). Understanding and managing the new psychoactive substances phenomenon: a holistic approach. *Journal of public health policy*, 1-19.

Zawilska, & Wojcieszak. (2018). Novel Psychoactive Substances: Classification and General Information. In *Synthetic Cathinones* (pp. 11-24): Springer International Publishing AG, part of Springer Nature 2018.

Zawilska, & Wojcieszak, J. (2019). An expanding world of new psychoactive substances—designer benzodiazepines. *Neurotoxicology*, 73, 8-16. doi:<https://doi.org/10.1016/j.neuro.2019.02.015>

CHAPTER 3: THE USE OF NPS AND THE AWARENESS OF USERS: THE SAMPLE COLLECTION

Authors: Peter Blanckaert, Sarah Simonis, Anton Van Dijck

1. Introduction

The fast evolving nature of the drug market and especially the new psychoactive substances (NPS) phenomenon is reflected in the large number of substances being produced, distributed, marketed and detected (Corkery et al., 2018; EMCDDA, 2016b; Racz et al., 2016), but also in their diversity and the speed by which the chemical structures of those substances are changed or updated, for example as a response to changing legislation.

The Internet has played a significant role in that widespread facilitating thereby their acquisition (d'Angelo et al., 2017). De facto, New Psychoactive Substances are not such a new phenomenon in essence (Sumnall et al., 2011), however, the speed by which these substances are produced and emerge on the international market, in particular via internet, has never been seen before, and contributes significantly to the increased NPS availability (Chatwin, 2017).

Due to serious adverse effects related to the use of some NPS (d'Angelo et al., 2017), for example by combining several active substances, using incorrect dosages or the potential presence of high concentrations of toxic contaminants, the chemical identification of the NPS that are being used by the study participants is of major interest.

To this end this chapter aims to compare the ideas and knowledge of users on NPS products and a subsequent analytical screening of a sample provided by the respondents of the study. The objective is to define the awareness of the users concerning the content of the NPS they use and how they are informing themselves on the substances. In 2014, the Flash Eurobarometers cited the Internet (e.g. fora and sites) as the 1st referenced source regarding information related to NPS (30% all respondents). As a major source of information on the substances themselves but also concerning harm reduction strategies, internet provides in addition, anonymity (Soussan & Kjellgren, 2014).

2. Methods

To conclude the in-depth interviews (cf. Chapter 2), the recruited NPS users were offered the opportunity to submit one to three NPS samples they had used before. Users were asked about the presumed identity of the sample, their habits on retrieving information on substances in general as well as the source of acquisition of the aforementioned sample. The samples were photographed and put in a sealed envelope by the researcher. Researcher filled in a sample analysis form. Finally, the sample was transported to the laboratories of Sciensano by the researcher or a by a qualified person. Feedback of the results of scientific identification of the samples' contents was provided to the users by phone or mail, directly after receiving the results from the laboratory. An informed consent was also signed by users to correctly inform them on the procedure and the personal data protection.

Depending on the format of the samples, the sample was crushed to obtain a powder or immediately dissolved in methanol for further analysis. In the case of liquid samples, sample preparation was performed using extraction with dichloromethane. These sample preparation steps were performed

in a security cabinet. Obtained solution were sonified using an ultrasonic bath and if necessary filtered before analysis. Samples were then analyzed using gas chromatography (type: Agilent technologies 7890A) hyphenated with a single quad mass spectrometer (type: Agilent technologies 5975) (GC-MS). When a signal was detected, the mass spectrum was compared using several different spectral libraries including NIST, the Cayman Forensic library and some in-house libraries. If reference standard compounds were available, quantification was performed using GC-MS, ultra violet analysis and/or liquid chromatography (LC).

If no match was found, more advanced LC-MS analysis was performed using an LC-Ion trap MS (type: Brüker Daltonics Amazon ETD, Brüker, Bellerica, USA). The obtained spectrum was compared to the in-house library for medicines and illegal substances, which is one of the largest libraries for illegal medicines and related products in Europe. If still no match was found, an infrared spectroscopic analysis (Nicolet iS10 FT-IR, ThermoFisher Scientific, Waltham, USA) and a high definition Time of Flight LC-MS analysis (Synapt G2 SI, Waters, Milford, MA, USA) was performed. The IR-spectrum was compared to commercial, in-house and online libraries, while both the exact mass obtained with high definition MS and the spectrum were used for structure elucidation.

This procedure for identification of illegal substances is accredited by BELAC (ISO17025) and is also subject of the OMCL certification (ISO17025) of the laboratory, issued by the European Directorate for Quality of Medicines (EDQM) part of the Council of Europe.

3. Results

3.1. Pharmacological aspects

In Table 3.1 the samples collected from NPS users participating in the NPS-Care project are listed together with the substance as identified during the analysis. 37 samples were deposit and analyzed in the laboratory.

Table 3.1 Presumed identity of the samples and laboratory results

N°	Presumed identity given by NPS users	Identification by laboratory analysis ²³	Source of acquisition
1	« Speed jaune »	MDMA	dealer
2	Spice blend « Cherry Haze »	AB-Fubinaca	online
3	Spice blend « Blueberry burst »	JHW-018 + AB-Fubinaca	online
4	Spice blend « Tropical 2.0»	JHW-018	online
5	Pill (user did not know the name)	Negative ²⁴	online
6	3-MMC	4-MMC	online
7	6-APB	6-APB	online
8	« Liquid ecstasy »	GHB + MDMA + Caffeine	dealer

²³ The name between bracket is the official name of the substance identified by the laboratory

²⁴ No active substance at all

9	Methylone	Alpha-ethylaminohexanophenone	online
10	Methoxetamine	Ketamine	online
11	4FA	MDMA	online
12	6-APB	2-APB	online
13	25i-NBOMe	2C-C-Nbome	online
14	Heroin analogue	Negative	online
15	Ketamine	Ketamine	dealer
16	2C-E	2C-E	online
17	GBL	GBL	online
18	Cocaine-analogue	Cocaine	online
19	3MMC	2-methylethcathinone	dealer
20	6APB-25NBOMe-3MMC	2-APB	online
21	3MMC	3MMC	online
22	Hexen	Hexen (Alpha-ethylaminoexanophenone)	online
23	4-FA	4-FA (4-Fluoroamphetamine)	online
24	3 MeO PCP	3 MeO PCP (3-METHOXY PCP)	online
25	Eth_Lad	Negative	online
26	Hexen	Paclobutrazol	online
27	DSK	DSK (Deschloroketamine)	online
28	DSK	Pyrovalerone	online
29	Ketamine	Ketamine + MDMA	online
30	« Purple syrup »	Negative	dealer
31	3-MMC	4methylethcathinone + dimethyl sulfon	online
32	3.4 DDMC	3.4 DDMC (3.4-Dimethylmethcathinone)	online
33	4-MMC	4-MMC (4methylethcathinone)	online
34	Ketamine	Ketamine	dealer
35	4-FA	3-FA (3-Fluoroamphetamine)	online
36	6-APB	6-APB	online
37	Al-Lad	Negative	online

Table 3.2 Identity of the samples collected from NPS users as determined by laboratory analysis

Substance	# identified
25C-NBOMe	1
2C-E	1
3,4-DMMC	1
Methylethylcathinone	1
3-MeO-PCP	1
3-MMC	1
4-MMC	3
4-FA	2
6-APB	4
AB-FUBINACA	2
JWH-018	2
Deschloroketamine	1
Hexen	2

In the samples deposited during the NPS-Care study, several dissociative cycloaryalkylamines were identified: 2 samples were deposited as being deschloroketamine, one sample as methoxetamine, and 3 samples reported as potentially being ketamine. Also, one 3-MeO-PCP sample was present. The identity was confirmed for all ketamine samples, however one sample proved to be also contaminated with MDMA. The methoxetamine sample turned out to be ketamine as well, and only one DSK sample was confirmed; the other supposedly DSK sample was identified as pyrovalerone, a cathinone substance. The identity of the supposed 3-MeO-PCP sample was confirmed as well.

Several potential phenethylamine samples were collected during the NPS-Care study. These samples included 6-APB (4 samples), 4-FA (3 samples), 25I-NBOMe and 2C-E (1 sample each). The presumed identity was confirmed for all these samples, except a 4-FA sample that turned out to be MDMA and the presumed 25I-NBOMe sample turned out to be 25C-NBOMe, a molecule with quasi identical properties. This comes as no surprise considering 6-APB and especially 4-FA have gained in popularity and are frequently sold in the classic illicit drug circuit, as is also the case for ketamine.

Two NPS analogs of LSD were deposited as samples during the NPS-Care study, AI-LAD and Eth-LAD samples. The identification of these samples could not be confirmed by laboratory analysis. However, due to the extremely low dosage, the possibility exists that the substances were dosed below the limit of quantification and were hence not detected while they could very well have been present in the samples deposited by the study participants.

The following cathinone derivatives were identified in the samples submitted during the NPS-Care project: 3,4-DMMC, 4-MMC, hexen and methylone.

JWH-018, which was identified in one analyzed sample during the project, is probably the most widely known synthetic cannabinoid, and belongs to the group of aminoalkylindoles; it is three times as potent as THC.

Conclusion samples

In general, the substances as identified by the analytical laboratory of Sciensano corresponded to the identity as suspected by the user for a majority of submitted samples (63%). It is important to take several things into account when interpreting these results:

- I. For several samples, the presumed identity was not immediately clear, potentially skewing the mentioned quantitative results. For example, described identities included “yellow speed”, “spice”, “liquid XTC”, “heroin analogue”, “cocaine analog” and “purple syrup”.
- II. Problem of positional isomers: several NPS analogs exist where the only difference with neighbor analogs is the phenyl ring position. Examples include 5-APB and 6-APB, or 3-MMC and 4-MMC. The techniques used to identify the molecules in the laboratory do not enable straightforward determination of these positional isomers; hence the predominant isomers were selected for further analysis.
- III. One sample with presumed identity = “2-APB”: this molecule does not exist, the predominant existing isomer is 6-APB, of which the identity was confirmed for this sample.
- IV. Estimating by the number of identified samples, the most popular substances identified in the project were 6-(2-aminopropyl) benzofuran (6-APB) and mephedrone (4-methylmethcathinone, 4-MMC). Another popular substance was 4-fluoroamphetamine (4-FA).

3.2. Social aspects

Alongside with the analytical results of the samples and the pharmacological aspect as discussed in the previous section, the social aspect is also developed. The terminology used by NPS users as well as the meaning attributed by users behind the notion of NPS is discussed. By understanding the social and collective aspect given by users to NPS terminology, the construction of the culture surrounding NPS could be more easily interpreted and NPS initiatives better targeted.

3.2.1. The terminology

Based on the results of the interviews, the term ‘NPS’ clearly proved to be jargon and not or little used by users themselves. NPS users rather prefer the appellation “RC” (for Research Chemicals), “New drugs” (especially among French-speaking respondents), “Designer drugs” or “Designer” (especially among the Flemish-speaking respondents) and only sometimes the term “Legal high”. Remarkably, it is mainly the name of the molecule or the specific substances that users most frequently used as reference to the substances they take (e.g. 3-MMC, 4-FA, 6-APB).

a) Users’ perspectives on definition

Most respondents are aware of the specificity of NPS and they could provide a correct definition to NPS : newly designed molecules which imitate effects of classic illegal drugs. Notions related to molecular modifications, counterfeit and even for a large part the connection with the legal aspects are well-known as well. Other notions that were commonly mentioned are “synthetic substances”, “non-traditional substances” or even “a kind of substitute to classic illicit drugs”.

About the legality, though almost all users know that NPS were created to circumvent the illegality of classic illicit substances, they are hardly informed on the current status of NPS in Belgium. Concerning

the deprived group²⁵ (cf. Chapter 2), they are the less informed group on both aspects, the terminology and the meaning.

« Donc c'est une drogue nouvelle, c'est synthétique et on part à partir de la molécule de base et qu'on en créé une autre à partir de cette molécule de base et du coup cela tient un peu de celle de base mais ce n'est plus vraiment celle-là quoi. » (Female,20)

« C'est des nouvelles drogues de synthèse super fortes créées pour détourner les lois, pour être vendues de manière légale. » (Male,33)

As the term NPS is not always known or used so far, issues have been encountered and may have affected the recruitment in the study. In addition, the definition and the meaning of the term proved not always to be the same even among users. Many users are not able to distinguish which molecules fit the NPS category and seem to think that NPS only cover certain categories, e.g. the stimulants or the empathogens while not being aware that NPS can covers any categories (e.g. opioids, depressants). Usually, NPS are perceived as a substance more used in a recreational context.

Moreover, it is not clear for users which specific substances are a new psychoactive substance (e.g. methoxetamine, synthetic cannabinoids). Though the theoretical notion of newly designed molecules is acquired, identifying a specific substance as a New Psychoactive substance is more complicated. Additionally, some substances like MDMA is sometimes considered by users as an NPS

Even if the term RC is the most used term, not everyone refers to it or use it. A clear term understood by each type of users to define a New Psychoactive Substance has not been found so far.

b) Collective representations of NPS

Beside the chemical aspect related to NPS, other symbolic representations have been noticed when discussing the term NPS. First, according to users, the online market is strongly connected to the development of the use of NPS. This “new” online market is a key element in the development of the NPS phenomenon.

Connected to that aspect, also the commercial aspect including colorful and attracting packaging was named several times. The idea of a “new consumer market” was also approached, targeting new ,less informed consumers, and making drugs more accessible and normative.

Another frequent aspect cited was the more affordable price compared to classic illicit substances and the convenience and comfort to buy NPS thanks to the online market.

« Ce sont des drogues chimiques qu'on trouve sur internet. C'est plus abordable. Voilà premièrement. Donc c'est plus abordable et puis pour certaines de ces molécules, en fait cela crée des associations de drogues différentes en fait, comme si cela les métaisait. C'est tout. » (Male,33)

²⁵ Deprived group : in this group, the use of NPS is more ancillary to classic illicit substances, NPS are limited to specific products. This category is less informed on the products and their access to information limited. For most respondent of this group, the use of substances is problematic regardless the type of substances used. This underprivileged group attend frequently low-threshold care (ambulatory) or Needle and Syringe –exchange - Programme.

For the experienced users and the occasional users (cf. Chapter 2), NPS are also strongly connected to the notion of being more recreational drugs. Delusional, hallucinogenic are qualifiers frequently cited by the French-speaking respondents. Another notion linked to the effects, is also the idea that NPS have stronger effects than their classic counterparts or therefore used to multiplying the effects' possibilities.

Finally, another recurrent notion mentioned by respondents is the connection to the risk that comes with the use of these new substances. NPS is defined for example as "a new product that you take as if you were blind". Effects may vary from one order to the next, even if the substance is supposed to be the same. These examples highlighted the fact that the awareness of the users concerning the content of the NPS is limited.

« le packaging en fait c'est très aguicheur parce ce que cela a des couleurs flashy, cela n'a pas l'air méchant mais le contenu peut varier d'un paquet à un autre, alors c'est le même produit, enfin c'est le même packaging en fait quoi et c'est un danger parce qu'on peut très bien prendre, ingérer et consommer la substance, le produit en se disant « cela ne me fait rien » et puis on en prend un autre et puis on attend deux heures, trois heures, il n'y a rien qui se passe et puis jusqu'ici on prend un troisième et puis après tous les effets viennent en une fois et là on peut risquer l'overdose ou l'hospitalisation. Donc c'est quelque chose dont il faut vraiment faire attention. » (Male,41)

3.2.2. Information

The most widely used source of information among NPS users is the internet, except for the deprived group that mainly relies on friends.

Internet is cited as a correct tool and the only tool, therefore recurrently mentioning the lack of global information as an issue and a source of frustration. NPS users seek information about the NPS they use on online fora, notably peer reviews and sites such as Erowid, Psychoactive, Psychonaut and Tripsit are frequently mentioned.

However, friends remain the second important source of information for all users. Users tend to look towards the internet and friends as advisors about products or vendors but also as consultants on dosage, setting, effects, experiences or interaction with other substances. NPS users read, reviews and compare testimonies and opinions to enjoy fully the effects of NPS while minimizing the risks or at least knowing it.

But despite the usefulness of the internet, this available information tool is also questioned with regards to objectivity and reliability. Additionally, internet has its own limitation since not every user seems to have easy access to it. Moreover, in general, available information in French and Dutch are quite limited. Though some users are surrounded by genuine and experienced friends, others don't. Where can they find henceforth information?

« Ce que je trouve un peu tendancieux, c'est que parfois certaines informations sont mises par des vendeurs des RC eux-mêmes mais sous couvert de 'on est des usagers' dans le forum et dès fois il faut faire attention à l'information, c'est pour cela que moi j'avais tendance à recouper vraiment le plus possible » (Male, +-30)

The lack of information or training within the professional field is recurrently stated by respondents. Looking through other sources of information, professionals of the field is not often cited as a reference when looking for NPS information. And if they are, the available information is still quite limited or even insufficient.

Consequently, knowledgeable friends who used NPS as well, are named as reference persons when having specific questions on NPS use. According to the respondents, some of them have a better knowledge on the NPS phenomenon than the professionals of the drug demand reduction field.

« Non. Comme on disait précédemment, vu que c'est une drogue qui est relativement nouvelle, qu'on ne sait pas trop, moi j'en parle avec des consommateurs de longue date parce qu'ils connaissent le produit, qu'ils savent quand cela change, ce sont un peu des têtes et voilà. » (Female, +-30)

3.2.3. Source of acquisition

Regarding the source of acquisition of the NPS samples, the online market is clearly the main channel, internet and darknet combined. Secondly, a minority purchased NPS through a dealer, only 6 samples on a total of 37. If the NPS was bought via a dealer, personal and known dealer are preferred to street dealer.

About the laboratory results, no major differences have been observed concerning the composition or the presence of hazardous substances whether the NPS was bought through dealer or through the internet. However, few samples were bought through dealer (6 over a total of 37), this outcome must be interpreted as a cautious indication.

4. Conclusion

The purpose of this chapter was to provide a comparison of the analytical screenings of the samples provided by the respondents and the awareness of the users concerning the content of the samples. Our results show that a majority of NPS users seems to be quite aware of the substances they are using. No hazardous substances were found in the samples. However, a small proportion of negatives results were found as well as a second hidden substance in several samples. Consequently, the possibility of health risks are present.

Few opioids samples were deposit during the study. However, as one sample of heroin-analog was deposit, it's hence proved that synthetic opioids are used in Belgium. Concerning the synthetic cannabinoids, 3 samples were deposit by French-speaking users only.

The emphasize on the NPS terminology illustrates the complexity to find an adequate word easily understandable by everyone and encompassing thereby the diversity of all novel substances. This specific issue highlights the necessity of clear and accessible information on the topic. The recent results on the NPS-t study confirm the fact that the NPS term is nearly unknown (A Benschop et al., 2017).

As the second objective was to define how NPS users are informing themselves on the substances, the different sources of information used by NPS users were asked. Notably, almost exclusively the internet and the private network (e.g. friends, other users) were mentioned, underlining thereby the lack of available information. Even though information is found on the internet, the reliability of the

information found is still doubtful because even if the information may be correct the trustworthiness of the source can be questioned. Regarding that difficulty of finding a correct and objective information, experimented friends on new substances are a major indicator related to NPS knowledge.

Regarding the NPS online community, besides the sharing of information on substances, effects, dosages, and risks related to the use of NPS, the accumulated knowledge around NPS can be considered as a start to construct a sound and effective prevention and consequently reduce the potential harms (Barnard et al., 2017; Deluca et al., 2012; Soussan & Kjellgren, 2016). New practices of use have happened with the emergence of cryptomarket. Even if the person use drug alone, that person is in the same time integrated in a social online community created by the interned through fora who provide therefore anonymity (M. J. Barratt, 2016).

This knowledge has been collected through interactions with peers (e.g. fora) and therefore this online community is also compared and considered as a place of sociability that reinforce social bond (Martinez et al., 2018). Nevertheless, a variety of misperception can also be reinforced through this informal source of information (Deligianni et al., 2017). This aspect contribute to confirm the importance of involving health professionals on the NPS topic by supporting and adapting specific training and good-practices related to new substances.

REFERENCES

- Barnard, M., Russell, C., McKeganey, N., & Hamilton-Barclay, T. (2017). The highs and lows of NPS/"Legal High" use: Qualitative views from a UK online survey. *Drugs: Education, Prevention & Policy*, 24(1), 96-102.
- Barratt, M. J. (2016). Safer scoring? Cryptomarkets, social supply and drug market violence. *International Journal of Drug Policy*, 35.
- Benschop, A., Bujalski, M., Dabrowska, K., Demetrovics, Z., Egger, D., Felinczi, K., . . . Korf, D. (2017). New Psychoactive Substances: transnational project on different user groups, user characteristics, extent and patterns of use, market dynamics, and best practices in prevention (NPS-transnational Project; HOME/2014/JDRU/AG/DRUG/7077). *Final Report*. Amsterdam: Bofinger Institute of Criminology, University of Amsterdam.
- Chatwin. (2017). Assessing the 'added value' of European policy on new psychoactive substances. *Int J Drug Policy*, 40, 111-116.
- Corkery, Orsolini, L., Papanti, D., & Schifano, F. (2018). Novel psychoactive substances (NPS) and recent scenarios: Epidemiological, anthropological and clinical pharmacological issues. In.
- d'Angelo, L., Camilla, S., Savulich, G., & Sahakian, B. J. (2017). Lifestyle use of drugs by healthy people for enhancing cognition, creativity, motivation and pleasure. *British Journal of Pharmacology*, 174(19), 3257-3267.
- Deligianni, E., Corkery, J. M., Schifano, F., & Lione, L. A. (2017). An international survey on the awareness, use, preference, and health perception of novel psychoactive substances (NPS). *Hum Psychopharmacol*, 32(3).
- Deluca, P., Davey, Z., Corazza, O., Di Furia, L., Farre, M., Flesland, L. H., . . . Schifano, F. (2012). Identifying emerging trends in recreational drug use; outcomes from the Psychonaut Web Mapping Project. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 39(2), 221-226 %U <https://linkinghub.elsevier.com/retrieve/pii/S0278584612001844>.
- EMCDDA. (2016). *Health Responses to New Psychoactive Substances*. Retrieved from Luxembourg:
- Racz, J., Csak, R., Toth, K. T., Toth, E., Rozman, K., & Gyarmathy, V. A. (2016). Veni, vidi, vici: The appearance and dominance of new psychoactive substances among new participants at the largest needle exchange program in Hungary between 2006 and 2014. *Drug Alcohol Depend*, 158, 154-158.
- Soussan, C., & Kjellgren, A. (2014). Harm reduction and knowledge exchange—a qualitative analysis of drug-related Internet discussion forums. *Harm Reduction Journal*, 11(25), 9.
- Soussan, C., & Kjellgren, A. (2016). The users of Novel Psychoactive Substances: Online survey about their characteristics, attitudes and motivations. *Int J Drug Policy*, 32, 77-84.
- Sumnall, Evans-Brown, M., & McVeigh, J. (2011). Social, policy, and public health perspectives on new psychoactive substances. *Drug Test Anal*, 3(7-8), 515-523.

CHAPTER 4 - TAILORED PREVENTION AND CARE FOR NPS USERS: THE PROFESSIONAL'S PERSPECTIVE

Authors: Anton Van Dijck, Nicky Dirkx, Sarah Simonis, Tina Van Havere

1. Introduction

The limited epidemiological data suggest that the use of NPS is low in the Belgian general population (cf. supra). In addition, several authors call for caution when estimating the size of the NPS phenomenon (Chatwin et al. (2017); Reuter and Pardo (2017); Seddon (2014). Overall, they emphasize that the claims of novelty tend to inflate the size of the problem.

Recognizing the broader societal and cultural picture, current NPS use seems to be associated with specific settings and groups. For example, young people, nightlife, Men who have sex with men (MSM), people who inject drugs (PWID) or other vulnerable populations including prison inmates (Chatwin et al., 2017; EMCDDA, 2016b; Moyes, 2018). The issue brings challenges to various stakeholders such as communities, enforcement authorities, practitioners and researchers. Obviously and from a (health) point of view, the role of professionals is of major importance. This chapter is dedicated specifically to the perspective of the professional: the knowledge they own, the issues and questions they raise, the needs they have. It consists of WP3, addressing research question four: *'What are the needs of professional prevention workers, caregivers and counsellors to develop, implement or continue tailored prevention and care for NPS-users?'*

Examples of the consequences of NPS for HCP's include specific (clinical) approaches in emergency departments, psychiatric units or among general physicians (Owie, Gosney, Roney, & O'Brien, 2017; Pierluigi Simonato, 2015). The lack of specialized care and non-identification of some NPS users with existing specialist centres are recurring problems. In the UK for example this was the reason to set up the *Club Drug Clinic* (Owen Bowden-Jones, 2013; EMCDDA, 2016b; Pirona et al., 2017; Pierluigi Simonato, 2015). The lack of knowledge about new substances, including toxicologic profiles, effects, routes of administration and dosage, among HCP's is identified as a major obstacle, (Martins et al., 2017; Zaami, Busardò, Pichini, Pacifici, & Marinelli, 2019). Prevention and harm reduction initiatives struggle with unknown aspects as well: which NPS are used, what are relevant prevention messages, user profiles, adverse effects, etc.? (Blackman, Bradley, Fagg, & Hickmott, 2017; Groves, 2018). Finally, from a different but interwoven angle, professionals highlight the impact of NPS legislation on their work (Banbury, Lusher, & Guedelha, 2018).

2. Methodology: two-step mixed method design

For this part, we resorted to a mixed method. First, we used the *Nominal Group Technique (NGT)* to discuss and inventory needs of professionals working in the fields of prevention, harm reduction and care. Secondly, we distributed the resulting inventory to a broader group of HCP's in an anonymous online survey to rank all needs according to importance. Different target groups were recruited from centres of mental health, emergency staff, specialized (alcohol) drug actors, peer-based organisations, toxicological laboratories, etc. To introduce the NPS care project, we hosted a seminar on NPS Old Wine in New Bottles'. On one hand, the seminar formed an opportunity to get some insights into the current state of NPS use in Belgium and Europe from authorities on the subject. On the other hand, we hoped to recruit professionals in view of future phases of the study. Therefore, we included a 'join & engage' form in the hand-outs.

2.1. The Nominal Group Technique

The focus group is well known and widely used in qualitative research (Freitas, 1998; Morgan & Spanish, 1984; Ritchie, Lewis, Nicholls, & Ormston, 2013). Group interaction or dynamics is its defining characteristic (Freya Vander Laenen, 2010) but at the same time its Achilles' heel. In fact, the most cited weakness of focus groups precisely involves these group dynamics, e.g. unequal participation, conformism and 'group think' (Freitas, 1998; Smithson, 2000; Freya Vander Laenen, 2010). The **Nominal Group Technique (NGT)** admittedly acknowledges the benefits of group interaction but remedies the downsides by mimicking quantitative data collection methods (Aspinal, Hughes, Dunckley, & Addington-Hall, 2006).

On one side, the NGT limits the influence of the group by inserting individual phases that facilitate balanced participation (McMillan et al., 2014). In addition, the technique leaves from a written and anonymized basis. And on the other side, the strengths of a group method are preserved: adding depth to the information, allowing shared and contrasting meanings to emerge, stimulating new, bias-free ideas (Freya Vander Laenen, 2015). These arguments, complemented by the findings that the NGT is

- Limited to a single topic;
- Particularly useful in decision-making and stimulating consensus;
- Time and resource efficient;

advocated the application of the method in this context (Dunham, 1998; McMillan et al., 2014; Freya Vander Laenen, 2015).

The NGT process is led by a moderator (also named 'chairman' or 'facilitator') accompanied by an observer for practical assistance and taking notes, e.g. non-verbal signals and atmosphere (Freya Vander Laenen, 2015). In principle, the researchers of the NPS care study guided their respective Dutch- and French- speaking NGT's. At this stage, it is important to mention another advantage of the NGT: the *limiting of interplay of the researcher*. In an NGT, both genesis and importance of items are raised exclusively by the participants, not by the researcher (in contrast to a focus group for instance) (Aspinal et al., 2006).

2.1.1. Composition of the NGT's

a) *Sampling: characteristics and number of participants*

Selecting participants for an NGT is not randomly done but rather criterion-based or *purposive*.

Purposive samples aim to select cases that will yield rich data (Freya Vander Laenen, 2015) but at the same time, constitute the NGT's principal disadvantage: results cannot be generalized, since bias due to specific traits of participants cannot be excluded. Both a potential selection- (who is selected to participate) as a response bias (who agrees to participate) can be at play (Freya Vander Laenen, 2015).

In our case, i.e. working with professionals in the field of specialised prevention or, the level of expertise is crucial to the NGT's success and the validity of the data they generate (Harvey & Holmes, 2012, as cited in: Freya Vander Laenen (2015). In this study, the notion of 'expertise' equals 'professional expertise' which we defined as '*coming into (close) contact with NPS users*' or '*having expert knowledge of NPS use*'. Originally, target groups were described as prevention workers and caregivers (prevention and care field). However, we distinguished between prevention workers, harm reduction workers and caregivers for the sake of clarity²⁶. In summary, we applied two selection criteria: being *professionally active in specialized prevention, harm reduction or treatment* and having *professional expertise* when it comes to NPS use.

Upon literature-based advice and after consulting an expert, we agreed to aim for seven participants per NGT (McMillan, King, & Tully, 2016). Finally, and with help from our partners, we distributed an invitation briefly describing the goal of the NGT's and the inclusion criteria.

All participants supplied oral informed consent and were guaranteed confidentiality. Upon questioning all of them agreed with audio-recording the NGT's. The files were verbatim transcribed by the researchers only and eliminated after finishing the study.

b) The number of Nominal Groups

No clear guidelines exist on the number of nominal groups to reach theoretical saturation or the point at which no new information is added (Freya Vander Laenen, 2015). McMillan et al. (2014) determine that most studies involve between one and five groups.

Despite maximum recruiting efforts, the response was low and we were obliged to include everyone who wished to take part (and met the inclusion criteria). This accidental shortage ruled out researchers' bias in the selection of members. Eventually, we managed to organise three French NGT's and two in the Dutch NGT's²⁷ between June and September 2018. The total number of participants per region was comparable, with respectively 17 and 14 participants.

Based on our recruitment experiences, we could conclude that the lack of participants does not necessarily reflect a lack of interest. We hypothesize that the prerequisite 'to have professional expertise' is the reason for the modest turn-out. In other words: the number of Belgian HCP's having substantial knowledge of or experience with users of NPS, might be limited at present.

2.1.2. The NGT process

c) The traditional procedure

There is general agreement on the following phases when conducting an NGT: silent generation, round robin, clarification and ranking (Allen, Dyas, & Jones, 2004; Horton, 1980; Van De Ven & Delbecq, 1974; Freya Vander Laenen, 2009). All five NGT's were based on these four phases:

- Phase I - *Silent generation*: During phase one, the researcher states an open-ended question,

²⁶ Although harm reduction is not a formal pillar of Belgian drug policy, in reality it became an important practice.

²⁷ The first planned Flemish NGT in Brussels was cancelled due to 'force majeure' or a general strike in public transport.

without allowing discussion. Each participant spends several minutes in silence individually reflecting on possible ideas and writing them down on flash cards (one idea/card).

- Phase II - *Round robin*: During phase two, the ideas are collected by the moderator who shuffles the index cards and records all ideas on a flipchart. The fact that the collection of ideas can be done privately and confidentially, is unique to the NGT and significantly reduces group pressure. Next the items are shared 'round robin' fashion (one statement per person at a time) to limit the ownership of ideas. At this point, no criticism is allowed but explanation in response to questions is encouraged. At all times, new ideas may be written down and presented.
- Phase III - *Clarification*: The third phase is aimed at discussing each recorded (raw) idea for clarification in the group. Similar ideas or duplicates can be refined, grouped, included or rejected.
- Phase IV – *Ranking*: during phase four, each participant individually and anonymously votes for the best ideas (written). After counting all votes, the collective ranking of ideas is presented.

d) *The nominal question*

As mentioned above, the NGT is a single-purpose technique: its 'use is limited to a single topic' (Cantrill, Sibbald, & Buetow, 1996). The subject of an NGT is presented to the members in question form, called the 'starting' or 'nominal question'. A nominal question should be broad but as specific as possible and carefully phrased to avoid any ambiguity (Horton, 1980).

Initially, the study design specified to use the NGT *"to make an inventory of the most important needs of the prevention workers and caregivers and what their perspective is on the new law on NPS, which is being prepared now"* (BELSPO-DR/02/79, 2016). Indeed, seven months into the project, a new Belgian generic legislation on NPS was enacted. However, it seemed the right decision²⁸ *not* to include this aspect in the research but accept it as a given, an external factor.

In conclusion, every NGT departed from the following question: *"What are the most important needs of professionals to develop, implement or continue (tailored) prevention, harm reduction and care for NPS-users?"* This nominal question is literally (almost) identical to the research question for the simple reason that we felt it corresponded to the demands of being 'broad' and 'clear'. Additionally, the literal duplication prevented researcher's influence.

2.1.3. Analysis

In contrast to the relative consensus found in literature on how to set up and conduct the NGT, guidance on how to analyse the generated data is limited and somewhat ambiguous. It appears that analysing NGT data has been done in various ways, not only thematically (content) but quantitatively as well (Aspinal et al., 2006; Cantrill et al., 1996; Horton, 1980; McMillan et al., 2016; Totikidis, 2010; Freya Vander Laenen, 2009).

All in all, analysis of single NGT data is fairly straightforward but complexity increases when comparing multiple NGT's on the same question (McMillan et al., 2014; Van De Ven & Delbecq, 1974). How does one determine and compare the importance of ideas across multiple groups, formed by a dissimilar number of participants with -potentially- different profiles?

²⁸ Interviews with NPS users took place before and after the new law was enacted (September 2017). Therefore, the NPS care guidance committee decided to leave this legislative feature aside in the planning of the research.

The primary analysis applies to the separate NGT's and consists of a qualitative and a quantitative section. The former is a descriptive representation of each group process, with a focus on thematic content; the latter implies the summing of the scores/votes of all statements in each NGT and the ranking of these (consensual) statements or needs. Next, the secondary analysis transcends the individual NGT's to compare them and evaluate different statements across groups, i.e. for the entire sample of participants. Qualitative and quantitative steps are joint here.

2.2. The online survey

2.2.1. The survey as part of a mixed method design

Freya Vander Laenen (2015) stresses the potential of the NGT as part of a mixed-method research design. By complementing the NGT with a survey, we aspired to overcome the weaknesses of single method designs. Specifically, the inventory of needs harvested from the NGT's was subject of an online survey, distributed to a wider group of professionals to rank it. We aimed for 300 responses.

The resulting data will highlight the professionals' most desired needs in Belgium, when dealing with the use of NPS. This second step breaches the limitations posed by using purposive samples in NGT context (lack of data extrapolation).

2.2.2. Design of the NPS care survey

Now that we have an idea of the most urgent NPS targeted demands of experienced HCP's, we turn to the survey as a tool to determine priorities. In short, which needs are ranked as important by the broader (specialized) health care field? Target groups could include people working in prevention, care and harm reduction but also research, government/policy, education, etc. Respondents were expected to have some knowledge of or an interest in the use of NPS in their professional activity.

To achieve this, we built a short questionnaire using Qualtrics, an online survey application. Qualtrics has the advantage to present maximum functionality, including distribution and data analysis features. The resulting survey consisted of three parts:

- *Demographic variables*: gender, age, location of work;
- *Contextual/professional variables*: function, professional field (e.g. prevention, care, etc.);
- *Research question*: ranking of five items out of the inventory resulting from NGT's.

A desktop and mobile version of the survey was activated, to be completed via an anonymous link in an e-mail that explains background and goal of the questionnaire. Needs were presented in random order, to avoid bias. Respondents were asked to select the five most important issues in their view and rank these issues from 1 (most important) to 5 (fifth most important). Completing the questionnaire took between five and ten minutes.

2.2.3. Central content of the NPS care survey

a) *Determining the inventory of needs*

To find out which needs to present to the broader population of HCP's, we reviewed the results of the summing of votes in each NGT (i.e. the level of 'statements') as a baseline. Again, this meant the grouping of statements, slightly rephrasing them if necessary, looking for complementary information but also for deviating and/or solitary needs. The process was carried out by both researchers separately, before comparing results and discussing agreement as well as dissent. Together, we decided on a list of 21 needs that covers all NGT issues and respects the importance of themes resulting from the

comparative analysis. As far as the combining of statements goes, their content, meaning and phrasing, we asked for advice from our research partner (UGent).

b) Confirming the inventory

To evaluate our inventory of needs, we subjected it to peer review. For the actual review, we turned to a senior researcher, who specializes in drug use and is not involved in the execution of this project. We presented all background information and asked to check the existing inventory. This procedure aims at enhancing the reliability (sometimes called 'confirmability') of the researchers' work (T. Decorte & Zaitch, 2016; Ritchie et al., 2013; Van Breda, 2005). The peer reviewer reported her findings, adding debate to the content of the various themes (validity) to one of the researchers who in turn, fine-tuned the inventory.

c) Translation of the inventory

The next step involved the translation of the list of needs into both French and Dutch by both researchers. Once this was done, three individuals from the contracting partners reviewed the list (staff of a policy organisation and two researchers on drug use). This for both languages/versions. Their task was limited to judging the semantic and grammatical clarity of the list and minor suggestions were made on the use of specific terminology. Eventually, both researchers agreed on one inventory of statements. Versions in both languages can be found in annex 1.

2.2.4. The inventory of needs presented in the NPS care survey

The statements were presented at the heart of the NPS care survey in a two-pronged question. Firstly, respondents were asked to select the five most important needs out of a list of 21. Subsequently, their selected statements reappeared, accompanied by the question to rank them according to importance.

Table 4: Inventory of collectively shared needs of Belgian HCP's presented in the NPS care online survey

Inventory of health care professionals' needs presented in the NPS care survey	
1	Digital information database on all aspects of NPS; fast, user-friendly, continuously updated and accessible to everyone.
2	Structural (as opposed to project-based) European support of professional online projects (e.g. 'Mind your Trip'-project (B), etc.).
3	Scientific research into NPS use, on products [Drug], users [Set] and environment (social, cultural, physical,...) [Setting].
4	Professional medium for medical/pharmacologic/neurologic information on NPS, intended for use in selective prevention (specific messages and/or to specific groups) and clinical care (e.g. observation & treatment).
5	Exchanging knowledge, expertise and good/bad practices among professionals (regarding NPS use).
6	Offer continuous formation and/or training (a.o. sensibilise, information, online markets, psychoeducation) to specialized (e.g. residential services, MSOC/MASS) and non-specialized (e.g. GP's, hospitals, etc) caregivers.
7	Clear legal framework in view of eliminating the 'grey zone' surrounding the use of harm reduction tools (e.g. distribution of snorting kits)
8	Developing guidance, tools and approaches from harm reduction nature with respect to NPS (use).
9	Stimulate the development and funding of harm reduction-policy initiatives focused on NPS (use).
10	A policy of prevention and harm reduction in prisons (NPS and illicit drugs).
11	Implementation or development of anonymous, accessible drug checking services that generate rapid analysis (a.o. in ambulatory centres, around 'hot-spots' for NPS use, etc), including an accompanying legal framework.
12	Improve the accessibility & distribution speed of the Early Warning System (EWS) alerts.
13	Translate the NPS issue in layman's terms to the general public, the professionals and to users (incl. developing tools to this end).
14	Launch honest social debate in view of normalising social discourse about drugs (eliminating taboos, stereotypes and misinformation).
15	Making available NPS-targeted sound/objective info sources and psychoeducation for users, also via new channels (internet, apps, etc.).
16	Dialogue & interaction between professionals and users to detect and address users' needs and deploy their expertise in general.
17	Tailored approaches to reach specific NPS-using (sub)populations with particular needs (e.g. chemsex scène).
18	Reinforce peer-support, user participation and experience in NPS-related projects, research and policy.
19	Decriminalisation of use and possession of all drugs.
20	Regulation of all drugs.
21	Increase job (career) stability in the specialized (drug & alcohol) field.

2.2.5. The collection of survey responses

a) Time period of data collection

Data were collected during a four-week period between January and February of 2019 in both parts of the country. We sent the NPS care online survey to our subcontracting partners, who distributed it to their contacts, respecting privacy legislation (GDPR). Accordingly, we asked for no identifiable information and used an anonymous link. Two weeks into the active survey, we sent a reminder mail.

b) Number of respondents

Ultimately, we received a total number of 337 responses, with respectively 175 answers in the Dutch-speaking and 162 in the French-speaking part of the country. For unclear reasons, 37 Flemish answers returned blank or only partially completed. After deduction of these invalid returns, we gathered 298 responses. However, in both Communities, 13 respondents selected five items but failed to rank them. We decided to exclude these answers altogether, leaving us with 272 completed surveys for analysis.

3. Results NGT's

3.1. General information: location, timing and sampling

3.1.1. Dutch speaking NGT's (NGT1 and 2)

- *Location and date:* University of Applied Sciences and Art of Ghent (HoGent) in September 2018.
- *Duration:* 89 minutes and 77 minutes.
- *Participants:* both Flemish NGT's consisted of seven professionals, 13 men and one woman in total. NGT1 attracted professionals working in specialized medical and residential care settings and in prevention and harm reduction, including a helpline service, a specialized housing project and a peer project in nightlife. NGT2 grouped participants from specialized (medical) and residential care, including a detention setting. Others were active in research on drug use and in prevention and harm reduction, both in festive and low-threshold settings (NSP).

3.1.2. French speaking NGT's (NGT 3, 4 and 5)

- *Location and date:* Sciensano, Brussels (NGT3 and 5) and Liege (NGT4) in June 2018.
- *Duration:* varying between 75 and 80 minutes.
- *Participants:* both Brussels NGT's counted five members; seven participants showed up in Liege. From the total of 17 participants, ten were female. Participants represented outpatient drug treatment services, harm reduction projects and outreach work. Personnel of clinical and residential organisations was included as well as researchers. Prevention and harm reduction fields nominated social workers and specialised professionals in drugs and sexual health.

3.2. Primary analysis: description of the NGT process

Departure point for the primary analysis were the transcripts of each of the nominal group sessions, examined by both researchers independently. As such, we got acquainted with the group debates and their broad thematic content, a process sometimes called 'immersion in the data' (Bradley, Curry, & Devers, 2007). This also added background to each clarified statement and the debate leading up to them. Finally and concurring with Aspinal et al. (2006), this procedure can be used as a facilitator in a later stage, when comparing the statements of multiple groups.

What follows is a description of the debate in each NGT, leading up to the list of clarified ideas. Both researchers separately reviewed the clarified statements, in recognition of their itinerary from individual, raw ideas. In doing so, we tried to see some thematic abstraction. Themes are recurrent unifying concepts or statements about a subject (Bradley et al., 2007). Although the popularity of statements is our first interest, we also looked for specific, unique issues in each NGT.

3.2.1. From individual ideas to group consensus - NGT 1

a) *Individual (raw) ideas*

The term 'information' is explicitly mentioned in around ten raw ideas out of a total of 30. Adding three ideas about scientific research - necessary to obtain correct information - this means that half of the items refers (quasi-)directly to information. Just minutes into the debate, a participant remarks:

"I think that 'information' is the most frequently mentioned word as central aspect of an idea or phrase, predominantly product information."

During the next (clarifying) phase, the group decided to reduce 30 raw ideas to 16 clarified ones.

b) *Clarifying phase: consensual (group) ideas*

Main themes

The *lack of (different kinds of) information* turns out to be the primary issue. A collectively shared need for knowledge and research on NPS (use) is without question. The creation of an electronic database is considered useful by everyone, but discussion arose about its content. Overall, we registered user-directed and professional-directed information.

Medical and pharmacological information is essential to caregivers (medical professionals) in clinical treatment settings. However, information about (long-term) health risks of NPS is asked for by most participants.

The topic of drug checking *services* was underlined several times and seen as an important intervention by all participants. Checking initiatives should be accessible, i.e. on multiple locations, anonymous and yield results in a short window of time. Professionals see this as an opportunity to get acquainted with the user, to raise awareness about possible hazards and/or as an instrument to generate knowledge about NPS pharmacology. At this point, someone communicated a shared thought:

"I think the issue is since years supported by users and professionals alike but remains politically 'off-limits'."

People active in prevention and care stressed the potential of *psychoeducation*. They value this approach, provided it is tailored to all kind of user groups (experimenting users, party users, heavy users, etc.). Several participants recognise obstacles in the 'void' between prevention and care or so-called 'early intervention'. Reaching potential (problematic) users is still a challenge, given HCP's experience that users go to great lengths to postpone care:

"People only start to seek help when the negative effects of their use become overwhelming. It is hard to get through to people when it [drug use] is all still too much fun"

Attention to *involving NPS users* figures three times in the list of clarified ideas. One idea specifically focuses on the development of correct information (and psychoeducation) tools directed at NPS users. Another recognises the importance of professional knowledge of online markets, in order to connect with users. Finally, an explicit reference is made to (a forum for) dialogue between HCP's and users of NPS.

Subthemes

Training and *formation of professionals* on different aspects of NPS use was also perceived as a common need. Product information is a start but also knowledge of associated technology for example, was said to be useful. The topic of 'dialogue', e.g. consultation fora was a recurring one. With specific attention to 'sharing' or in other words: HCP's seek knowledge/experience including the exchange thereof.

Legal or policy matters are closely tied to the *normalisation of NPS (and classic drugs)* in public discourse and society in general. According to the participants of this NGT a shift is needed in the public view on drug or NPS use, potentially based on honest and evidence-based communication and information. Such information could end up countering stereotyping and stigmatization of drug use. One specific legislation issue causes animosity in the group. The term used was '*the [legal] grey zone*', illustrated by the distribution of snorting kits for instance or ascorbic acid for injecting purposes. Several HCP's express a growing fear that such harm reducing tools could be lawfully viewed as 'inciting drug use' and miss a clear, protecting legal framework.

Singularities

The topic of terminology and definition of NPS ('clear-cut delimited definition of NPS') appeared only in this NGT. One participant saw the need for a screening tool to rapidly detect NPS in someone's body, e.g. during intake.

3.2.2. From individual ideas to group consensus - NGT 2

a) 3.2.2.1. Individual (raw) ideas

28 raw ideas or needs were reported. 'Information' or the lack thereof, is most prevalent; subject of around ten raw ideas. If we add to this the ideas pointing to specific information, such as functions of NPS use, settings etc, we end up with 50% of raw ideas pointing to a need for information. This is congruent with the first NGT although accents differ:

- Drug checking is the second most prevalent theme, phrased in four ideas;
- The role of the users of NPS is a priority, varying from reaching over consulting to involving them;
- Policy and/or legal issues encompassing NPS and other drugs, prevail in three ideas.

b) Clarifying phase: consensual (group) ideas

Main themes

Again, the *need for information, whether called knowledge, research or data*, meanders throughout the entire group debate. In its most instrumental form, several references are made to a *database* such as the Tripsit website²⁹. The question arises: do we need something else besides this (English) site? The answer according to the participant of NGT2: although this is a prime example of sound information dissemination, amendments are possible. Suggestions: translation into Dutch and French, guaranteeing continuity of this (voluntary) initiative, cutting possible legal obstacles.

In the end the idea of a 'layered online database of clustered information' is agreed upon: from practical information about market ('what is sold in which quantities/packaging at what price?') to clinical treatment options ('use this medication in clinical settings in case of anxiety attacks after consuming α -PVP'). In this example, the former aspect would be open to anyone, while the latter would be only accessible to clinical professionals. Another clarified idea refers to information gathering as well but is granted a separate reference by the group, since it is perceived as a service (e.g. electronic newsletter); actively sent to professionals without having to look or ask for it.

"(...) because it is introduced as an active service (...) As such it can serve as an 'attention activator' and keep professionals vigilant. To ask for NPS use during intake for instance. Nowadays this is too often overlooked. Receiving relevant information from time to time will make you increasingly think..."

The *implementation of drug checking possibilities* often popped up in this group, both as a harm reduction measure and as a knowledge base (pharmacovigilance), i.e. generating data on actual substances used. Such services were defined in terms of both NPS and classic drugs, (anonymously) accessible to anyone and producing quick results. All professionals at the table were requesting party. Policy issues appeared at the forefront in this group and were viewed as an overarching theme. The absence of regulation of classic drugs is seen by one participant as part of the reason NPS exist:

"Regulating all drugs to me remains unquestionable at the top of the agenda, if we want to deal with NPS. The fact that regulation was never applied, is partly the reason NPS exist in the first place"

²⁹ <https://tripsit.me/>

Next to regulation, *decriminalisation of drug use* is cited as a separate item. It is considered a first, achievable step in a prohibition context. A harm reduction fieldworker puts it this way:

“Well, until now, this is still the era of prohibition. During the past seven, eight years I noticed a reverse evolution, compared to a decade ago: the criminalisation of use. There is a lot more emphasis on repression at festivals. A first step could be to turn this around... Now we are faced with a peculiar situation: when people just passed the entrance after being stopped by police with dogs and being forced to a strip search, they walk into an info stand about party drugs? That is pure British humour, but it shows the tragic absurdity of the context we work in.”

Finally, the *need for financial means* is underlined. Project-based work needs to make way for guaranteed continuity. Examples of temporary projects that deserve structural support: ‘Mind your trip’³⁰, project Neptune and the Tripsit-website^{31 32}. Europe is seen as the main funding source, given its history of cooperation in the drug field (c.f. EMCDDA) and the international character of the NPS market.

Subthemes

Analogue to the first group, the *harm reduction approach* is indispensable. Besides the topic of drug checking, questions of legal nature arose in relation to specific techniques. Someone illustrates the practical aspects of harm reduction tools as follows:

“I am extremely eager to learn in what ways these guys [referring to the NPS users] test their dope... The problem is that our harm reduction tools are no longer adapted to this new, rapidly changing reality. Take quantity and dosage for example? We are used to recommend ‘take the smallest possible dose to start with’. But how much is that? We need the audacity to say: ‘instead of the smallest dose, take 1,5 milligrams. And how do you do that? By dissolving one gram in a litre of water and extract 1,5 ml of liquid (...).’ It seems to me that we need a whole new battery of tools which requires a truckload of knowledge”

While another participant looks at it from a general (policy) perspective:

“The best-case scenario would be a situation such as in Portugal, I think. As this is not the case, harm reduction should be gaining strength. Apart from more acceptance and recognition, it needs implementing as well...”

Aspects of collaboration and *sharing of experience among professionals* make up for another surfacing theme. The desire of unveiling and sharing existing practices is expressed in the need of exchanging them between (professionals working in) different services. Besides, the experience of NPS users and the information they possess, is recognised as a valuable knowledge base by all. Even to the extent that the group admittedly agrees that:

“We have to accept that the tables have turned and that users have generally far more knowledge about NPS, their composition, effects, usage, dosage, price, etc. than we do.”

Still, some participants remark that they still meet users having barely any or false ideas about NPS, which explains the desire to promote sound information to users.

³⁰ ‘Mind Your Trip’ is an online platform for information/intervention about/for NPS in Europe (www.mindyourtrip.eu)

³¹ Project NEPTUNE revolves around clinical guidance on harms from NPS use. See <http://neptune-clinical-guidance.co.uk/>

³² The Tripsit website is a treasure of information for NPS users. The site is hosted in the UK, ran by volunteers and concentrates on ‘harm reduction through education’ (<https://tripsit.me/>)

Singularities

An original statement boils down to the creation of *online links to harm reduction messages and/or treatment possibilities* on Dark- or surface websites (vendors), user fora or peer-to-peer applications. This to lower the threshold for users seeking help/advice and to raise awareness about health risks.

3.2.3. From individual ideas to group consensus - NGT 3

a) *Individual (raw) ideas*

Participants presented 28 raw ideas reduced to 15 clarified ones after discussion. Multiple raw ideas referred to four principal themes:

- *Harm reduction* as a concept and as a practice;
- *Monitoring*, related to projects and research;
- *Formation* and training;
- *User-specific attention*, including subcultural factors;

b) *Clarifying phase: consensual (group) ideas*

Main themes

The primary topic discussed on several occasions had to do with the importance and underrating of *harm reduction as an effective approach*, even more so in the case of NPS. Participants anonymously demand the structural integration (and funding) of harm reduction as a pillar of NPS and drug policy in general. On the terrain, the group feels drug checking is key; especially for NPS given their novelty and often unknown composition. Closely related: building scientific knowledge, e.g. by monitoring data collected in drug checking services and clinical settings, notably in emergency units.

Subsequently, *awareness and training* of HCP's is defined as a potential consequence. The underlying reasoning can be summarized as follows. Firstly, improving knowledge about NPS among professionals, i.e. substances, including composition, potency, effects, etc. is considered a necessary point of departure. Shortcomings in expertise of many HCP's, are felt to be paramount. Secondly, when this condition is met, opportunities arise or increase to present sustainable and continuous NPS oriented training for HCP's. Insights into the diversity of the issue can help to spread practical and targeted information to different HCP's. Finally, based on the acquired knowledge, professionals will develop the ability to create tools for managing NPS (use), as well as useful expertise to answer to the aspirations of NPS users (be it from prevention, harm reduction or treatment perspective).

Next to formation, the *exchange of existing experience* deserves priority. On the organizational level, networking between different services requires more efforts. Someone expresses concerns about the need to raise awareness of NPS, especially among medical staff:

"Some patients will never even consider seeking contact with an addiction service. They are convinced that they do not have a drug problem because they only use episodically. But the thing is that, in the case of NPS, even single (one-time) use can provoke serious mental health problems. Even if they [users] should enter (specialised) care but do not find help for their often very specific problems, they will conclude that 'If I can't even get help in an addiction centre, I'm done, I am out of options and there are no more possibilities left'".

Subthemes

During this NGT, substantial debate was devoted to the *Early Warning System (EWS)*, currently managed by Sciensano. Importance of the EWS is without question but the group sees *room for*

improvement. One is the fine-tuning of responsiveness or the speed of issuing new developments and health alerts. Another is the scope of the alerts or alternatively, their penetration: not all potential beneficiaries are reached. Also, as a suggestion, the inclusion of all laboratories (on toxicology) and data from all emergency units might solidify the EWS information base. One individual reflects on the target audience of the EWS:

“To be clear, the most urgent matter has to do with the fact that the warnings, besides their slow release due to (legal) procedures etc., are focused exclusively on professionals. In practice, we get calls from users who had a very bad trip and when they are at their computer at the moment of calling, I direct them to the early warnings from Eurotox. Only at that specific moment, they discover the existence of both the EWS and Eurotox (...). How could we develop protocols for diffusion on a much larger scale, including to the public? Besides, how could we make the warnings reach often very different user groups of NPS? (...) They could obviously benefit from the warnings and apply them instantly... So, how can we distribute this obviously precious information to the professionals but especially to the users, on a larger scale?”

Related to this thought is the message of the group to keep sight of the heterogeneity of NPS users (groups) and NPS use and to act accordingly (i.e. tailored to for instance: youngsters, chemsex scene, nightlife users, psychonauts, etc.).

Singularities

Characterizing this NGT – and all French-speaking nominal groups for that matter - was the topic of *NPS use in detention settings*. According to the participants, the need for reliable information about NPS is especially relevant in the context of the prison system; for the staff as well as for the inmates. Arguably, there is an urgent need to conduct research on drug and NPS use in prisons and in general, to invest in health promotion ‘inside’, including prevention and harm reduction.

3.2.4. From individual ideas to group consensus - NGT 4

a) *Individual (raw) ideas*

After the individual phase and round robin, 29 raw ideas were collected. Participants collectively focused their attention on the users of NPS. After group debate, 20 clarified items were withheld.

b) *Clarifying phase: consensual (group) ideas*

Main themes

During this nominal group, the *needs and perspectives of the (NPS) users themselves* were granted priority. All participants agreed on the prerequisite to include users in different aspects of the drug demand reduction field. Especially regarding NPS, the user’s viewpoint is seen as an added value. Examples are: a view into the context of use, way of using and current social and medical shortcomings. Just as important is the encouragement of peer-support and *user’s participation* in general (i.e. in research, projects or policy). NPS use and rituals are scarcely documented in scientific literature, turning users into the main knowledge base.

Complicating the issue is the assumption that especially NPS are used by a variety of user profiles, groups and/or subcultures. However, in practice, several participants hardly see any exclusive NPS users:

“Do NPS users actually have specific questions? And if so, what are they? In the end, the relative novelty of NPS to the professional has not given rise yet to an inventory of user’s needs towards us. I’m not really sure whether they have any, to be honest. A listing of needs of NPS users is elementary and should they

turn out to be hidden? Then it is our task to go and look for them. Clearly, until now we do not see NPS users in our services. So maybe we should adopt a proactive attitude on parties etc."

The group suggests addressing NPS at intake: *'What you do not ask, will not be answered'*. The lack of NPS specific experience among many professionals not only complicates the development of NPS targeted tools but the fine-tuning of existing strategies as well. The ensuing need to present and develop *training modules and formation* to different HCP's is described as a matter of urgency. Both for specialized and general fields of prevention, harm reduction and treatment.

A third theme that provokes consensus on several occasions, is the importance of implementing and/or expanding *drug checking as a tool*. This could work both ways: data based on user-provided samples contribute to the expansion of professional knowledge about products while reversely drug checking points may please specific (hidden) subpopulations of users (e.g. the chemsex group).

"Even the professional lacks knowledge, including the opportunity to direct the user to the right information. The resulting credibility is by no means comparable to the one we possess concerning the classic illicit substances. As few professionals talk about the NPS-phenomenon, it becomes easy for the user to experience a false sense of safety: 'I never had any problem'. It is hard to deliver effective information messages without credibility/expertise and/or some kind of accepted tool, such as an institutionalized information campaign"

Subthemes

The group diverted substantial attention to the *stigmatization of drug and NPS use*. Drug use and especially NPS use remains a sensitive topic for everyone involved. The appearance of NPS gave way to users who often do not define themselves as drug users, let alone establish contact with classic drug services. Professional organizations also experience labelling:

"The mere mentioning of drug use remains a persistent taboo in the context of general health services. There is obviously the illegal aspect but that is not the only issue. From a public or political point of view in general, it can complicate government funding. And even among HCP's, misunderstandings exist. Harm reduction still equals 'normalizing' or even 'inciting' drug use according to some colleagues. Certain specialized doctors do not consider NPS users as a potential patient population. Although we know that hepatitis C wreaks havoc in the chemsex scène, they fail to recognise that part of this scene may well be sitting in their waiting room".

Singularities

Shifting the focus to their own functions, a recurring frustration was uttered: the *lack of continuity that characterises jobs* in the specialized drug field. The prevailing situation of project-based working, limited contracts in time, etc. is felt as detrimental to develop projects and building confidence with clients. This tends to jeopardise HCP's careers and pushes dedicated individuals to leave the field altogether.

In this group, we saw a lower level of consensus. During the voting phase, participants informed the moderator that they found it difficult to rank the needs. Eventually, the group collectively decided that *'priority should be assigned to statements of a broad nature'*, followed by more tangible items.

3.2.5. From individual ideas to group consensus - NGT 5

a) *Individual (raw) ideas*

25 raw ideas surfaced after the individual phase. Specific mentioning of policy issues, sexualised drug use, interdisciplinarity and user involvement coloured initial thoughts. Six raw ideas were abandoned.

b) Clarifying phase: consensual (group) ideas

Main themes

This nominal group expressed a predominantly broad, social perspective on the question, illustrated by ideas of legal or policy nature. Regulation in different forms is one of them, next to the stigma associated with illicit substances, technological aspects of the NPS market, etc.

However, just as in the other meetings the underlying current was the overall *lack of knowledge* about the use of new drugs. The group expressed the desire for the creation of a database on NPS in French: class, nature, toxicity, form, dosage, health risks, etc.. Another example given by the group boils down to research into the digital technology focusing on the online drug markets and into possibilities for the development of matching professional tools (digital prevention, online interventions, etc). Whatever the output though, the input of the NPS user is needed.

Returning to the social dimension of the debate, the *decriminalisation of NPS use and possession* is considered vital. Abandoning prohibition could slow down the invention of ever more complex substances, potentially more harmful than previous ones. Furthermore, excluding penal law for drug / NPS use could pave the way for an open social climate and dialogue between users and HCP's:

"Removing possession from penal law helps to avoid the excesses of developing and overdeveloping new molecules for the sole purpose of circumventing interdictions. Starting when users can function in a legal context surrounding drugs and escape delinquency, they will be faced with a variety of choices and possibly do not have to resort to RC (research chemicals). This aspect, i.e. the legal status of some NPS, contributes substantially to their use. In fact, this is exactly the reason why they [NPS] were developed in the first place".

Pointing to the supply side of the market, some ideas for controlled distribution of new and classic illicit drugs were shared. For now, *harm reduction* is considered to have a potentially beneficial role, e.g. *drug checking* possibilities. In this case too, legislative and practical conditions are discussed (anonymity, geographic distribution, etc). Without knowing which drugs are used and their possible harms, it is unclear which information is relevant to users and which initiatives deserve implementation.

"Harm reduction targeting NPS (use) is surrounded by questions. After all, one can only develop harm reducing activities towards known products. When you have no clear idea about what you are using, it becomes hard to resort to protective measures. I am convinced of the importance of designing tools for conveying individually tailored information. And the method of (NPS) testing can be the first stone, i.e. a way to know which drugs someone buys. At the same time it can be an instrument to establish contact with user groups/cultures".

Subthemes

The group collectively believes in the advantage of peer involvement. Increasing knowledge on NPS, starts by *recognising the expertise of NPS users and stimulating their participation*. One group member ties this idea to an important deficit of HCP's: inadequate skills in using technology and the internet:

"I think that we need to re-invent or reconsider our methods. Because we are confronted to fundamentally changed using rituals, related to the internet as a product source or to virtual reality in general. If we continue unprepared and adapt already existing techniques, we will inevitably overlook things. I also believe that by listening to the people involved, we can achieve the conception of such custom tools (...). We should rewrite our harm reduction inventory; you only see what is visible".

Along the same lines, considerable debate covered the *formation of all HCP's* working in a specialized or non-specialized service. Knowledge is felt to be a prerequisite for professionals to create 'setting-spe-

cific' practices oriented towards the use of NPS. Additionally, the exchange of good practices between professional organisations could significantly enhance daily practice of medical and social staff.

"When offering formation, it becomes clear that even information about classic illicit substances is not necessarily acquired knowledge, not even in some specialized or psychiatric hospitals. I suppose that if you would start with NPS-related content, just about everybody would open their eyes because they are clueless on the matter, let alone ready to answer to a corresponding demand. Obviously, from the moment people do not pay attention to a phenomenon, they miss it altogether".

Singularities

Finally, specific debate went to the use of NPS belonging to the synthetic opioids and the potential to limit fatal overdoses by distributing *naloxone*, an antagonist to opiates. Several people find it imperative that users have their own naloxone, given the offer of potent new opioids.

3.3. Quantitative analysis of the NGT's

3.3.1. The ranking phase: summing of votes

There are several ways to conduct the ranking phase of an NGT. We turned to the one most frequently cited in literature, called the 'summing of votes' (Denning, Jones, and Sampson (2013); Dunham (1998); Horton (1980); MacPhail (2001); Totikidis (2010). McMillan et al. (2014) describe this procedure as *'the most common way to analyse and describe nominal group data'*.

In short, we asked each participant to select and write down (or to 'vote for') the five most important statements in his/her view and rank them by awarding scores. After collecting individual participants' scoring of clarified needs, both the moderator and observer in each NGT added up the scores. The overall ranking was written down on a separate sheet of paper, illustrating group consensus and presented as the collective top five of needs. Afterwards, both researchers elaborated on each nominal group, adding to the top five statements the other ones that received votes in each group. The result is a (ranked) top ten of ideas for each NGT, calculated by each researcher independently for their respective community.

However, to rate the popularity of needs in each NGT, it is useful to record the number of votes they received. We also figured out the relative importance of each item and mean priority score (McMillan et al., 2014; Wortley, Tong, & Howard, 2016). This adds information about the relation between needs in a group and could serve as decisive indicator(s) to rank equally scored items. The *relative importance* puts a statement in perspective to the others, in percentage terms (Σ of %=100). The *mean priority score* of a need depicts its proportion of the maximum score: the closer it gravitates to one, the higher the *average score* of the statement (note: mean priority score multiplied by five, equals average score).

3.3.2. Ranking of needs in all NGT's after the summing of votes

The following table is an overview of the ranked priorities based on the integration of all the individual scores or votes. The statements are presented in descending order of importance, accompanied by their scores from each participant, the sum of these scores and the frequency of votes. When two items ended up with an equal score, the frequency of votes determined the ranking between them. Summed scores are highlighted.

Table 1: Ranked needs in order of importance after summing of votes - NGT1 to NGT5

NGT 1 (Flanders)													
Need (ranked)	Scores from each participant							Sum of scores	Importance (rel %)*	Freq. of votes	Mean priority score #	Ranking (sum+frequency)	
	1	2	3	4	5	6	7						
<i>c) Information database on NPS; correct info, fast and user-friendly</i>	4	4	4		5	4	2	23	21.9	6	0,66	#1	
Scientific research on NPS use (a.o. long term effects, risks, etc.)		5	3	5	1	5	3	22	21.0	6	0,63	#2	
Medium to exchange clinical information & practice on NPS	3		5	2	4	1		15	14.3	5	0,43	#3	
Creation of harm reduction action plans ('how-to?') for NPS use	5						5	10	9.5	2	0,29	#4	
Development of psycho-education for NPS-users & intermediates			2	3	3			8	7.6	3	0,23	#5	
Launch honest, fact-based public debate on drugs				4		2	1	7	6.6	3			
Anonymous and easy-to reach drug checking sites for (all) substances	1	2	1		2			6	5.7	4			
Clear legal framework on the use of HR tools (e.g. snorting kits)	2	1		1				4	3.8	3			
Provision of screening tools (on NPS use) in residential settings							4	4	3.8	1			
Providing neutral, objective information to NPS users		3						3	2.9	1			
Low threshold dialogue forum for NPS users & HCP's						3		3	2.9	1			
NGT 2 (Flanders)													
Need (ranked)	Scores from each participant							Sum of scores	Importance (rel. %)	Freq. of votes	Mean priority score #	Ranking (sum + frequency)	
	1	2	3	4	5	6	7						
Implementing drug checking (with quick results)	3	5	4	2	5	5	3	27	25,7	7	0,77	#1	
Dialogue between NPS users and pros (user as partner/expert)	4	3	2		4	2		15	14,2	5	0,43	#2	
Layered online information database on all aspects NPS		4		5			5	14	13,3	3	0,40	#3	
Create info & tips (toolbox) from harm reduction nature on NPS		2		3	2	3	1	11	10,5	5	0,31	#4	
Decriminalising drug (NPS) use	2		5			4		11	10,5	3	0,31	#5	
Platform of information (medical, pharmacology, toxicology, etc.) and practices about NPS for clinical professionals/settings	5			4				9	8,6	2			
EU structural support for online projects focused on NPS use					3		4	7	6,7	2			
Regulation of all drugs		1			1		2	4	3,8	3			
Exchange knowledge/expertise about NPS between pros/services			3					3	2,9	1			
Promoting sound/correct information (sources) to NPS users			1			1		2	1,6	2			
NGT 3 (French community)													
Need (ranked)	Scores from each participant					Sum of scores	Importance (rel %)*	Freq. of votes	Mean priority score #	Ranking (sum+frequency)			
	1	2	3	4	5								
Promotion & funding of a harm reduction policy on NPS	4	3		4	4	15	20	4	0,60	#1			
Expansion of the EWS (info hub, target population, speed)	5	2		2	3	12	16	4	0,48	#2			
Increase drug/NPS checking (# sites) + proactive (mobile)	3	5	3			11	14,7	3	0,44	#3			
Formation on NPS for general and specialized HCP's (tailored)	1	4		3	1	9	12	4	0,36	#4			
Alternatives to prohibition				5	2	7	9,3	2	0,28	#5			
Epidem. research (+adapt current) & monitoring NPS			1	5		6	8	2					
Realise a prevention & HR approach for NPS/drugs in prison settings			4	1		5	6,6	2					
Specific funding of NPS-related research and projects					5	5	6,6	1					
Psychopharma info + training NPS (incl. harms) for specialized	2		1			3	4	2					

profs in view of specific prevention & care to specific (user) groups													
Creating tools for reaching NPS using (sub) populations (e.g. chemsex)			2					2	2,6	1			
NGT 4 (French community)													
Need (ranked) ³³	Scores from each participant							Sum of scores	Importance (rel.)*	Freq. of votes	Mean priority score #	Ranking (sum+frequency)	
	1	2	3	4	5	6	7						
More acknowledgment & resources for HR in drug (+NPS) policy	5	5	5		1		2	18	17,1	5	0,51	#1	
Info, sensibilization & training on NPS for the specialized field	4	2	4	5		1		16	15,2	5	0,46	#2	
Meet and interact with users in their own environment	2	4				3	5	14	13,3	4	0,40	#3	
Identify the users' needs towards professionals				2	5	2	4	13	12,4	4	0,37	#4	
Improve knowledge NPS use (name, diversity, potency, etc.)				4	3			7	6,7	2	0,20	#5	
Develop drug checking: more sites + ambulatory (mobile)	3					4		7	6,7	2	0,20	#5	
Ensure job stability in the (specialized) professional field		3			4			7	6,7	2	0,20	#5	
Epidem. research, incl tools (e.g. census) to estimate NPS use						5		5	4,8	1			
Basic training NPS for all professionals having link with drug use			1		2			3	2,9	2			
Identify users' modalities of acquisition (source of NPS)	1	1						2	1,9	2			
NGT 5 (French community)													
Need (ranked)	Scores from each participant					Sum of scores	Importance (rel.)*	Freq. of votes	Mean priority score #	Ranking (sum+frequency)			
	1	2	3	4	5								
Decriminalization of use and possession of illegal drugs, including NPS			5	5	5	15	20	3	0,60	#1			
Realisation of user(peer) participation in policy, projects, research NPS	5			4	3	12	16	3	0,48	#2			
Develop & diversify drug checking, fixed & mobile (club, festival, etc.)	1	5	3			9	12	3	0,36	#3			
Vulgarization (tools) of the NPS issue (to public & professionals)		4	2		2	8	10,7	3	0,32	#4			
Controlled distribution of substances (e.g. by state, medical system..)			4		4	8	10,7	2	0,32	#5			
Development of a legal framework surrounding drug checking	4	3				7	9,3	2					
Offer clinical information NPS (products & effects) to the (general) medical profession (GP's, hospitals, emergency staff, etc)	2	2		1		5	6,7	3					
Exchange of practices between professional services (and countries)		3				3	4	1					
Recurring training (specialized) on technological aspects of NPS				3		3	4	1					
Dissemination of (product) info to users, incl. via new channels (app)		1			1	2	2,7	2					

* Relative importance= [(Summed score for idea/maximum theoretical score by group, i.e. # participants x 15 points) X 100].

** Mean priority score= (Summed score of item/maximum summed score, i.e. # participants x 5 points).

3.3.3. Similarities in main needs

Our main interest goes out to the five most important items, which are all relatively clear-cut, including the number of votes they received.

It is important to keep in mind that this process reveals the statements each group feels most strongly about (McMillan et al., 2014). Group members may vote for much more items but only the first few are undeniable priorities. For the others, a high score does not necessarily reflect wide consensus (e.g. the

³³ The scattered voting in this group (e.g. seven different items received a single vote) explains the missing values in some participants' scores. Since it is not useful to take into account more than ten ideas for analysis, we prioritized the items with the lowest summed scores based on the frequency of votes (Van Breda, 2005).

eight statements in NGT3 and NGT4). On one occasion, in NGT4, we see a converging voting pattern (needs one to four) turn into a diverging one, with 7 different statements that received a single vote. This seems to support the observation that the level of consensus was lower in this group (cf. supra). In contrast, most consistent voting is seen in NGT1; if only because all participants voted for the same eleven items (due to equal voting).

Overall, we can highlight four prevailing issues in each group with recurring high scores for statements pointing to: *drug checking initiatives*, *dialogue with/involvement of the NPS user*, *alternative legislative approaches* and the *use of harm reduction*. Furthermore, the professional's need for information and training on NPS appears to be of main importance. In the next paragraph, we treat all statements according to their significance to the entire sample.

3.4. Secondary analysis of the NGT's: cross-group comparison

For the final phase, comparing the outcomes of different NGT's, we coded the data using NVivo 10[®], a popular application designed for qualitative data analysis. The coding was done by both researchers separately, initially turning every clarified need in one so called 'node' for each NGT (T. Decorte & Zaitch, 2016). Subsequently, the researchers worked out relations between clarified needs (nodes), merging similar ones into communal nodes, sometimes slightly rephrased. This process is known as 'axial encoding' or the breaking down of core themes and subthemes by relating different codes, in our case by induction (T. Decorte and Zaitch (2016). Although this is a common way of comparing group data, when everything was said and done, we felt somewhat disappointed by the lack of nuance in the data. In other words, axially encoding items revealed several needs that *seemingly* were equally important.

After consulting literature, we decided to turn to an alternative method of calculating the weight of needs. A procedure designed to analyze multiple groups by joining summed group statements into one integrated list and suggested as a 'sensitivity analysis' (McMillan et al., 2014). The method relies on a combination of qualitative and quantitative analysis techniques and is described in full-length by Van Breda (2005). Basically, we apply a sequence of four steps, reporting not included. Point of departure are the five sets of NGT statements illustrated above or a total of 51 statements.

3.4.1. The integration of multiple group data

The first two steps are illustrated in the table below. Step one, called '*data capture*', involves three columns: the 'group' column refers to the number of the NGT in which a statement surfaced, the 'scores' column describes the individual scores for that statement (in a row) and the column named 'average' displays the average score of the statement (i.e. the sum of individual scores divided by the number of participants in the corresponding group). Remark: the phrasing of needs is reduced to some key words for practical reasons. In the second step '*identifying the Top Five*', the five most important statements in each NGT are marked with an 'x' in the column dubbed 'Top 5'. When the fifth most important need was tied with the sixth (and seventh) they both (all) were marked. Finally, the table was sorted by group (ascending) and then by average (descending).

Table 2: Top ten statements all NGT'S, sorted by group, then average score, including Top five identification ('x')

GROUP	STATEMENT	SCORES	AVERAGE	TOP 5
1	Information database NPS	444542	3,29	X
1	Scientific research NPS	535153	3,14	X
1	Medium exchange clinical info	35241	2,14	X
1	Create HR action plans NPS	55	1,43	X
1	Psycho-education NPS users	233	1,14	X
1	Launch honest public debate	421	1	
1	Anonymous, accessible NPS checking	1212	0,86	
1	Legal framework harm red tools	211	0,57	
1	Screening NPS use	4	0,57	
1	Neutral info to NPS users	3	0,43	
1	Dialogue NPS users & HCP's	3	0,43	
2	Drug checking, quick results	3542553	3,86	X
2	Dialogue professionals - NPS users	43242	2,14	X
2	Layered online database	455	2	X
2	HR toolbox NPS	23231	1,57	X
2	Decriminalizing drug use	254	1,57	X
2	Info medium NPS clinical settings	54	1,29	
2	EU structural support NPS projects	34	1	
2	Regulation all drugs	112	0,57	
2	Exchange expertise/practice profs	3	0,43	
2	Promoting correct info to users	11	0,29	
3	Promotio + funding HR in policy	4344	3	X
3	Expand EWS	5223	2,4	X
3	Increase drug checking	353	2,2	X
3	Formation HCP's (+ specialized)	1431	1,8	X
3	Alternatives to prohibition	52	1,4	x
3	Epidemiological research NPS	15	1,2	
3	Specific funding NPS research	5	1	
3	Prevention + HR in prisons	41	1	
3	Psychopharmacological info NPS	21	0,6	
3	Tools to reach subgroups	2	0,6	
4	Stimulate HR in policy NPS	55512	2,58	x
4	Info/training specialized HCP	42451	2,29	x
4	Dialogue with NPS users (proactive)	2435	2	x
4	NPS users needs identification	2524	1,86	x
4	Better knowledge about NPS	43	1	x
4	Develop drug checking	34	1	x
4	Job stability (specialized field)	34	1	x
4	Epidemiological research/tools NPS	5	0,71	
4	Basic training HCP's	12	0,43	
4	Identify source NPS	11	0,29	
5	Decriminalizing use/possession	555	3	x
5	User participation to res., policy	543	2,4	x
5	Drug checking; fixed & mobile	153	1,8	x
5	Vulgarization NPS to public	422	1,6	x
5	Controlled distribution drugs	44	1,6	x
5	Legal framework drug checking	43	1,4	
5	Clinical info general medical	221	1	
5	Exchange between services	3	0,6	
5	Continuous training technology NPS	3	0,6	
5	Sound info(channel) to NPS users	11	0,4	

3.4.2. Content analysis of data

The third step is known as '*content analysis of data*'. Content analysis is the process of combining individual statements into groups of statements (called 'themes' or 'categories'), which describe similar things (Van Breda, 2005). In practice, we went over the list of individual statements in order to identify common themes. The result is a reduced data set that is more manageable and interpretable.

At this point it is important to recognize that no flawless classification exists. Alternative categories are possible and at some occasions alternative choices could have been made. However, we argue that the thematic outline below is the best possible one, based on the actual meaning of the statements (by checking their itinerary from raw idea to consensual priority). One example is the statement about a specific piece of legislation in relation to drug checking, which was not classified under the 'drug checking' theme but interpreted as an instrument in the 'harm reduction toolbox' (the more because the same group withheld a separate statement focused specifically on drug checking). Another peculiarity: two statements had such a specific character that the only possible solution was to define them as a theme of their own.

Eventually, the content- or qualitative analysis led to a reduction of the 51 statements into 15 themes. What follows is the (numbered) listing of all themes, including the specific statements they incorporate. When needed, the relation between the two is explained. The rationale of the thematic categories is based on their significance to the participants, i.e. taking into account the transcripts and the description of group processes in the first stage. For the same reason and to make sure the 'voice' of participants is heard, quotations are inserted.

a) Information database on NPS

- *Information database on NPS, correct, fast, user-friendly;*
- *Layered online information database on all aspects NPS.*

The professionals' need for information on NPS, the principal issue in each NGT, is in its most elementary form a request for collection of (correct) information on all aspects of NPS use: from product information to dosage, form, way of consuming, price, effects and most notably, acute and chronic health hazards. The idea was heavily supported by professionals working for a telephone helpline but in the end, different professionals or settings have different information needs:

"I am sure there is a general information need but this is rarely a need for general information, I think. A professional has a need to specific information on NPS that corresponds to his or her domain." (NGT5)

A database often used by professionals, is the UK-based Tripsit website (www.tripsit.me). However, the initiative is run by volunteers and therefore inherently fragile. Also, the site is not always known by professionals and its target population are primarily NPS users. French-speaking professionals signal the need for an alternative in French: *"French content on the Internet does not exist"*.

Participants are aware that an initiative of this kind, would require a massive investment of time and resources. If only because the quality of the information output is directly linked to the information input, which needs to be verified and up to standards. Another obstacle is the requirement to constantly update any database on NPS, given the fast-paced evolution of the issue. The idea to have a layered or a stratified database, with some parts accessible to everyone and others only to professionals for example, was put forward in one NGT. The overall opinion though was that such a tool should be accessible to anyone.

b) Information hub on NPS for clinical professionals/settings

- *Professional medium to exchange clinical information and practices on NPS;*
- *Platform of information (medical, pharmacology, toxicology, etc.) and practices about NPS for clinical professionals/settings;*
- *Offer clinical information NPS (products & effects) to the (general) medical profession (GP's, hospitals, emergency staff, etc);*

One might wonder: why treat NPS-related information of clinical nature as a separate item? We noticed though that this distinction was made by the participants themselves in at least three of the five NGT's. Especially HCP's with a medical background desire hands-on information on what to do when confronted with (acute) NPS-induced intoxications. An addiction doctor explains:

"(...) strictly clinical, pharmacological information. Along the lines of 'what does it [substance] do?', 'why?', 'what are positive and negative effects?', 'what are adverse effects, short and long term?', 'what are medical risks?', 'Is there a potential addiction risk?', 'how do we counter that?'" (NGT2)

The pharmacological, toxicological, etc. information that is out there, is not always accurate or presented in an integrated way. Several participants mention the *Neptune initiative* ('*Novel Psychoactive Treatment UK Network*') in the UK, that published an elaborate document/website, dubbed '*Guidance on the Clinical Management of Acute and Chronic Harms of Club Drugs and NPS*' (Abdulrahim & Bowden-Jones, 2015). The document is praised for the quality of its content but considered too bulky to be of practical use in the clinical frontline, when time is of the essence. The Neptune guidance is not always up to date either and finally, the use of NPS in the UK is seen to be very different than that in Belgium³⁴; local accents are important.

A remark made on several occasions in this respect, is the ignorance about potential NPS when dealing with intoxications. In other words, the issue of NPS use is not always thought of in emergency units for example or even in residential treatment settings. To remedy this, an information package for all HCP's that are potentially confronted with NPS use, could be a first step:

"From the moment on that we do not express any attention [to a phenomenon], it is obvious that it will remain hidden. (...) Take the example of an emergency doctor when one does not know which substance has been consumed, one is not capable of reacting in the most appropriate way" (NGT 3)

The idea aims at all professionals working in a clinical setting, with a focus on products and their effects. Apart from that, the demand for a clinical professional forum, platform, hub, etc. remains urgent, starting off with the exchange of existing experiences. 'Some sort of *'trip reports'*³⁵ for doctors', as a harm reduction worker added. The topic referring to this kind of exchange was oriented towards information characteristics and therefore more aptly classified under this theme than under the seventh one, focused on 'exchange'.

c) *Research on NPS*

- *Specific funding of NPS-related research and projects;*
- *Identify users' modalities of acquisition (source of NPS).*
- *Scientific research on NPS use (a.o. long term effects, risks, etc.);*
- *Epidemiologic research (+ adapt current tools) & monitoring (morbidity...) NPS;*
- *Improve knowledge NPS use (name, diversity, potency, region, etc.);*
- *Epidemiologic research, including tools (e.g. census) to estimate NPS use;*

Together with both preceding themes, the call for research can be interpreted as another take on the overarching need for information. Both topics, 'the limited knowledge about many NPS' and the 'demand for scientific research' are logically intertwined. One participant quotes it this way:

"Otherwise we are getting nowhere. If there is no scientific research, you do not have objective information." (NGT1)

³⁴ Prevalence of NPS use is high in the UK. Especially the use of SCRA's appears to have become a serious health issue, while we do not see much SCRA use in Belgium, neither among our users sample ((Stephenson & Richardson, 2014).

³⁵ 'Trip reports' in this context are the written reports that (NPS) users share online about their experiences with an NPS.

To add clarity to the first statement: what is meant here is supplementary budget for NPS, as opposed to a piece of the existing budget for drug-related research. The order of words is also telling: participants referred to developing projects based on (i.e. 'succeeding') research. Virtually all aspects of the NPS issue were mentioned as eligible for research. It should be noted that for HCP's, also the motivations and/or functions underlying NPS use were generally seen as important. Most of them stress the importance of information on the positive effects of NPS, to start a dialogue:

"From my experience, users are often suspicious of information coming from the sector [prevention and harm reduction]. They only get to hear the negative effects what makes you lose confidence which is, after all, essential in your relationship with potential clients" (NGT4)

From a health point of view, it is understandable that HCP's working in prevention, harm reduction or care settings, are particularly eager to gain knowledge of the potential risks resulting from NPS use, including the acute and long-term health hazards. For ketamine and GHB for example, the body of research on adverse physical effects, is steadily growing (see Farré, Galindo, and Torrens (2015); Joyce, MacNeela, Sarma, Ryall, and Keenan (2018); J. van Amsterdam, Brunt, Pennings, and van den Brink (2014). But for other NPS, less is known about acute health risks and knowledge about long term risks/effects is almost non-existent, for obvious reasons.

Study into the cultural aspects of NPS use was considered valuable by harm reduction and prevention workers. Examples are popular terminology among users, identification of different user groups (with specific attention to the chemsex scene by Brussels' participants), ways of use (administration rituals), informal rituals and norms, regional differences in use, etc. Having knowledge of the way users get their NPS, more specifically the online markets and everything that comes with it (user reviews, vendor ratings, etc.)³⁶ produces significant leverage, as a prevention worker puts it:

"I have experienced on different occasions that this [knowledge] is an excellent connecting factor when you want to talk about NPS to someone" (NGT1)

Finally, there are the two statements oriented around epidemiological research. What is the prevalence of use of specific NPS? What NPS is used in which region? What is the socio-economic profile of users? Both specific surveys as well as the inclusion of NPS in existing tools designed to measure drug use, are possibilities. In two NGT's, a case is made for calculating the so called 'burden of disease', or the impact of NPS use on public health, via monitoring of intoxications, morbidity and mortality. However, estimating prevalence of NPS use and related indicators is no easy matter as we briefly touched in chapter one.

The research theme is a heavyweight, given the fact that it groups six different statements, more than any other theme. This seems a logical consequence of the relative novelty of the NPS phenomenon and the ensuing scarcity of data.

d) Harm reduction toolbox for NPS

- *Creation of harm reduction action plans ('how-to?') focused on NPS use;*
- *Create information & tips (toolbox) from harm reduction nature on NPS;*
- *Development of a legal framework surrounding drug checking;*
- *Clear legal framework on the use of harm reduction tools (e.g. snorting kits);*

Throughout all NGT's, the harm reduction paradigm received significant attention. On closer exami-

³⁶ User reviews are referring to the judgments NPS users make and publish online about a product and/or source. Vendor ratings apply to the quotation given by users to specific dealers ('vendors'), based on quality, price, way of packaging, etc.

nation, we could draw a line between statements of a broader, policy-oriented nature (e.g. legal provisions surrounding interventions) and statements relative to tangible items (e.g. toolbox). Accordingly, the third statement does not point to 'drug checking' essentially but to the legal conditions needed to safeguard its development. Since in the same NGT, a separate statement specifically pointed to the diversification of drug checking initiatives, we assume the group sees a corresponding legal framework as a harm reduction measure or tool (i.e. in the context of drug checking). Along the same lines, the fourth item involves the elimination of what participants dubbed 'the grey zone' or the obscurity between preventing harmful (drug) use and 'inciting' it. Examples are the distribution of snorting kits, dosage capsules, ascorbic acid, etc:

"We have to juggle with words or almost hide things in order to do our job properly (...) The current situation is not clear and de facto gives the legislative authority the power to decide what effective health promotion is. As a result, we cannot evaluate the use of such tools, do any internal research. It is all some kind of 'grey zone' but things would be easier if the zone were white" (NGT2)

The first two items resemble each other. They both refer to the lack of updated tips and tricks in order to reduce harms from NPS use and the knowledge needed to assemble relevant information:

"We always recommend to drug users: 'take the lowest dose possible, to start with so you can check the potency of your product'. Well, what is the lowest possible dose of -let's say- ocfentanyl? We need to demonstrate knowledge to be seen as a legitimate source of help. Right now, we lack the knowledge, lack the guts and obviously lost legitimacy. We do nothing and point to Tripsit, in the best of circumstances." (NGT2)

In this case, a consensus was reached that the existing harm reduction methods need updating in the face of the NPS issue. 'Toolbox' was the exact phrasing used in this group. In another NGT, the same conclusion was reached but participants expressed their need for 'how-to guides' or 'what to do when someone decides to try or start using an unknown substance/NPS?'. The term 'roadmap' was also used, in this case a general step-by-step advice to reduce harm in cases, as mentioned above: from 'determining whether a user is allergic to a certain substance' over 'starting off slowly' to 'make sure you are not alone and someone stays sober', etc.

Overall, participants seemed to agree that information about NPS might be less advisable from a (universal) prevention viewpoint but instead becomes useful when people decide to use NPS. Alternatively, the harm reduction perspective on (drug) use deserves more emphasis, according to many HCP's. A reasoning that returns in a following theme.

e) NPS and the general public

- *Launch honest, fact-based public debate on drugs;*
- *Vulgarization (tools) of the NPS issue (to public & professionals);*

Issues such as the role of society, the social stigma surrounding drug/NPS use and the prevailing stereotypical public view on drug use, were tackled on many occasions during all group debates. Eventually the idea is that real change in policy starts with a change in public attitude towards drug use(rs). In only one group though, a similar statement made it to the top ten: the launching of a non-political public debate on (illegal) drugs, using evidence-based information.

We added a statement to this category that also has a link to society: the vulgarization or popularization of NPS to the public. It implies the translation of the NPS topic into a discourse everybody understands. And although the importance of stimulating a rational view on drug use in society was paramount, most

participants agreed that this is something the health care field does not have much grip on.

f) *NPS/drug checking*

- *Anonymous and easy-to reach drug checking sites for (all) substances;*
- *Implement drug checking (with quick results);*
- *Increase drug/NPS checking (# sites) + proactive (mobile);*
- *Develop drug checking: more sites + ambulatory (mobile);*
- *Develop and diversify drug checking, fixed and mobile (club, festival, etc.);*

We noticed that participants are aware of the existing drug checking service in Brussels (run by Modus Fiesta) but describe it as limited in terms of geography and access (one night/week). In all groups, drug checking is seen as a public health priority. Since no such intervention exists in Belgium (but one), HCP's find it useless to distinguish between classic drugs and NPS. The phenomenon of NPS just magnifies why it is imperative to start implementing checking initiatives:

"The arrival of NPS illustrates the urgency for testing points more than anything. I mean, even if we look at what happens at festivals... To me, drug checking has proven its use over and over again and should be an obligation by now. It can save lives and teach us what is really being used in the case of NPS."
(NGT1)

As touched in the quotation, drug checking sites can potentially play a central role in monitoring the market of NPS. Finally, for the group of prevention and harm reduction workers, a similar service presents the opportunity to have a conversation with users, allowing to discuss broader issues as well (e.g. health promotion and/or risk reduction). Other important conditions mentioned in the wake of drug checking services are:

- anonymity for people that make use of it;
- an accompanying legal framework describing the operational and limiting factors;
- the wish to obtain a quick result after testing,

Also, and not the least important, potential fixed services should not only be implemented in an existing drug treatment service or needle exchange program, etc. This, not to exclude a population of NPS users that does not identify with the specialized system. A complementary design involves the deployment of mobile drug checking units, to present the initiative to a large number of people and use it for distributing prevention messages at say, a festival, free party or nightclub.

A final remark has to do with the possible inserting (in the long term) of a Belgian network of checking sites, including monitoring results, into a broader European context (e.g. The Netherlands, the UK, Spain, Austria, etc.). This aligns with the cross-borders exchange of information about the global market of NPS, as cited in the next theme.

g) *Exchange of professional NPS practice*

- *Exchange knowledge/expertise about NPS between pros and services;*
- *Exchange of practices between professional services (and between countries).*

The theme of exchanging (best) practices, information, knowledge between different organizations and domains is felt important in the case of NPS, when a variety of substances are at stake, used by a variety of user groups, having potentially different experiences and needs. Contrary to a centralized and/or top-down approach (e.g. a database), a decentralized, horizontal communication platform might be useful. An example, is the experience exchange with NPS use in detention settings:

"In prison settings you might encounter different NPS than in a party context (...). Sometimes, taking a step backwards can help and see what is been done elsewhere?" (NGT5)

Apart from that, many participants sighed this is an old sticking point: the fact that few consultation/discussion opportunities exist for organizations in the health care field.

h) Dialogue with and participation of NPS users

- *Low threshold dialogue forum for NPS users & HCP's;*
- *Dialogue between NPS users and pros (user as partner/expert by experience);*
- *Meet and interact with users in their own environment;*
- *Identify the users' needs towards professionals;*
- *Realisation of user (peer) participation in policy, projects, research NPS.*

The idea of engaging the user in various aspects of drug policy was virtually unheard of two decades ago. However, at present this has become an accepted practice in many settings (and countries) (Friedman et al., 2007; Hunt, Albert, & Sánchez, 2010; Móró & Rác, 2013; South, Bagnall, & Woodall, 2017).

In this regard too, the NPS issue shows unique character: most participants are aware that the tables have turned when it comes to information. In other words, knowledge about NPS is concentrated in the community of users, not in that of professionals, to some degree. This situation was not met with reluctance but rather, embraced by participants:

"It always boils down to more or less the same thing: expertise by experience and information. I get loads of information from my clients and that is something that is very valuable to me. I am often informed about poisonous gear [drugs] before the EWS sends out an alert. The thing is 'there is nothing much I can do with it' [professional secrecy]" (NGT2).

In another group, agreement arises to step out of a 'pathologic vision' on drug/NPS use. Drug use, it is said, is not a 'sick' or 'criminal' activity on its own. One individual continues:

"Let us start from the grassroots. Reinforce peer support and encourage the expertise of users. The means to do this have to be explored. Let us make use of the potential knowledge: they will drag us in. They [NPS users] should become more valued and should be encouraged to participate at all levels" (NGT4).

In all groups, the need to tap into the knowledge of users and seek their cooperation, ended up being a priority. Sometimes a 'forum' is mentioned or 'platform', be it without further specifications. Essentially though, it is about establishing a dialogue based on equivalence. Obviously, this will not be easy as long as NPS users are labelled as deviant and/or criminal individuals. They will therefore not be willing to engage themselves out of fear of repercussions. To conclude, professionals agree to consult users and involve them on all levels in all domains (prevention, harm reduction and care), particularly in creating NPS targeted interventions.

i) Formation/training about NPS

- *Formation on NPS for general and specialized HCP's (tailored);*
- *Information, sensibilization and training on NPS for the specialized field;*
- *Basic training NPS for all professionals having link with drug use;*
- *Psychopharmacological information and training on NPS (and harms) for specialized professionals in view of specific prevention and care to specific (user)groups;*
- *Recurring training (specialized) on technological aspects of NPS issue to keep up with evolutions.*

In the light of the above, the theme centered around formation, training and education of the field, comes as no surprise. The statements originated mostly in the French-speaking NGT's. In general, the urge is expressed to implement a universal training for professionals that work with drug users (re-

ardless their perspective). Topics treated would be elementary, highlighting referral possibilities.

For professionals requiring specific information and training on the issue, an offer of tailored formats could be complementary: modelled after the field people work in or after a specific aspect of NPS. The technology related to NPS, the role of the internet and Darknet, user fora, message boards, NPS markets, etc., are seemingly the aspects professionals are least familiar with. Another observation was made by the French-speaking researcher: many French-speaking participants were not aware of the recent change in legislation (the 'generic law') in our country (2017). In contrast, for the Flemish participants, this seemed acquired knowledge.

j) Specific NPS prevention, harm reduction and care

- *Development of psychoeducation for NPS users & intermediates;*
- *Provision of screening tools (on NPS use) in residential settings;*
- *Creating tools for reaching NPS using (sub) populations (e.g. chemsex).*

We identified three targeted, well described practical approaches of NPS use: one is free of context, two of them apply to a treatment context. The first refers to translating and/or adapting existing techniques defined as psychoeducation to new drugs (e.g. in treatment of cocaine use). The second one was raised by someone working in residential care, where it happens that a patient is clearly intoxicated at intake, but no traces of substance use are found. In such cases, a screening tool that picks up NPS would be useful.

For the record, the third statement conceals a broader question of how (and if) to reach subcultural pockets of NPS use that might have unique demands/needs or that do not necessarily have any question at all for professionals? An example is the chemsex practice.

k) Drug/NPS legislation

- *Regulation of all drugs;*
- *Alternatives to prohibition;*
- *Decriminalizing drug (NPS) use;*
- *Decriminalization of use and possession of illegal drugs, including NPS;*
- *Controlled distribution of substances (e.g. by state, medical system..).*

Given the fact that legislative aspects of NPS (drug) policy are not in the hands of HCP's, the frequency and number of statements referring to a change in NPS (drug) laws is notable. On the other hand, the effects of prohibition on users –their clients- are no secret to (and felt by) professionals as well. It turned out that considerable group debate was invested in the adverse effects of prohibition: unknown potency, composition and high prices of products, social issues such as the stigmatization and criminalizing of NPS users, etc. One participant sees the prohibition of (illicit) drugs as a trigger for the advent of NPS and therefore states (see also J. Taylor (2015):

"I keep on insisting this [regulation] has to be at the top of the agenda, if we want to cope with NPS use. Besides, NPS exist partly because there is no answer to this question"(NGT1).

This is what the famous historian McCoy calls 'the stimulus of prohibition', partly due to 'the balloon effect': trying to eradicate drug production in one place stimulates production in others (J. Taylor, 2015). In the case of NPS: in new territories of synthetic manufacturing.

Underpinning 'alternatives to prohibition' is the idea of the group that offering less harmful psychoactive substances (other than alcohol), can partly be a solution to curb the use of NPS.

It became apparent though that for most participants, the protection of the users deserves priority. Illustrative at this point is the fact that both statements about decriminalizing use and possession of NPS/drugs made it to the top five in two NGT's. An example of a dangerous practice that could be countered by decriminalizing use and possession:

"The increased repression at festivals and parties pushes users to do things they normally would not do: ingesting their complete stash of often multiple substances, after spotting police in uniform, dogs and body checks at the entrance. The resulting extreme intoxication and potential to overdose, is a risk they are willing to take." (NGT1)

Reforming the demand side, i.e. decriminalizing use and possession of NPS is seen as the realistic option; achievable in a broader context of prohibition. Portugal's drug policy is often illustrated.

l) Information directed at NPS users

- *Dissemination of (product) information to users, including via new communication channels (internet, app);*
- *Providing neutral, objective information to NPS users;*
- *Promoting sound/correct information (sources) to NPS users;*
- *European structural support for online projects focused on NPS use.*

Although NPS users typically go to great lengths to get informed about the products they use, concerns among professionals remain. Does the information users rely upon, come from a reliable source? Is there a way at all to identify potency, toxicity, adverse effects, etc. of a substance? In one group, emphasis was placed on the communication forms that appeal to NPS users:

"We need applications, video, alternative content... Hell, why not some kind of game [to effectively transfer messages]? Users are not really interested anymore in paper content." (NGT5)

Since a part of the participants is not familiar with new legal directives targeting NPS, the same assumption is made for the NPS users. Informing user groups about the generic NPS law is vital. The second statement deals with fairness and balance, when supplying information to NPS users: with relying on their own ability to weigh pros and cons, with refraining from single-sided information on (exclusively) negative effects and consequences. The latter approach is thought to be counterproductive for the following reason: after comparing (positive) experiences from NPS use with the (negative) information typically given about them, the (beginning) user will turn his back on all information/education efforts. Including on realistic ones that underline all aspects and including on the person (HCP) delivering them.

Existing sources or projects that are known to contain correct, reliable information and content should be promoted to the user of (new) drugs. Many participants too often saw the emergence of good (online) information formats (e.g. 'Mind your Trip')³⁷ only to fade out after a few years when funding fades out as well. Based on the shared conviction that NPS are here to stay and given their intrinsic fast-changing nature, continuity of projects is an important prerequisite. This forms the background to the statement on structural support, in the case of internationally marketed NPS, potentially on a European level.

m) Harm reduction policy

- *Promotion & funding of a harm reduction policy on NPS;*

³⁷ <http://www.clickforsupport.eu/>, stands for REALized: European Web-based interventions for NPS consumers.

- *Create a prevention/HR approach for NPS/drugs in prison settings;*
- *More acknowledgment & resources for HR in drug (+NPS) policy.*

Apart from the laws in the context of drug policy, few needs were aimed at a broader policy level. The ones that do, explicitly call for the acknowledgment of the harm reduction perspective. A large number of HCP's support an NPS policy in which harm reduction occupies a central position:

"A comprehensive policy that promotes harm reduction. The approach needs to gain broader acceptance, needs to be expanded and tailored to new products. More support for harm reduction, a real policy" (NGT 4)

A colleague adds that harm reduction too often provokes misunderstanding:

"Also for the HCP's, there are colleagues that just don't understand; they have the impression that harm reduction equals trivialising or even propagating drug use. Some [private] specialized doctors that don't adopt this point of view within their consultation while we know that for instance people active in chemsex are taking risks or are HIV positive and that these same people sit in the [doctors'] waiting room." (NGT 5)

The second, more specific statement around penitentiary settings was primarily a concern of French speaking professionals. They proposed implementation of a prison wide policy focused on prevention and health promotion, including a general education and training on drug use for all employees in detention settings. For staff whose work has closer ties to the issue, specific (NPS) formation is an option. And for the detainees, access to information should be evident.

From what we have heard, harm reduction workers experience contempt for their line of work, whether from colleagues or from policymakers. Their belief in the benefits of the harm reduction perspective, particularly in the case of NPS, is articulated by a Flemish professional:

"Harm reduction shouldn't be cornered like this but instead become some sort of elementary knowledge for professionals and users alike (...). As long as we are dealing with a non-regulatory policy, harm reduction should be getting more funding, more strength, more recognition and should be applied more." (NGT2)

To summarize, participants have the idea that harm reduction is met with prejudice, both in the sector and on policy level. They feel however that it is a pragmatic, realistic way of tackling drug- and NPS related issues that is generally underestimated and that merits a central place in policy. We are aware that it is hard to make a statement at this point, since the attention given to harm reduction in the groups is related to their composition; i.e. to the sample of participants in which harm reduction work is widely represented.

n) Working conditions in the professional field

- *Ensure job stability in the (specialized) addiction field.*

A highly specific need, voiced in one NGT and not related to other statements of a different theme. Therefore statement and theme can be considered equal. When looking in detail, complaints include temporary contracts / budgets that have become common practice in the field and to the resulting loss of continuity and long-term vision. Also, the lack of appreciation for jobs in the health care field was mentioned and finally, fluctuating and long hours are other factors that do not contribute to job attractiveness.

o) Early Warning System

- *Expansion of the EWS (info hub, target population, speed).*

The need of finetuning the EWS is the second lone issue, introduced in one NGT. In this case, the EWS is seen to be an important tool that needs expansion, for example as far as the scope of diffusion of alerts is concerned. Specifically, the question was 'how to get the information not only to the professional field but to the users as well?'

An additional suggestion was made to have all laboratories working with NPS participate, including emergency services in a hospital context. Together with the speeding up of alerts transmission, which at present is sometimes taking too much time, a rough idea of an 'EWS 2.0' took shape.

3.4.3. Quantitative analysis: calculating combined ranks

After completing the qualitative analysis (content) of the data, we can proceed with the quantitative part. In summary, this means establishing the importance of the themes across groups, i.e. for the entire sample. The procedure consists of a conversion from the number of (top five) statements and their average scores, into ranks. Again, we refer to Van Breda (2005) for all details on this quantitative part.

In this fourth and last step, all themes are ranked based on their relative importance to all NGT's combined. Column '*Top 5_1*' includes the number of top five statements for each theme. Column '*NR 1*' refers to the total number of statements that make up each theme and column '*AVRG 1*' describes the average score of the items in each theme (i.e. sum of average scores of all statements / number of statements). Subsequently, we converted these columns into ranks (resp. columns '*TOP 5_2*', '*Nr. 2*' and '*AVRG 2*', marked in red) with higher numbers meaning greater importance.

Ultimately, adding up the three sets of ranks results in one final rank that depicts the importance of themes throughout the entire sample. We sorted the table accordingly, so the theme at the top of the last column is the most important one for all groups / NGT's combined. The theme at the bottom of the list is the least important; though not necessarily unimportant.

Table 3: Final ranking of themes based on the calculation of combined ranks

THEME (Ranked)	TOP	TOP	Nr.	Nr. 2	AVRG	AVRG	FINAL
1 NPS/drug checking	4	14	5	12,5	1,94	12	38,5
2 Dialogue with (participation of) NPS users	4	14	5	12,5	1,77	11	37,5
3 Drug/NPS legislation	4	14	5	12,5	1,37	9	35,5
4 Research on NPS	2	10	6	15	1,22	6	31
5 NPS and (drug) policy	2	10	3	7	2,19	13	30
6 Information database on NPS	2	10	2	4	2,65	15	29
7 Formation/training about NPS	2	10	5	12,5	1,14	5	27,5
8 Harm reduction toolbox for NPS	2	10	4	9,5	1,24	7	26,5
9 Information hub on NPS for clinical profession-	1	5	3	7	1,48	10	22
1 Early Warning System	1	5	1	1,5	2,4	14	20,5
1 NPS and the general public	1	5	2	4	1,3	8	17
1 Specific NPS prevention, harm reduction & care	1	5	3	7	0,7	3	15
1 Information directed at NPS users	0	1,5	4	9,5	0,53	2	13
1 Working conditions in the professional field	1	5	1	1,5	1	4	10,5
1 Exchange of professional NPS practice	0	1,5	2	4	0,52	1	6,5

The reasoning behind the numbers is built on three dimensions. These dimensions have different meanings and are all important but for different reasons. The first one (Top 5 figure) points to the statements that generate the most consensus in the nominal groups, the second one (number figures) gives an indication of how often participants mention an issue (even if the statements received few votes) and the third dimension (averages scores) is an attempt to incorporate all needs in a standardized way, i.e. regardless group size. By combining the three indicators into one final rank, we obtain an integrated view on the importance of each theme or, to quote Van Breda (2005), a view that can be called 'holistic and multidimensional'.

The main conclusion is similar to the one we drew based on the summing of votes in each NGT. Specifically, the three most important priorities for the entire sample of HCP's remain the same: *drug/NPS checking interventions; dialogue with the NPS users, including their participation to policy and research and the need for research on the NPS issue in all its manifestations*. All three themes end up very close to each other and embody the same number of (top five) statements. The fact that the statements referring to drug checking received a higher score, on average, gives this theme the edge.

On some distance, issues four and five follow. They are basically equally important, given their final ranking, although the fourth theme about scientific research counts twice as much statements as number five. The lower average scores of relevant statements slow down the final ranking of research as a theme. However, we are inclined to estimate its importance as higher, simply because it has been mentioned frequently and in all groups. The priority of NPS (harm reduction) policy rounds up the top five of thematic 'to do's'. In the end though, we stress that the actual ranking is not imperative. To us, what matters is an insight in what the most important themes look like .

4. Results of the online survey

4.1. Analysis of the survey data

Analysis of the survey data was carried out using the Qualtrics software itself, then exported in a .csv

format and opened as a spreadsheet (MS Excel) for lay-out and reporting. Text fields were exported separately and manually organized. We combined all valid responses without distinguishing between language. The most important results are summarized below.

4.1.1. Socio-demographic characteristics

Figure 1: Distribution of respondents based on gender

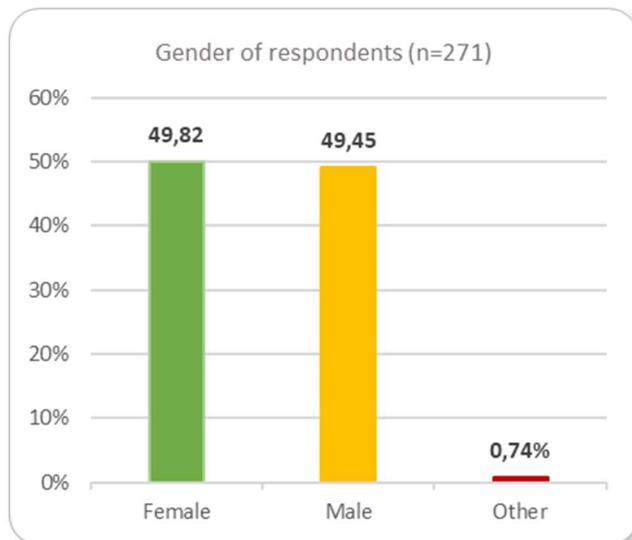
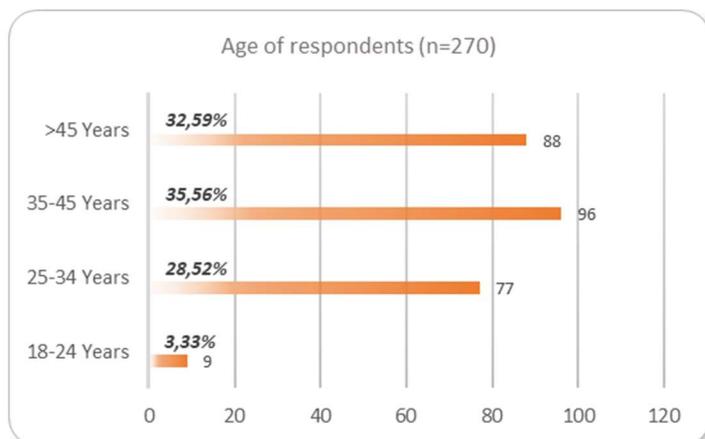


Figure 2: Age distribution of respondents



We used three socio-demographic indicators: gender, age and the region people work in (province). We ended up with 50% of both male and female participants, with two people marking 'other'. Gender distribution of respondents hence mirrors that of the general population.

The age of the survey sample is rather elevated: almost one in three professionals is older than 45 years. More than one in three is between 35 and 45 years old. A mere nine individuals are younger than 25 years.

The third socio-demographic factor touches geographic traits of the surveyed population. It turns out that most participants work in the regions of Brussels (capital) and Antwerp. Together, these provinces are represented by almost one third of all respondents. Hainaut, Liege and East-Flanders are (working)

home to respectively 14.1%, 13 and 11.2% of the sample. Walloon Brabant only counted two answers, which we added to 18 people working in Flemish Brabant.

4.1.2. Contextual factors: professional function and professional setting

We asked respondents to describe their function and general specialization (prevention, harm reduction or care). Given the anonymised setup of the poll, Figure 4 proves that we reached our target population.

Nearly two thirds (63.3%) of participants are active in a specialized (alcohol and drug) setting, 29.6% works in a non-specialized context. If we take a closer look at the latter group, relevant professions are included. Around half of them are active in general (mental) health care. Examples are emergency staff, medical doctors (MDs) or (clinical) psychiatrists. Other non-specialized professionals work in education, government / policy or youth organisations. The category 'other' groups people who describe themselves as 'volunteer community work', 'psychology student', 'coordinator clubs', 'toxicologist', etc.

Figure 3: Professional setting (general) respondents work in (n = 270)

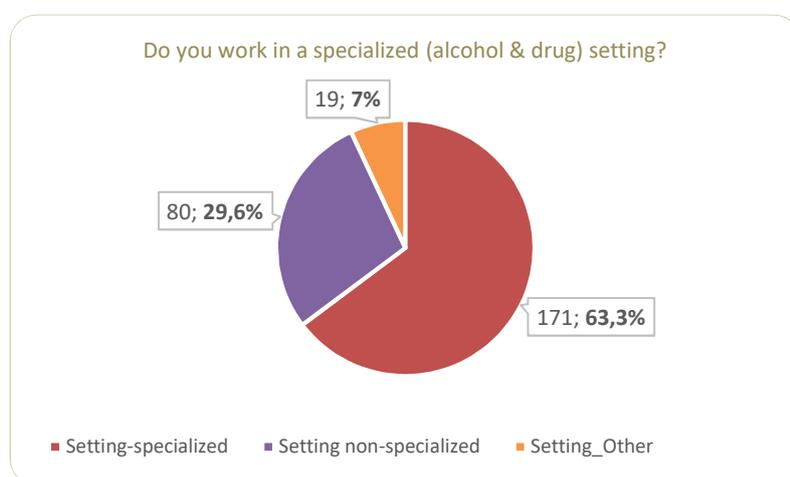
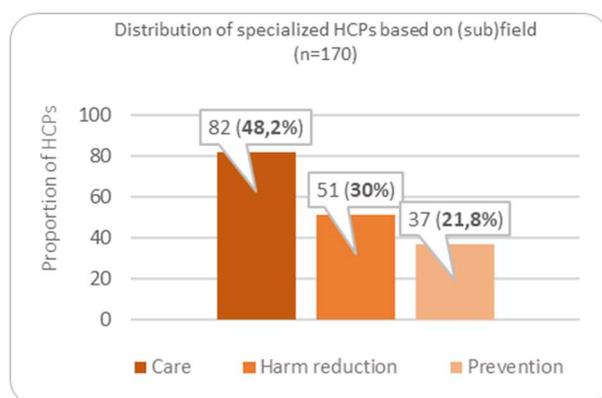


Figure 4: Proportion of specialized HCP's by subfield



This is an important result in terms of the validity of our data, i.e. generalizability of the results of the NGT's. The fact that we were able to reach the relevant target group, combined with the large number of respondents, increases the probability of results (NGT's). When we subject the subsample of specialized professionals to closer examination, an interesting observation can be made. The treatment

field carries the largest weight: a small 50% of HCP's works in (drug and alcohol) treatment settings. Another 30% works in a harm reduction field and around 20% is active in prevention.

4.1.3. Survey results: ranking of professionals' needs

The analysis of all responses gives us an idea about the importance attributed to each of the needs by the surveyed population. Congruent with the approach we turned to for quantifying participants' scores in the context of the NGT's, the central question in the questionnaire was twofold:

- *'Out of the following list of 21 NPS-targeted needs of professionals, please select the five most important ones, in your view?'*
- *'Please rank/prioritise your five selected needs based on their importance, according to you? With 1=most important up to 5=fifth most important (by means of 'drag & drop').'*

Table 8 gives an overview of the numbered needs and their final ranking based on the summed scores. Each need is complemented by the scoring frequency or the number of respondents that selected it and by their mean score or the summed score divided by frequency of scores. Simply put: the average score/importance attached to a statement by the people who selected it (5 being the maximum and 1 the minimum). The higher the mean score, the more it has been scored as first, second and third most important. Finally, the relative importance illustrates the proportion of each need compared to the others, in percentage terms ($\Sigma=100\%$). The five statements receiving the highest scores are indicated in bold.

Table 5: Numbered needs and their final ranking based on summed scores

NR.	NEED	Freq. of scores	Σ score	Relative imp. % *	Mean score **	Rank / Σ score
1	Online database on all aspects NPS (user friendly, fast, updated) for everyone	85	256	6.27	3.01	5
2	Structural European support for online NPS projects	24	66	1.62	2.75	21
3	Scientific research into NPS use on products (Drug), users (Set) and Setting	67	197	4.83	2.94	9
4	Hub with medical, toxic., pharmac., etc. information on NPS for clinical HCP's	69	195	4.78	2.83	10
5	Exchange of knowledge, info and practice on NPS among professionals/services	101	307	7.48	3.04	3
6	Offering tailored formation on NPS to (non) specialized professionals	93	276	6.77	2.57	4
7	Clear legal provisions surrounding use of harm reduction tools	46	138	3.38	3	18
8	Development of harm reduction toolbox/guidance focused on NPS	71	179	4.39	2.52	12
9	Increase means for harm reduction policy initiatives towards NPS	52	140	3.43	2.69	17
10	Prevention and harm reduction policy on drug use in prisons	64	176	4.31	2.75	13
11	Development of drug checking interventions (easy access, quick, anonymous)	96	309	7.57	3.22	2
12	Expand the EWS (access, speed, clinical practices)	22	73	1.79	3.32	20
13	Vulgarization of the NPS issue for general public, intermediates, users	55	156	3.82	2.84	15
14	Launch non-political, fact-based public debate on use NPS and drugs	69	224	5.49	3.25	7
15	Stimulate sound info sources to NPS-users, also via new comm. channels (e.g. apps)	74	193	4.73	2.61	11
16	Forum for dialogue & interaction between professionals and NPS users	76	250	6.13	3.29	6
17	Specific methods to reach NPS-using subcultures (e.g. chemsex scene)	33	74	1.81	2.24	19
18	Stimulate NPS user participation & peer support in policy, practice and research	77	215	5.27	2.79	8
19	Decriminalisation of use and possession of drugs	93	335	8.21	3.6	1
20	Regulation of all drugs	43	158	3.87	3.67	14
21	Increase job security in the specialized (drug and alcohol) field	45	151	3.70	3.36	16

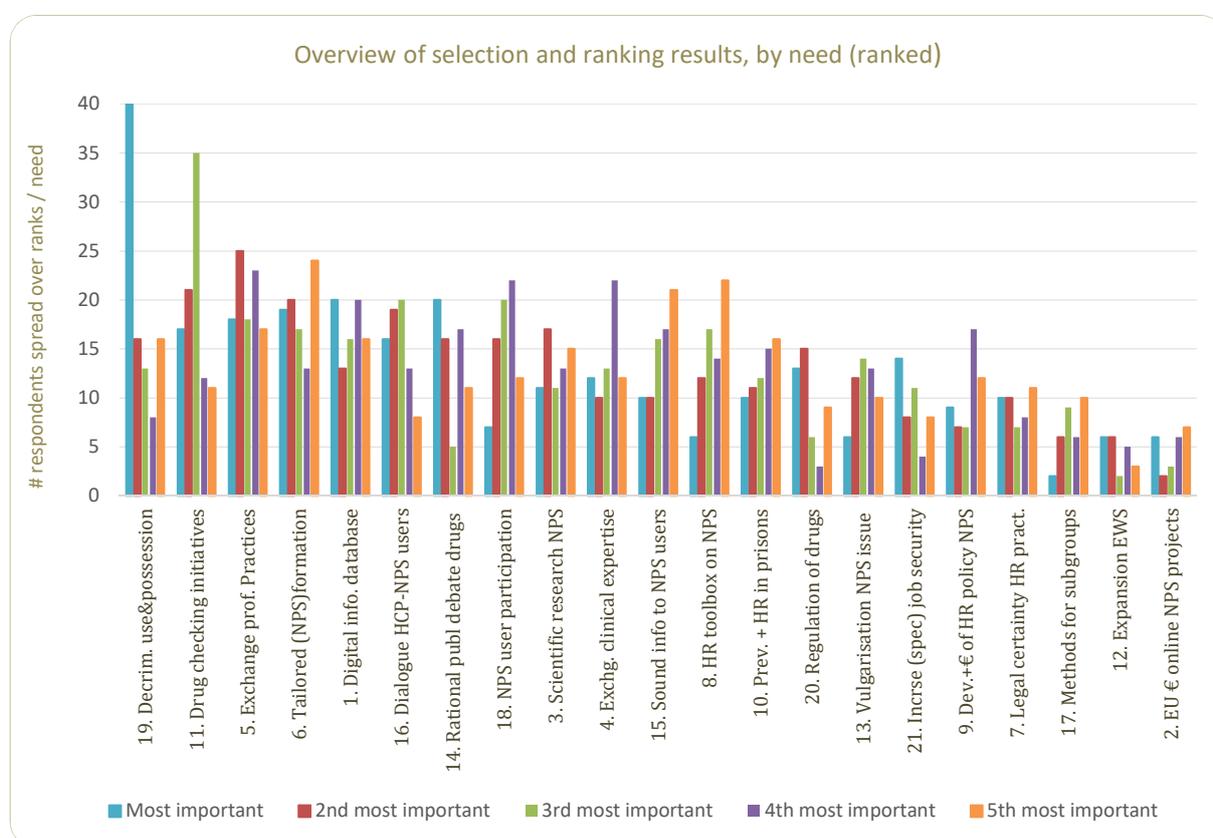
*Relative importance= [(summed score/maximum possible score, i.e. # respondents x 15) x 100 (%)]

**Average score= (summed score/scoring frequency)

Below, the same data are presented in more detail: Figure 6 depicts the ranked needs as combined bars, with each bar representing the number of respondents that scored the item as most important, second most important, etc. This allows deduction on the composition of the scores.

An example is the need for the ‘exchange of professional information and practice on NPS use’, which ended up number three thanks to a fairly even score distribution but despite the fact that the largest number of respondents selected it. In contrast, the statement on decriminalization received the fourth highest number of selections but climbs to the top of the list, regardless. The reason: a relatively higher number of people who gave it a higher score, i.e. considered it to be (one of) the most important item(s). This is one of the most pronounced outcomes: not only did one in three respondents see ‘decriminalisation of drug/NPS use and possession’ as an important item but almost 50% of them scored it as need number one. This high scoring attribution is shown by the height of the corresponding blue bar.

Figure 5: Overview of needs and their scoring frequencies, ranked by importance (in descending order) (n=272)



5. Conclusion

5.1. Comparison of NGT and survey data

In terms of content, the one thing standing out is the observation that survey data largely confirm the results of the NGT's. Provided that we use caution when comparing both datasets. The difficulty resides in the nature of both results: the survey results play at statement level while the analysis of NGT's was eventually done on a thematic basis.

That being said, a few prudent conclusions can be made. For one, it seems clear that demands regarding decriminalisation of NPS use and possession and the need for drug checking initiatives prevail. Both issues end up as one of the three most important requirements, regardless the approach of analysis. Another similarity seems to be the importance attached to establishing a link between professionals and NPS users (beyond their role as 'clients'). The NPS user is seen by the HCP's as not only a partner in dialogue but in the development of an actual NPS policy as well. The respective needs in the survey may end up on a sixth and eighth rank but clearly represent an issue that cannot be ignored.

The ultimate priority given to a social/policy issue over which the professional has limited control, might look surprising. Support for decriminalising the NPS use can seem radical or even illusionary at first glance but realistic at the same time, when looking at policy evolutions in Europe. This reflects the ambiguity we have seen since the advent of NPS. In many European countries, specific NPS-triggered legislation has been enacted with an explicit prohibitive fingerprint although in many instances incorporating provisions that exclude use, possession and sometimes social supply from penal law (Barnett, 2009; Beltgens, 2017; J. Taylor, 2015).

In the end, what experienced health care professionals need in the face of NPS use, are some of the same needs of the broader health care domain: the urgency to start implementing drug checking initiatives, remedies to the lack of knowledge of NPS among HCP's by means of training and formation, the added value seen in involving NPS users in designing measures that affect them, etc.

5.2. The professional's major NPS targeted needs according to method

To summarize, we present the most important consensual needs throughout Part II, i.e. based on the different methods used. Specifically, we come back on the results of the quantitative analysis (summing of votes) of each NGT's, the quantitative analysis based on the thematic content of all NGT's combined and the results of the NPS care survey. Just to remind, the NGT results are rooted in groups of experienced professionals, survey results originated from the broader health care field. We chose to emphasize the five most popular needs only in each case, illustrated in this overview.

Table 6: Overview of five main needs of Belgian HCP's according to method

Summing of votes (each NGT)	Prioritised themes of NGT's	Prioritised needs from survey
<i>Development of drug/NPS checking initiatives</i>	<i>Development of drug/NPS checking initiatives</i>	<i>Decriminalisation of use and possession of drugs/NPS</i>
<i>Decriminalisation of use and possession of NPS/drugs</i>	<i>Dialogue HCP's- NPS users and user participation in projects, policy, etc.</i>	<i>Development of drug/NPS checking interventions</i>
<i>Stimulating funding and role of harm reduction in NPS policy;</i>	<i>Change drug/NPS legislation, i.e. decriminalisation use of NPS</i>	<i>Exchange of information, knowledge and practice on NPS among HCP's</i>
<i>Participation of NPS users in research, projects, policy on NPS</i>	<i>Stimulating research on all aspects NPS issue</i>	<i>Offer tailored formation on NPS to (non) specialized professionals</i>

<i>Improve information offer and research on all aspects of NPSs</i>	<i>Prioritising harm reduction approach in NPS policy</i>	<i>Online database on NPS, accessible to all</i>
----------------------------------------------------------------------	-----------------------------------------------------------	--------------------------------------------------

In conclusion, at different stages in the process of scrutinizing the population of professionals and overarching the different techniques we used, the most important needs of the (specialized) health care field are largely similar.

References

- Abdulrahim, D., & Bowden-Jones, O. (2015). *Guidance on the Clinical Management of Acute and Chronic Harms of Club Drugs and Novel Psychoactive Substances*. Retrieved from London: <http://www.Neptune-clinical-guidance.com>
- Allen, J., Dyas, J., & Jones, M. (2004). Building consensus in health care: a guide to using the nominal group technique. *British journal of community nursing*, 9(3), 110-114.
- Aspinal, F., Hughes, R., Dunckley, M., & Addington-Hall, J. (2006). What is important to measure in the last months and weeks of life?: A modified nominal group study. *Int J Nurs Stud*, 43(4), 393-403.
- Banbury, Lusher, & Guedelha. (2018). Portugal's 2001 Drugs Liberalisation Policy: A UK Service Provider's Perspective on the Psychoactive Substances Act (2016). *Journal of Alcohol & Drug Education*, 62(1), 27-45.
- Barnett, R. E. (2009). The harmful side effects of drug prohibition. *Utah L. Rev.*, 11.
- BELSPO-DR/02/79. (2016). Understanding New Psychoactive Substance (NPS) use in Belgium from a health perspective. In.
- Beltgens, M. T. (2017). Legislative Measures' Impact on the New Psychoactive Substances Market. In O. a. R.-U. Corazza, A. (eds.) (Ed.), *Novel Psychoactive Substances; Policy, Economics and Drug Regulation* (pp. 171-180). Cham, Switzerland: Springer International Publishing AG.
- Blackman, S., Bradley, R., Fagg, M., & Hickmott, N. (2017). Towards 'Sensible' drug information: critically exploring drug intersectionalities, 'Just Say No,' normalisation and harm reduction. *Drugs: Education, Prevention and Policy*, 25(4), 320-328.
- Bowden-Jones, O. (2013). 'Legal highs' and other 'club drugs': why the song and dance? *The Psychiatrist*, 37(6), 185-187.
- Bradley, E. H., Curry, L. A., & Devers, K. J. (2007). Qualitative data analysis for health services research: developing taxonomy, themes, and theory. *Health services research*, 42(4), 1758-1772.
- Cantrill, Sibbald, & Buetow. (1996). The Delphi and nominal group techniques in health services research. *International Journal of Pharmacy Practice*, 4(2), 67-74. doi:10.1111/j.2042-7174.1996.tb00844.x
- Chatwin, Measham, O'Brien, & Sumnall. (2017). New drugs, new directions? Research priorities for new psychoactive substances and human enhancement drugs. *Int J Drug Policy*, 40, 1-5. doi:10.1016/j.drugpo.2017.01.016
- Decorte, T., & Zaitch, D. (2016). *Kwalitatieve methoden en technieken in de criminologie* (Derde, grondig herwerkte editie ed.). Leuven / Den Haag: Acco.
- Dening, K. H., Jones, L., & Sampson, E. L. (2013). Preferences for end-of-life care: A nominal group study of people with dementia and their family carers. *Palliative Medicine*, 27(5), 409-417. doi:10.1177/0269216312464094
- Dunham, R. B. (1998). Nominal group technique: a users' guide. *Madison: Wisconsin School of Business*, 2.
- EMCDDA. (2016). *Health Responses to New Psychoactive Substances*. Retrieved from Luxembourg:

- Farré, M., Galindo, L., & Torrens, M. (2015). Addiction to Hallucinogens, Dissociatives, Designer Drugs and “Legal Highs”. In N. e.-G. e. a. (eds.) (Ed.), *Textbook of addiction treatment: International perspectives* (pp. 567-596). Italy: Springer-Verlag Italia.
- Freitas, H., Oliveira, M., Jenkins, M., Popjoy, O. . (1998). The Focus Group, a Qualitative Research Method; Reviewing The theory, and Providing Guidelines to Its Planning. *ISRC, Merrick School of Business, University of Baltimore (MD, EUA),*, 22.
- Friedman, S. R., de Jong, W., Rossi, D., Touzé, G., Rockwell, R., Des Jarlais, D. C., & Elovich, R. (2007). Harm reduction theory: Users’ culture, micro-social indigenous harm reduction, and the self-organization and outside-organizing of users’ groups. *International Journal of Drug Policy*, 18(2), 107-117.
- Groves, A. (2018). 'Worth the test?' Pragmatism, pill testing and drug policy in Australia. *Harm Reduct J*, 15(1), 12.
- Horton, J. (1980). Nominal group technique: A method of decision-making by committee. *Anaesthesia*, 35(8), 811-814.
- Hunt, N., Albert, E., & Sánchez, V. M. (2010). User involvement and user organising in harm reduction. In T. Rhodes & D. Hedrich (Eds.), *EMCDDA Monographs; Harm reduction: evidence, impacts and challenges Monographs* (Vol. 10, pp. 333-354). Luxembourg: Publications Office of the European Union. doi:10.2810/29497
- Joyce, N., MacNeela, P., Sarma, K., Ryall, G., & Keenan, E. (2018). The Experience and Meaning of Problematic ‘G’ (GHB/GBL) Use in an Irish Context: an Interpretative Phenomenological Analysis. *International Journal of Mental Health and Addiction*, 16(4), 1033-1054.
- MacPhail, A. (2001). Nominal group technique: a useful method for working with young people. *British Educational Research Journal*, 27(2), 161-170.
- Martins, D., Barratt, M. J., Pires, C. V., Carvalho, H., Vilamala, M. V., Espinosa, I. F., & Valente, H. (2017). The detection and prevention of unintentional consumption of DOx and 25x-NBOMe at Portugal's Boom Festival. *Hum Psychopharmacol*, 32(3).
- McMillan, Kelly, F., Sav, A., Kendall, E., King, M. A., Whitty, J. A., & Wheeler, A. J. (2014). Using the Nominal Group Technique: how to analyse across multiple groups. *Health Services and Outcomes Research Methodology*, 14(3), 92-108.
- McMillan, King, M., & Tully, M. P. (2016). How to use the nominal group and Delphi techniques. *International journal of clinical pharmacy*, 38(3), 655-662.
- Morgan, & Spanish. (1984). Focus groups: A new tool for qualitative research. *Qualitative Sociology*, 7(3), 253-270.
- Móro, L., & Rácz, J. (2013). Online drug user-led harm reduction in Hungary: a review of “Daath”. *Harm Reduct J*, 10(18), 11.
- Moyes, H. (2018). How Do New Psychoactive Substances Affect the Mental Health of Prisoners? In A. Mills & Kendall (Eds.), *Mental Health in Prisons* (pp. 131-157 %@ 978-133-319-94089-94082 94978-94083-94319-94090-94088): The Author(s).

- Owie, R. E., Gosney, P., Roney, A., & O'Brien, A. (2017). Psychiatrists' knowledge of novel psychoactive substances. *Drugs and Alcohol Today*, 17(3), 178-185.
- Pirona, A., Bo, A., Hedrich, D., Ferri, M., van Gelder, N., Giraudon, I., . . . Mounteney, J. (2017). New psychoactive substances: Current health-related practices and challenges in responding to use and harms in Europe. *Int J Drug Policy*, 40, 84-92.
- Reuter, & Pardo. (2017). New Psychoactive Substances: The Regulatory Experience and Assessment of Options. In O. a. R.-U. Corazza, A. (eds.) (Ed.), *Novel Psychoactive Substances: Policy, Economics and Drug Regulation* (pp. 155-177). Cham, Switzerland: Springer International Publishing AG 2017.
- Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (2013). *Qualitative research practice: A guide for social science students and researchers: sage %@ 1-4462-9620-2*.
- Seddon. (2014). Drug policy and global regulatory capitalism: The case of new psychoactive substances (NPS). *International Journal of Drug Policy*, 25, 1019-1024.
- Simonato, P. (2015). Evaluating and expanding knowledge and awareness of health professionals on the consumption and adverse consequences of Novel Psychoactive Substances (NPS) through innovative information technologic tools.
- Smithson, J. (2000). Using and analysing focus groups: limitations and possibilities. *International Journal of Social Research Methodology*, 3(2), 103-119.
- South, J., Bagnall, A.-M., & Woodall, J. (2017). Developing a typology for peer education and peer support delivered by prisoners. *Journal of Correctional Health Care*, 23(2), 214-229.
- Stephenson, & Richardson, A. (2014). *New Psychoactive Substances in England; A review of the evidence*. United Kingdom: Home Office.
- Taylor, J. (2015). The Stimulants of Prohibition: Illegality and New Synthetic Drugs. *Territory, Politics, Governance*, 3(4), 407-427.
- Totikidis, V. (2010). Applying the nominal group technique (NGT) in community based action research for health promotion and disease prevention. *Aust Community Psychol*, 22(1), 18-29.
- van Amsterdam, J., Brunt, T., Pennings, E., & van den Brink, W. (2014). Risk assessment of GBL as a substitute for the illicit drug GHB in the Netherlands. A comparison of the risks of GBL versus GHB. *Regul Toxicol Pharmacol*, 70(2), 507-513. doi:10.1016/j.yrtph.2014.08.014
- Van Breda, A. (2005). Steps to analysing multiple-group NGT data. *The Social Work Practitioner-Researcher*, 17, 1-14.
- Van De Ven, & Delbecq. (1974). The effectiveness of nominal, Delphi, and interacting group decision making processes. *Academy of management Journal*, 17(4), 605-621.
- Vander Laenen, F. (2009). The Nominal Group Technique, a participative research technique holding great potential for criminology. In M. Cools, De Kimpe, S., De Ruyver, B., Easton, M., Pauwels, L., Ponsaers, P., Vander Beken, T., Vander Laenen, F., Vande Walle, G., Vermeulen, G.(eds.) (Ed.), *Contemporary Issues in the Empirical Study of Crime* (1 ed., pp. 109-134).

Vander Laenen, F. (2010). Focusgroepen. In *Kwalitatieve methoden en technieken in de criminologie* (pp. 233-260): Acco.

Vander Laenen, F. (2015). Not just another focus group: making the case for the nominal group technique in criminology. *Crime Science*, 4(1). doi:10.1186/s40163-014-0016-z

Wortley, S., Tong, A., & Howard, K. (2016). Preferences for engagement in health technology assessment decision-making: a nominal group technique with members of the public. *BMJ Open*, 6(2), e010265. doi:10.1136/bmjopen-2015-010265

Zaami, S., Busardò, F., Pichini, S., Pacifici, R., & Marinelli, E. (2019). The value of toxicological and forensic analyses in the global challenge to health risks caused by new psychoactive substances. *European review for medical and pharmacological sciences*, 23(14), 6008.

CHAPTER 5 – CONCLUSIONS AND RECOMMENDATIONS NPS-CARE

Authors: Anton Van Dijck, Sarah Simonis, Tina Van Havere, Peter Blanckaert, Lies Gremeaux

1. Introduction

In this chapter, we wrap up all earlier chapters of the NPS care project in a concise way that aims to be comprehensible and comprehensive at once. What did we find in literature and what did we get out of exploring the knowledge and needs of both users of NPS and the professional health care field?

This final chapter is a summary of the results of all Work Packages and translates them into recommendations. The overarching framework consists of two axes: first, the health aspects of NPS use in terms of prevention, harm reduction and treatment and second, the local, i.e. Belgian, context. More specifically, *‘what can we learn from the different WPs in order to develop Belgian health care interventions to cope in an appropriate way with quickly changing developments on NPS?’* (BELSPO-DR/02/79, 2016).

2. Theoretical framework underpinning research conclusions

2.1. The nature and scope of the use of NPS

The object of this research, the use of New Psychoactive Substances (NPS), is scarcely documented in (inter)national research, partly for obvious reasons. Since the use of NPS is a relatively recent phenomenon, available scientific data are limited by default. This is especially the case when scrutinizing the health aspects of the issue (Griffiths et al., 2013). However, in the end we look at the use of (illicit) substances, something that is well documented in literature. Pointing out the differences between both, i.e. the use of NPS and that of ‘classic’ illicit substances, is not a straightforward matter as reflected in the needs (further below).

2.1.1. NPS in a nutshell

No formal definition of NPS is universally accepted (EMCDDA, 2016b). Throughout this work, we used the most widely cited description of NPS, namely: *‘A new narcotic or psychotropic drug, in pure form or in preparation, that is not controlled by the 1961 United Nations Single Convention on Narcotic Drugs or the 1971 United Nations Convention on Psychotropic Substances, but which may pose a public health threat comparable to that posed by substances listed in these conventions’* (EMCDDA, 2006). In short, NPS is a ‘catch-all’ term for substances that are chemically designed to mimic the effects (and thus including health risks) of traditional illicit drugs (cannabis, cocaine, etc.) while trying to evade international drug laws.

Since their emerging around 2005, almost 700 of NPS are reported in Europe (EMCDDA, 2019b). Such numbers attract a lot of (media) attention but do not reflect the nature and size of the NPS issue. At this point there is no reason to assume that the use of NPS is widely popular and/or problematic in most European countries, including Belgium. Country estimates of NPS use vary between 0,1 and 0,9% (UNODC, 2018b). Therefore, NPS related health problems have less to do with prevalence of use than with the obscurities surrounding the substances in question. Simply put, since most NPS are produced clandestinely and used only recently, we have no idea about their composition, effects and (acute/chronic) health hazards.

2.1.2. Conceptual issues: 'newness'

The acronym NPS gives the impression of being a well-defined object (or class of objects) characterised by its novelty or 'newness'. However, we found that the term resists easy definition. NPS such as mephedrone or GHB for instance, are not new but were synthesized ages ago. Looking at NPS as a well-circumscribed entity singularizes something that is not. On the contrary, NPS are highly complex and diverse in number, chemical class, effects, forms, dosage, etc. Or, as Sumnall, Hamilton, and Monaghan (2017) put it: *'it is too simplistic to consider [NPS] as one class of drug, although they are often (...) discussed as such'*.

A consequence of such a singular view, is that it 'obscures difference' (M.J. Barratt et al., 2017); differences in 'routes into, through and out of use', for example (Soussan & Kjellgren, 2016). We propose to look at NPS as the fluid phenomenon of substance use that took off around 2008 and includes old, new, legal and illegal substances as well as newly emerged usage patterns and use (sub)cultures. Examples are MDPV (3,4-methylenedioxypropylvalerone) use in chemsex rituals or the use of ketamine as a 'club drug'.

2.1.3. Sign of the times

In our view, instead of seeing NPS as a separate class of substances we should understand it as the next chapter in the history of drug use; as a part of a wider drug landscape including traditional illicit drugs and legal 'human enhancement' drugs like steroids, melatonin, etc. (G. R. Potter & Chatwin, 2017). We can identify similarities with classic illicit drug use, such as NPS use among vulnerable groups as a symptom of socio-economic deprivation. We also see differences with classic illicit drugs, for instance in the case of experimental NPS use in online communities of 'psychonauts', active on user fora and sharing experiences through 'trip reports'.

In fact, the issue of NPS cannot be understood without acknowledging the bigger picture of a late modern society that is rapidly changing in terms of technological possibilities, information sharing and globalisation. The internet is a game changer³⁸ in this respect, influencing every aspect of our lives, including the way psychoactive substances are produced, traded and consumed (cf. recent study CRYPTODRUGS by Prof. dr. Charlotte Colman).

2.2. The influence of NPS on drug policy and legislation

The number of emerging NPS and the speed at which they enter(ed) the market, has put unrivalled pressure on the (inter)national drug control system. It is on a national level though that NPS have profoundly changed the landscape of drug policies (Wilkins et al., 2017). An increasing number of European countries rushed to revise drug laws or designed new ones. In Belgium, authorities opted for a new, generic legislation targeting NPS in September 2017 (BS/MB, 2017).

In practice, this means that all NPS became illegal in Belgium like in many European countries (UK, Ireland, Poland, Sweden, etc.). In theory, this comes down to stricter, prohibition-oriented approaches, which seems surprising given what Das and Horton (2019, p. 1489) describe as 'the welcome shift in recent years towards more humane drug policy and support for decriminalising drug use and possession by among others, the UNODC and INCB'.

What this evolution means to the market and to the use of NPS itself, has been widely criticised by

³⁸ We found this term coined by O. Corazza (2017).

some scholars (Beltgens, 2017; O'Hagan, 2019). Stricter legislative control has shown to be a key driver for NPS, resulting amongst others in increasing prices and substance displacement (Kavanagh & Power, 2014; Neicun et al., 2019). In this sense, the political/legislative tools developed to curb the flow of NPS are at the same time the very stimulants of NPS innovation; a paradox described by Measham and Newcombe (2016, p. 579) as *'running with the hare and hunting with the hounds'*.

3. The user's perspective on NPS

3.1. Who are the users of NPS and what do NPS mean to them?

3.1.1. Characteristics of the user's sample

The study sample of 45 interviewed NPS users is heterogeneous in several ways. Overall, we distinguished three user's 'profiles', based on knowledge/experience of people and the nature of NPS use. The majority of the interviewed NPS users are **experienced users**. They stand out by their expertise and knowledge about many NPS. Well-informed, they apply harm reduction measures and use in a social setting. Their entourage also functions as a source of information and informal control. The **occasional users** typically limit their use to few NPS and to specific occasions such as parties or nightlife settings. They control their use of NPS, which function mainly as a 'social lubricant'. The smallest category are the **deprived users**. Substance use is omnipresent but should be considered in a wider, vulnerable socio-economic context. NPS use is interwoven with the use of alcohol, cocaine, etc. and can be considered ancillary or 'episodic'. A limited number of NPS are used (e.g. GHB, ketamine) by the latter group.

3.1.2. User's semantics and role of NPS

The definitional inconsistency of the term NPS is reflected in the interviews with users. None of the respondents uses the term 'NPS'. Instead, they refer to 'designer drugs', 'RC's' (Research Chemicals) or – in most cases - simply (short)name the substance they are talking about (e.g. 'ket' or ketamine).

Overall, the interviewed users paint a complex picture of their NPS use, attributing different functions to different substances depending on what they look for and on the (social) context they find themselves in. In practice, this means that virtually all interviewees do not limit themselves to the use of one substance and all of them are familiar with the 'classic' counterparts of NPS. The idea that NPS will replace traditional illicit drugs is not supported by our respondents (Semków, 2019; J. B. Zawilska, 2015). To them, NPS are not replacing but rather complementing existing drugs. They see NPS as another array of drugs to choose from; sometimes advantageous to, sometimes a far cry from 'the original' (a classic illegal drug).

3.1.3. Motivations for NPS use

Why do people use NPS? Our findings confirm those of other studies: for reasons no different than other psychoactive substance use (Kettner, Mason, & Kuypers, 2019; McLeod et al., 2016; Soussan & Kjellgren, 2016). The most cited internal motivation of our respondents is 'pleasure' ('because it is fun') followed by reasons such as increasing energy, social bonding and mind exploration ('altered states of consciousness'). Other users mention pain-relief, to relax or to cope with everyday life.

An important external motivator has to do with 'more convenient use' of NPS, compared to classic drugs, mainly conditions related to the easy access via the online market. A subgroup of users sources

their products online, stressing perceived advantages of anonymity, quality or price and a sense of safety they do not find in street markets.

To conclude, for a majority of NPS users, positive internal motivations spark their use. NPS and other drug use occurs in a social context, often in nightlife, at specific occasions and to counterbalance a stressful working life. Although some of them have known problems, often because of alcohol use, most of our respondents' use of NPS can be considered integrated and/or recreational. The deprived users are characterised by more problematic use: they experienced addictions, contact with justice, stigma and use classic illicit drugs in combination with NPS, dependent on the availability. Their most important motivation to use NPS (or other drugs) is coping with daily life and responsibilities.

3.2. Guinea pigs

When asked what they are concerned about, NPS users gave a recurring answer: the scarcity of information about the substances they use (notably composition and/or quality) and the unknown effects of many NPS on their health, particularly on long term. They are aware of the risks involved in substance use and they actively try to minimize those risks. However, in the end they express the feeling of being a '*guinea pig*' when it comes to using NPS.

In practice this means that 75% of the sample tries to inform itself to the extent possible, looks for and shares information online as well as among friends and has developed harm reduction strategies. Examples vary from 'start with the smallest dose possible', 'never use alone', over 'do not combine with alcohol', 'having a sober driver', to 'use your own clean needles or other equipment'. The deprived users get their information through friends, however, they don't adopt health or harm reduction measures.

3.3. Health needs of the NPS users

Before outlining the primary needs of the interviewed NPS users along the prevention/care continuum, it is important to point out that for many of them, wider social and policy considerations were the first things that came to mind. More specifically, society's or public opinion on drug use (stigma) and current NPS (drug) policy and legislation.

3.3.1. The social and legal (policy) aspects of NPS use

Many users showed to be preoccupied with the biased public perception of substance use and the attached stigma. In their experience, stigmatizing users results in specific, added harms. It creates a barrier to seeking help when needed or it can compromise people's future because of a criminal record. The most vulnerable users encountered, most notably, experience stigma as a daily reality that negatively influences many aspects of their life. According to the interviewees, a public debate focused on the normalisation of drug use, including NPS use, is essential. This is a debate which cuts the perceived link between drug use and 'deviancy' based on rational, evidence-informed information.

Virtually every user we spoke to has a negative view of Belgian drug policy and drug laws, including the generic one. Prohibition policies are labelled 'counterproductive', 'unethical' and a 'free pass' for criminal organisations. The idea that they are lawfully viewed as 'criminals' is unacceptable to our sample of NPS users. In summary, a large majority of NPS users proposes a change in drug and NPS policy, including regulatory approaches. They call for a redistribution of competences to health and social authorities to guide such policies.

3.3.2. NPS targeted needs concerning prevention according to the users

Based on the interviews with NPS users and on the outcomes of the focus group we conducted with users, prevention needs/methods oriented towards NPS can be summarized in the following principles. Firstly, most users find that prevention interventions tailored to NPS are quasi non-existent and **need developing**. Secondly, users stress a general principle when organizing prevention initiatives based on accepting the reality of NPS use, offer **objective information** (i.e. including positive effects/benefits) while stressing the risks and uncertainty about health effects of many NPS. Thirdly, and specifically when young people are a target audience, it is important to address the **wider social context** (e.g. pointing to phenomena such as 'peer pressure' or 'group conformism').

3.3.3. NPS tailored needs of harm reduction nature according to the users

Harm reduction is overall considered crucial, specifically when dealing with NPS due to their often unknown source and composition. More specifically, the NPS users we interviewed as well as the ones present during the focus group are looking for tangible, **practical and useful harm reduction tips** when it comes to using different NPS (e.g. interactions between different substances, sound information about the health risks of NPS and how to minimize them, etc.).

However, the one need with a harm reduction character that prevails for virtually all NPS users we spoke to during this project is the implementation of **drug checking services**. Quality control and substance (composition) information through drug checking interventions is felt to be critical from a health point of view. Such services should operate preferably on various locations and should also be offered on locations where NPS use is more prevalent (e.g. at festivals).

3.3.4. Treatment needs related to NPS use according to the users

Suggestions at this point mostly originated in a minority of our sample, i.e. people having (had) problems due to their NPS use. For issues such as addiction, users highlight the similarity of things (whatever the substance involved) while for others, NPS use requires specific needs in the treatment sector. These specific needs can be summarized as: a lack of knowledge on NPS in existing specialized services, suggesting **training of staff**, non-identification with clients using classic drugs pointing to the need for **tailored trajectories** and/or services and finally, several interviewed users as well as focus group members suggested exploring the **employment of people with lived experience** (i.e. NPS use) in care services.

4. The use of NPS through the eyes of the Health Care Professionals (HCPs)

4.1. Inventory the main needs in terms of NPS tailored prevention, harm reduction and care

To incorporate the views and needs of the professional field (prevention, harm reduction and care), we recruited 31 professionals (especially from specialised prevention, harm reduction and treatment organisation) for conducting NGTs, assigning them to inventory the initiatives that are lacking when it comes to NPS (use).

The most important needs revolve around the following themes:

- Increasing the weight of harm reduction in drug and NPS policy;
- Reforming drug/NPS legislation to minimize harms resulting from criminalizing substance use;

- Stimulate scientific research into the NPS phenomenon;
- Interaction between professionals and NPS users, including involvement of the latter in NPS policy;
- Formation and/or training about NPS for the health care field (from general to specialized);
- Collecting and updating sound information on NPS use, potentially integrated in an online database;
- Developing a drug/NPS checking network as a harm reduction measure and monitoring tool.

4.2. Ranking of the inventory of professional needs according to importance

4.2.1. The NPS care survey

After setting up a list of 21 specific professional needs, we inserted the list in a short, online survey for distribution in the broader health care field. The questionnaire was set up on an anonymised basis, asking no identifiable data and ultimately sent out by our project partners.

We used the survey as a tool to end up with a ranked inventory. In other words: respondents collectively attributed a score to each of the items to end up with a ranking of the most important professional requirement up to the least important one.

4.2.2. The sample of survey respondents

We received a total of 272 valid answers (147 French/125 Dutch) given by an equal proportion of 50% women and men, professionally active in (non-)specialized care, harm reduction or prevention. Roughly one third of all respondents is older than 45 years, another third is between 34 and 45 years old. Together, the provinces of Antwerp and Brussels (capital) are the professional home to nearly one in three respondents. Most respondents, i.e. 171 (63%) individuals, turned out to be specialized HCPs. Half of them work in treatment-, 30% in harm reduction- and 20% in prevention settings.

4.2.3. The ranked list of professional NPS-targeted needs in prevention, harm reduction and care

All valid returns basically replied to two questions: firstly, they selected five critical needs and secondly, they ranked these five by scoring each one, based on (personal) importance. We deconstructed all 272 answers according to each of the 21 needs, resulting in the following ranking of the 10 primary NPS-targeted requirements of the (surveyed) health care sector.

Table 6.1. Results of the NPS care survey in terms of importance of needs

RANK	NEED	RESPONDENTS (%)	SCORE (Σ)
1.	<i>Decriminalisation of use and possession of drugs</i>	93 (34)	335
2.	<i>Development of drug checking interventions (easy access, quick, anonymous)</i>	96 (35)	309
3.	<i>Exchange of knowledge, info and practice on NPS among professionals/services</i>	101 (37)	307
4.	<i>Offering tailored formation on NPS to (non) specialized professionals</i>	93 (34)	276
5.	<i>Online information database on NPS (user friendly, fast, updated) for everyone</i>	85 (31)	256
6.	<i>Forum for dialogue & interaction between professionals and NPS users</i>	76 (28)	250
7.	<i>Launch non-political, fact-based public debate on NPS and drug use</i>	69 (25)	224
8.	<i>Stimulate NPS user participation & peer support in policy, practice and research</i>	77 (28)	215
9.	<i>Scientific research into NPS on products (Drug), users (Set) and context (Setting)</i>	67 (25)	197
10.	<i>Medical, (psycho)pharmacological, etc. information hub on NPS for clinical HCPs</i>	69 (25)	195

We mention the number of respondents who selected each need/the frequency of votes for each need or in other words, to what extent an idea is shared. Secondly, we summed all scores for each need and based the ranking above on these scores.

4.3. Primary needs related to NPS use according to the health care professionals

A rough comparison between the inventory of professional needs as determined by a limited number of HCPs and the ranking of the inventory by 272 surveyed professionals, reveals similarities in high-priority issues. The most important NPS targeted needs for the prevention, harm reduction and care field, are the implementation of drug checking interventions and a change in policy and/or legislation on the matter. As illustrated above, both issues are highly important to the users of NPS as well.

Based on the insights of both the NPS users and the HCPs we questioned during this study and on data presented in scientific literature, we can formulate a number of recommendations or health-oriented interventions with regard to the use of NPS in our country.

5. Recommendations

1. Selective and indicated prevention should focus on all substance use, including legal substances, based on objective information and combined with a non-judgmental attitude.

NPS-tailored prevention was addressed throughout this project. The users of NPS expressed more concerns about this topic, both in interviews and the focus group and this was often triggered by personal experience. A summary of their thoughts:

- NPS/drug prevention requires knowledge combined with a non-judgmental attitude;
- Users and HCPs propose a 'just say know' over a 'just say no' approach. Objective information, including positive/beneficial effects is dubbed 'critically important' by both groups;
- Drawing attention to the incongruence between legal status and potential harm of substances, thereby focusing equally on alcohol, tobacco, medication, steroids, etc. (Lievens et al., 2017);
- Explaining the generic law on NPS is necessary as well as the term 'legal highs' and its connotation of innocence (see also O. Corazza, Demetrovics, van den Brink, & Schifano, 2013);
- Exploring the potential of online prevention approaches.

Several interviewees were subjected in high school to prevention interventions which exclusively focused on the negative aspects of drug use. EMCDDA (2017a) refers to such approaches as 'ineffective but popular'. There is more evidence for prevention narratives that tell the whole story and adopt a wider framework based on social skills and general behaviour.

2. Implementing and developing drug checking services as a monitoring (pharmacovigilance) and harm reduction tool for NPS and other drugs, embedded in existing European networks.

The implementation and development of drug checking services turned out to be the most important theme according to professionals taking part in the NGTs. The survey respondents ranked it as the second most important need. Drug checking interventions are initially understood by HCPs as building blocks of an overarching prevention and harm reduction policy. In other words, such projects should be **accompanied by information/education and counselling**. Secondly, they can function as monitoring tools to collect information about a drug market for public health purposes (pharmacovigilance). This function applies particularly to NPS due to their novelty and often unclear composition.

Drug/NPS testing points were also the first thing interviewed users thought of when asked what their needs are. The focus group of users unanimously supported drug checking as well, as a harm reduction measure of high urgency. According to the group, testing services should meet the following conditions: anonymous and easily accessible (low threshold), fast and quantified results and not limited to locations associated with existing care or prevention services in order to reach a maximum of users (including in recreational settings such as clubs, free parties, etc.). The cost for users remained open to debate: paying for such services is evident to some, to others it is not.

In a report commissioned by the EMCDDA, Brunt (2017), among others mentions the following considerations in support of drug checking services as a health promotion/harm reduction strategy:

- It reaches the - hard to reach - young recreational users;
- It is appreciated by users, resulting in a willingness to participate in a dialogue about prevention

and harm reduction with by peers and professional staff³⁹;

- It is believed that the personal contacts are more effective for behavioural change
- 25 to 100% of users discards its drugs/NPS if their composition proves harmful;
- Drug checking systems do not increase (prevalence of) drug use and/or incite use among non-drug users⁴⁰.

Ultimately, the EMCDDA describes 'early warning systems and monitoring of substances being consumed, including drug-checking services'⁴¹ as good practice in nightlife settings.

Based on these arguments and knowing that drafting a legislative framework as well as technical requirements, operational costs and staffing of NPS/drug checking sites are big (financial) hurdles to take, we propose a step-by-step approach. A first step can be the design of a legislative framework and a system of funding (cf. free service is the best choice to avoid the threshold). Subsequently, a national network of pharmacovigilance can be realized (c.f. the Dutch Information and Monitoring System (DIMS)⁴², allowing Belgian practice to become part of international initiatives such as the Trans European Drug Information (TEDI) network⁴³ and enables us to evaluate these kinds of interventions.

3. Specialized treatment services shift to encompass offer for NPS users

The evolution of NPS use has fuelled the debate on specialized care services for NPS use. Some support the adaptation and implementation of NPS treatments needs in current specialized treatment while others favour the creation of new, NPS-only treatment services (O Bowden-Jones, Fitch, Hilton, Lewis, & Ofori-Attah, 2014; Tracy, Wood, & Baumeister, 2017). Still, a combination of both ideas seems the realistic option (Campbell, O'Neill, & Higgins, 2017).

Throughout the NGTs, we found various indications pointing to the need for specific care interventions. The consensus reached on the importance of developing NPS tailored psychosocial interventions (NGT1). At the same time, the subsample of interviewed users that actively looked for help in the context of its NPS use (at some point in life) made the following suggestions:

- The feeling of being more knowledgeable on NPS than the caregivers;
- Being treated as an outcast, by staff and by other clients (so called 'intra-group stigma');
- Underlying non-identification with existing services (c.f. O Bowden-Jones et al., 2014; Pirona, 2017).

However, we should not forget that most NPS-users also use other classic illicit drugs. Therefore, we propose and integrated offer. We based our recommendations on the recommendations drafted by Ralphs and Gray (2018). Translated to the Belgian context, we withhold the following elements:

- Developing a custom and/or targeted approach by existing services to include NPS using groups, starting with training (part of) the staff to detect and access people with NPS related problems;

³⁹ See also Van Havere, Tutenges, De Maeyer, Broekaert, and Vanderplasschen (2015)

⁴⁰ Annemieke Benschop, Rabes, and Korf (2002)

⁴¹ See http://www.emcdda.europa.eu/best-practice/briefings/nightlife-festival-and-other-recreational-settings_en

⁴² <https://www.trimbos.nl/kennis/feiten-cijfers-drugshandel-drugsincidenten/monitoring-drugsmarkt-in-nederland-dims>

⁴³ <http://www.safernightlife.org/tedi>

- Enhancing skills in terms of use of technology is essential. Examples: monitoring internet and darknet to gain insights into nature, price, supply etc. of NPS (Fletcher, Tasker, Easton, & Denvir, 2015) (cf. SCANNER project of Sciensano which is recently implemented);
- Focusing on (joint) problems of mental health and NPS use. Several interviewed users confirmed this, struggling with mental health issues as it is, only to find them worsened by prolonged NPS use;
- From a broader perspective, the integration of services (a so called ‘multidisciplinary approach’) could be improved (mental health, sexual health⁴⁴, housing organisations, etc.) including recovery oriented treatment.

Finally, exchanging information and practices among colleagues and services can save time and build experience. Scherbaum, Schifano, and Bonnet (2017) add the need for constantly updated information (cf. infra).

4. Offering general ‘on demand’ NPS oriented information to professionals and advanced training to frontline and specialized HCPs according to specific needs.

NPS targeted formation or training was omnipresent during the NGTs and (professional) survey respondents ranked it as the fourth most important need. In an Italian study from 2013, more than 60% of addiction doctors and specialized psychiatrists rated their expertise on NPS as ‘poor’ or ‘basic’ (P. Simonato et al., 2013). Owie et al. (2017) present comparable conclusions from a survey among psychiatrists in the UK. The same goes for a group of emergency nurses and physicians in London (Wood, Ceronie, & Dargan, 2016).

Therefore, we would present an online or face-to-face course in a modular form, from introductory information on substances to acute and chronic harms of all NPS, qualitative data on market and culture of use, etc.

- We refer to a tool developed by Public Health England (PHE) for people active in general or specialized youth work, education, care, etc., called ‘*Resource Pack for Informal Educators and Practitioners*’ (Home Office, 2016);

Further inspiration can be found in the NEPTUNE project (UK) and its ‘guidance for clinical management of NPS users’, specifically the e-training package⁴⁵. Translation into French and Dutch is preferable.

5. Development of a health-oriented approach of NPS (drug) use in detention settings, focusing on prevention and harm reduction.

NPS are believed to be popular among detainees, among other because they are not picked up by existing screening instruments (EMCDDA, 2018b; Norton, 2015). Unlike in countries such as the UK, in Belgium only anecdotal reports document NPS use in prisons (Duke, 2019; EMCDDA, 2018b).

After French-speaking HCPs addressed the issue of drug use in detention during the NGT’s, almost a quarter (23%) of survey respondents selected the need ‘prevention and harm reduction policy in prisons’. Also, two participants of the Flemish focus group of NPS users who had been detained in the past,

⁴⁴ An example is the REACH clinic (UK), a partnership between the Hathersage Sexual and Reproductive Health service and an integrated drug/alcohol service <https://www.thenorthernsexualhealth.co.uk/Chemsex-Support>

⁴⁵ see <http://neptune-clinical-guidance.co.uk/>

stressed the importance of collaboration between (specialized) care ‘outside’ and ‘inside’. They criticised the lack of a uniform policy across prisons on substitution treatment (cf. also (F Vander Laenen et al., 2013)), among other things and the group expressed its support for harm reduction measures in prisons.

Adding to this advice, we would like to cite a good practice/response option recommended by the EMCDDA (2018b): *‘Developing support and training to empower professionals in existing services to recognise how their skills and competences can be applied to responding to problems associated with NPS’*⁴⁶. We looked at specific interventions applied in the UK (see PHE, 2017) and suggest developing training modules for prison staff. Inspiration is found in the ‘NPS in prisons; a toolkit for prison staff’, developed by Public Health England (2016) and covering issues such as product information, administration modes and effects of NPS and guidance for interventions in case of NPS related problems, based on the principle ‘treat what you see’ .

Applied to our country, we propose to embed this tool in a broader training, covering classic drugs as well, and integrated in a prison-wide policy focused on prevention and harm reduction messages and interventions. We follow the WHO and EMCDDA in their most important responses to the incarcerating of PWUD: alternatives to punishment, equivalence of care inside to that provided in the community⁴⁷ and continuity of care between community and prison on admission and after release (EMCDDA, 2018b; Vandeveldt, Vander Laenen, Vanderplasschen, & al., 2016).

6. Stimulate attention to sexualized drug/NPS use in research and in the health care field.

Research shows a higher prevalence of NPS use in groups such as Men who have Sex with Men (MSM) and the chemsex scene in general (Desai, Bourne, Hope, & Halkitis, 2018). Chemsex is associated with high-risk drug and sexual behaviour (injecting, unprotected sex, sex with multiple partners) potentially resulting in hospitalization, overdoses, Sexually Transmitted Infections (STI) and HIV/HCV-infection (EMCDDA, 2017a).

We recommend creating tools to reach and address these groups, for instance promoting harm reduction tips on practices such as ‘slamming’⁴⁸. An example is a website like ‘Monday / Friday’⁴⁹ or Exaequo with their network on chemsex⁵⁰. Furthermore, information on prevention/treatment of bloodborne viruses and STI’s should be offered (including screening possibilities). Finally, citing Macfarlane (2016), ‘to provide training to sexual health services and specialist drug centres’ can be part of the practice.

⁴⁶ http://www.emcdda.europa.eu/best-practice/briefings/responding-new-psychoactive-substances_en

⁴⁷ Which is also in accordance with the Belgian Basic Law explicitly that determines the right to healthcare in detention and care equality between the community and the prison context (Vander Laenen, F. & Eechaudt, V. (2018). Gelijkwaardigheid van de gezondheidszorg in detentie: de wet is er, nu nog de toepassing, Fatik, 35(160), 3-6.)

⁴⁸ Definitions of ‘slamming’ share three characteristics: injection, sexual party, psychostimulant drugs (based on Giraudon, Schmidt, & Mohammed, 2018).

⁴⁹ <https://www.fridaymonday.org.uk>

⁵⁰ <https://www.exaequo.be/en/hauptnavigation/gay-life/chemsex>

7. Reduction of morbidity/mortality in (NPS) users of opiates and synthetic opioids by developing initiatives of naloxone distribution.

Synthetic Opioids (SO) target similar receptors as their classic counterparts (e.g. heroin) but tend to be more potent, significantly increasing the risk to overdose (Drummer, 2018). SO, including new fentanyl analogues, remain a concern for the EMCDDA (2018a), with ten notifications in 2017. In Belgium as well, recent alerts from the Early Warning System (EWS) involved U-47700 and fentanyl analogues (Blanckaert, 2017). Besides this, we encountered the use of both these substances in our research sample of interviewed NPS users. Against this background and based on the following arguments, we recommend the uptake of so called 'Take Home Naloxone' (THN) programmes in our country making it possible to provide this antidote to specific groups of users

Naloxone is medication used to temporarily reverse the effects of any opiate/opioid due to its antagonist properties. It is non-toxic, safe to use and has no side- or adverse effects (Peprah & Frey, 2017). 'Take home' programmes consist of training of PWUD by professionals, followed by distributing naloxone to PWUD and their close social environment (friends, partner, social worker, etc.). The rationale is to prevent overdoses by people likely to be present at such an event, who recognize the danger and are able to administer an antidote (EMCDDA, 2016e). Finally, numerous studies confirm the benefits of naloxone projects, including saving lives of PWUD using 'classic' or new opioids (McAuley, Aucott, & Matheson, 2015; Naumann et al., 2019).

Our recommendation is supported by the fact that the EMCDDA (2016e) includes THN projects in her best-practice portal, listed as 'likely to be beneficial'⁵¹. Furthermore, in the context of the focus groups, both professionals and NPS users were in favour of implementing analogue initiatives in Belgium.

In conclusion, the pilot THN-project, initiated by the GIG-project⁵² at Free Clinic in Antwerp and presented during the focus groups, is a valuable resource to build upon. At present though, clouds of legal nature cover the project, illustrating the need for a clear legislative framework and cooperation between justice- and health care fields. We suggest evaluating and potentially replicating GIG's pilot project throughout the country, with adaptation to local contexts, as is essential for (other) harm reduction strategies (F. Vander Laenen et al., 2018).

In 2020, the SO –PREP study started, funded by the European Commission, to gain a better understanding of the current synthetic opioids situation in Europe. During this study, the SO health system response capacity in Europe will be evaluated and a model SO preparedness as well as a Toolkit for Member States will be developed.

8. Realise involvement of NPS users in policy making

User activism has historically been an important element in the development of drug and/or harm reduction policy (Rhodes & Hedrich, 2010). Despite the 'lagging behind' (Greer & Ritter, 2019) of user's participation to policy, the importance of including 'lived experience' in policymaking as a primary source of knowledge seems to gain acceptance (Head, 2016; Monaghan, Wincup, & Wicker, 2018; F. Vander Laenen, Favril, & Decorte, 2016). In a current article on evidence based strategies, we read that

⁵¹ See http://www.emcdda.europa.eu/best-practice/briefings/reducing-opioid-related-deaths_en

⁵² The GIG acronym points to 'Health Promotion and Injecting Drug Use'.

‘the voices and experiences of PWUD are crucial’ and that ‘stigma and discrimination deter health care access (...) and reduce treatment entry/retention’ (Degenhardt et al., 2019, p. 1492).

Professionals taking part in this study strongly seek dialogue with NPS users and see it as an added value to involve them on different levels, e.g. in research, practice and policy. NPS user involvement ended up as the second most important theme in the NGTs and survey results confirmed the weight of this topic. Particularly the novelty of NPS and their use, has made professionals aware of the benefits ‘first-hand experience’ could offer.

- To answer the request of HCPs for a ‘platform for dialogue exchange’ with NPS users, we suggest turning to an online solution. Interesting work has been done by Rosino and Linders (2015).
- As inspiration for Belgium, we return to ‘Psychoactif’ (also illustrated during focus groups)⁵³ who mention as a goal on their website ‘to transfer information to the professional health care field’.

In general, we align with the EMCDDA (2017a), that recommends user involvement in prevention and care interventions and in their research-based guidelines. We look to countries such as Australia, Sweden or Finland in this respect. In Finland, a national network of frontline workers, including HCPs, policy makers, NGOs and a user’s organisation share expertise on a regular basis (Leppo & Perala, 2009). In Ireland, a new health led ‘National Drug Strategy’ was presented which took shape through a ‘cross-discipline committee’, including family support network and representatives of PWUD (Comiskey, 2020).

9. The 2017 generic legislation on NPS: raising awareness among professionals and users

Belgium, just like some other European Member States has opted to develop a legislative response to the rapidly evolving NPS market (Emcdda, 2016d). Belgium opted to list defined ‘generic’ groups of substances, rather than defining individual drugs as done previously.

The Belgian generic legislation on NPS cannot be considered acquired knowledge among professionals and users. Therefore, we recommend issuing more information about its content and implications. Targeting HCPs, this could form a specific topic in (online) formation or training. To inform users, we think of leaflets and online initiatives.

Based on our population samples, the need to raise awareness about the current illegal status of all NPS appears to be most urgent in Brussels and Wallonia. We noticed a knowledge gap between the Flemish speaking and French speaking professional groups who took part in the NGTs. Flemish professionals were without exception well-informed about the change in NPS legislation, including its underlying rationale. The opposite is true for French-speaking professionals: in two out of three NGTs, all members turned out to be unaware of the Royal Decree of 2017. A similar conclusion surfaced from the French speaking sample of interviewed users.

We stress that these findings only apply to the samples of users and professionals we questioned and cannot be generalized. Nevertheless, we feel that the generic legislation deserves more explanation to

⁵³ Psychoactif is a French self-support organization of users who built an information site receiving 23 000 visits a day in 2017. <https://www.psychoactif.org/forum/index.php>

HCPs and users of NPS, given its unique character, potential effects and the complex legal questions surrounding it (see also J. van Amsterdam et al., 2013).

10. Monitoring and evaluation of the 2017 generic law on NPS

The Belgian generic NPS law can arguably be considered a step towards prohibition by exactly defining which compounds are illegal, thereby including most psychoactive substances and abandoning a case-by-case 'risk assessment' of each potential new drug (J. van Amsterdam et al., 2013). It goes without saying that this innovative generic law enables law enforcement actors to better respond to this rapidly evolving NPS market from their point of view. At the same time however, scientific evidence stresses the potentially unintended consequences of prohibitionist laws and several European policy practices (UK, Ireland, etc.) that rely on such laws, include specific, well-described exceptions and/or amendments.

The Belgian law (Royal Decree) has the benefit of clarity and its rationale, i.e. keeping legislation up to pace with rapidly emerging NPS, is relevant. The implementation of the generic law though, is riddled with concerns; not in the least of a constitutional nature (Beltgens, 2017; Nutt, 2011). An example is the uncertainty about whether a future substance is subject to the law or not, potentially violating the right to 'due process'⁵⁴. Other (public health) concerns are illustrated after the banning of mephedrone in the UK: use did not significantly decrease, prices increased and purity decreased (Beltgens, 2017). One thing we did find in our sample is that laws do not affect the (motivation for) use of the interviewees. 96% of our sample admits that the legal status of a drug is not related to current use (intention). This observation is not new and has been illustrated in many studies (a.o. Doessel & Williams, 2008; MacCoun, 1993; S. Taylor, Buchanan, & Ayres, 2016).

Based on these arguments, systematic monitoring of the situation is necessary to ensure an evidence-based public health response tailored to the needs and context of Belgian users. Scientific evaluation of the effects of the generic NPS law on drug demand and supply reduction is desirable. Does the Decree succeed in countering production and use of newly emerging drugs? Or will it trigger other, more complex NPS that do not fall within its boundaries? Two of many questions that need answering.

11. The generic legislation on NPS in Belgium should incorporate amendments that aim to avoid added harms resulting from criminalizing possession of NPS.

A considerable body of literature has stockpiled on the costs, adverse effects and health hazards of a solely prohibitive drug policy; both on drug users and on society (MacCoun, 1993; Nutt, 2011). Recently, also United Nations (UN) agencies called for a decriminalisation of drug use and -possession for personal use based on the principle of proportionality (Degenhardt et al., 2019). In all phases of our study as well, a similar debate appeared at the forefront. To professionals and NPS users, public health and law enforcement efforts can be complementary, provided the latter mainly target the supply side of the market while NPS possession for personal use are *de facto* exempted from criminal law.

The item of decriminalising possession of NPS was brought forward as a high priority need in four of five NGTs. Subsequently, the broader professional field added weight to the issue by ranking 'de-

⁵⁴ "anyone whose action may be subject to criminal sanction ought to have clear notice of what is and what is not forbidden" (cited in Beltgens, 2017)

criminalisation of possession of drugs⁵⁵ as the most urgent need in the survey. Among NPS users, alternative drug legislation was arguably the most debated topic. According to all interviewed users, a change in policy is a priority based on their view that the harms resulting from criminalizing the user outweigh the harms from substance use itself. A consensus on this topic was also reached in the user's focus group. In the end, (de facto) decriminalising possession of substances was considered realistically achievable, analogue to policy practices in various European countries (UK, Poland, etc.).

As a recommendation, we recognise that a decriminalisation of possession for personal use is an issue to be evaluated by legislative experts and to be part of a (political) debate. All technical possibilities at this point - without jeopardising adherence to international treaties and European regulation - should be considered.

12. Develop epidemiology of NPS use through triangulation of methods/data

Three NGTs reached a consensus on the importance of epidemiological data on NPS use. However, presently it is sheer impossible to produce quantitative data on NPS use in the general population due to low prevalence levels along with aspects of terminology (Korf et al., 2019). Other challenges are the varying names/products and the rapid (dis)appearance of NPS (Young, Dubeau, & Corazza, 2015). Therefore, at present a 'triangulation' of methods is advisable to obtain maximum clarity on NPS use in Belgium (Wood & Dargan, 2012). The EMCDDA (2017b) for instance, mentions:

- Online techniques and internet monitoring (e.g. online discussion fora, market sales, etc.);
- Monitoring through drug checking;
- Proactive approaches such as residue testing (e.g. Escape project⁵⁶) and outreach work;
- Wastewater analysis and pooled urine collection (Bijlsma, Celma, López, & Hernández, 2019);
- Convenience sampling, in situ or in subgroups (e.g. festivals) (Sumnall et al., 2013);

Acknowledging the limitations of each method, we call for attempts to integrate available data sources on the use of NPS in Belgium to the extent possible and explore further research and monitoring tools, including online methodology (e.g. by Sciensano).

13. Extend monitoring capacity of the Belgian Early Warning System (EWS) by collecting all data on NPS related intoxications in emergency settings (emergency department hospitals, crisis detox services, poisons centre, etc) and presenting them for consulting by clinical professionals.

Several demands of -predominantly- professionals gave rise to this recommendation. This recommendation is based on:

- A distinct, recurring question from medical/clinical professionals (specialized doctors, emergency physicians) for tailored information on NPS, including practices (c.f. NGTs);
- The fact that 'exchange of knowledge, information and practice on NPS' came out as third most important survey result;

⁵⁵ Although use as such is included as a punishable offence in the Belgian Drug Law.

⁵⁶ Method focused on injecting drug use by analysing the content of used syringes in six European cities, for example collected in containers or harm reduction services (see, EMCDDA, 2019a).

- The substantial attention given in one NGT to expanding the Early Warning System (EWS);

We suggest the possibility to link the need for well-circumscribed clinical information and practice related to NPS (use) with the existing EWS. Concerns of economic (cost) and practical nature (the network already exists) add to this. A starting point can be found in the work that has been done in the context of the Euro-DEN network (e.g. by the University Hospital of Ghent) that aims to register recreational substance use in hospital admissions (Dines et al., 2015). Finally, a professional online platform is needed that makes it possible to consult and/or to insert clinical information and practices on NPS use in Belgium. Speed, (all-)inclusion and continuous updating should be key features. This could be added to the platform of EWS that is being hosted by Sciensano.

14. Developing research on (long term) health risks of NPS use

Unsurprisingly, stimulating more research on NPS is generally cited as an urgent priority (EMCDDA, 2017a; UNODC, 2018a; Zanda & Fattore, 2017). After all, the lack of knowledge about NPS seems a logical consequence of their novelty and complexity in terms of number/diversity (Peacock et al., 2019).

The need for information on NPS appeared to be essential in all parts of our study as well, translated into advocacy for research by both users of NPS and professionals. 25% of professional survey respondents selected 'scientific research' as a highly important need. Predominantly the experienced users of NPS, mention the constant search for more insights into the functioning and adverse health effects of different substances. Overall, the main information need of all NPS users relates to (adverse) health consequences of NPS use, notably in the long term. In practice this means further developing research on NPS, i.e. toxicology, (psycho)pharmacology, etc. in first instance and combining them with clinically acquired data (Green & Nutt, 2014).

Uncategorized References

- Abdulrahim, D., & Bowden-Jones, O. (2015). *Guidance on the Clinical Management of Acute and Chronic Harms of Club Drugs and Novel Psychoactive Substances*. Retrieved from London: <http://www.Neptune-clinical-guidance.com>
- Abdulrahim, D., & Bowden-Jones, O. (2016). Harms of Synthetic Cannabinoid Receptor Agonists (SCRAs) and Their Management. London: Novel Psychoactive Treatment UK Network (NEPTUNE), 2016. In.
- Adley, M. (2018). <http://www.thedrugswheel.com/?page=about>. In.
- Alexandrescu, L. (2017). NPS and the methadone queue: Spillages of space and time. *Int J Drug Policy*, 40, 50-56.
- Allen, J., Dyas, J., & Jones, M. (2004). Building consensus in health care: a guide to using the nominal group technique. *British journal of community nursing*, 9(3), 110-114.
- Archer, R. P., Treble, R., & Williams, K. (2011). Reference materials for new psychoactive substances. *Drug Testing and Analysis*, 3, 505-514. doi:10.1002/dta.317
- Aspinal, F., Hughes, R., Dunckley, M., & Addington-Hall, J. (2006). What is important to measure in the last months and weeks of life?: A modified nominal group study. *Int J Nurs Stud*, 43(4), 393-403.
- Assi, S., Gulyamova, N., Ibrahim, K., Kneller, P., & Osselton, D. (2017). Profile, effects, and toxicity of novel psychoactive substances: A systematic review of quantitative studies. *Hum Psychopharmacol*, 32(3).
- Ball, S. (2015). *New Psychoactive Substance Use in Children and Young People: A Rapid Review of the Current Situation in Camden and Islington*. Retrieved from
- Banbury, Lusher, & Guedelha. (2018). Portugal's 2001 Drugs Liberalisation Policy: A UK Service Provider's Perspective on the Psychoactive Substances Act (2016). *Journal of Alcohol & Drug Education*, 62(1), 27-45.
- Barnard, M., Russell, C., McKeganey, N., & Hamilton-Barclay, T. (2017). The highs and lows of NPS/"Legal High" use: Qualitative views from a UK online survey. *Drugs: Education, Prevention & Policy*, 24(1), 96-102.
- Barnett, R. E. (2009). The harmful side effects of drug prohibition. *Utah L. Rev.*, 11.
- Barratt, M. J. (2016). Safer scoring? Cryptomarkets, social supply and drug market violence. *International Journal of Drug Policy*, 35.
- Barratt, M. J., Seear, K., & Lancaster, K. (2017). A critical examination of the definition of 'psychoactive effect' in Australian drug legislation. *Int J Drug Policy*, 40, 16-25. doi:10.1016/j.drugpo.2016.10.002
- Baumann, M. H., Partilla, J. S., Lehner, K. R., Thorndike, E. B., Hoffman, A. F., Holy, M., . . . Schindler, C. W. (2013). Powerful cocaine-like actions of 3,4-methylenedioxypyrovalerone (MDPV), a principal constituent of psychoactive 'bath salts' products. *Neuropsychopharmacology*, 38(4), 552-562.
- Baumeister, D., Tojo, L. M., & Tracy, D. K. (2015). Legal highs: staying on top of the flood of novel psychoactive substances. *Ther Adv Psychopharmacol*, 5(2), 97-132.

- Beardsley, P. M., & Zhang, Y. (2018). Synthetic Opioids. In S. D. B. e. H. H. Maurer (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology 252* (pp. 353-381). Switzerland: Springer International Publishing AG, part of Springer Nature 2018.
- Beharry, S., & Gibbons, S. (2016). An overview of emerging and new psychoactive substances in the United Kingdom. *Forensic Sci Int*, *267*, 25-34.
- Belackova, V., Pazitny, M., Drapalova, E., Martinez, M., van der Gouwe, D., Begley, E., . . . Kmetonynova, D. (2017). Assessing the impact of laws controlling the online availability of 25I-NBOMe, AH-7921, MDPV and MXE – outcomes of a semi-automated e-shop monitoring. *Drugs: Education, Prevention and Policy*, *25*(2), 109-117.
- BELSPO-DR/02/79. (2016). Understanding New Psychoactive Substance (NPS) use in Belgium from a health perspective. In.
- Beltgens, M. T. (2017). Legislative Measures' Impact on the New Psychoactive Substances Market. In O. a. R.-U. Corazza, A. (eds.) (Ed.), *Novel Psychoactive Substances; Policy, Economics and Drug Regulation* (pp. 171-180). Cham, Switzerland: Springer International Publishing AG.
- Benschop, A., Bujalski, M., Dabrowska, K., Demetrovics, Z., Egger, D., Felinczi, K., . . . Korf, D. (2017). New Psychoactive Substances: transnational project on different user groups, user characteristics, extent and patterns of use, market dynamics, and best practices in prevention (NPS-transnational Project; HOME/2014/JDRU/AG/DRUG/7077). *Final Report. Amsterdam: Bofinger Institute of Criminology, University of Amsterdam*.
- Benschop, A., Rabes, M., & Korf, D. J. (2002). Pill testing, ecstasy & prevention.
- Benschop, A. e. a. (2017). *New Psychoactive Substances: transnational project on different user groups, user characteristics, extent and patterns of use, market dynamics, and best practices in prevention*. Retrieved from HOME/2014/JDRU/AG/DRUG/7077
- Bergeron, H., Milhet, M., & Hunt, G. (2011). *Drugs and Culture : Knowledge, Consumption and Policy*. Burlington, Vt: Routledge %@ 978-1-4094-0543-6 978-1-138-27442-6 978-1-317-14772-5 978-1-317-14773-2.
- Bewley-Taylor, D., & Jelsma, M. (2012). *The UN Drug Control Conventions; The Limits of Latitude*. Retrieved from
- Biernacki, P., & Waldorf, D. (1981). Snowball Sampling: Problems and Techniques of Chain Referral Sampling. *Sociological Methods & Research*, *10*(2), 141-163.
- Bijlsma, L., Celma, A., López, F. J., & Hernández, F. (2019). Monitoring new psychoactive substances use through wastewater analysis: current situation, challenges and limitations. *Current Opinion in Environmental Science & Health*, *9*, 1-12.
- Blackman, S., Bradley, R., Fagg, M., & Hickmott, N. (2017). Towards 'Sensible' drug information: critically exploring drug intersectionalities, 'Just Say No,' normalisation and harm reduction. *Drugs: Education, Prevention and Policy*, *25*(4), 320-328.
- Blanckaert, P. (2017). *NPS in Belgium, current status*. Paper presented at the NPS-care Seminar 'Old Wine in New Bottles?', Brussels.

- Bowden-Jones, O. (2013). 'Legal highs' and other 'club drugs': why the song and dance? *The Psychiatrist*, 37(6), 185-187.
- Bowden-Jones, O., Fitch, C., Hilton, C., Lewis, J., & Ofori-Attah, G. (2014). One new drug a week: Why novel psychoactive substances and club drugs need a different response from UK treatment providers. *London: Faculty of Addictions Psychiatry, Royal College of Psychiatrists*.
- Boys, A., Marsden, J., & Strang, J. (2001). Understanding reasons for drug use amongst young people: a functional perspective. *Health Educ Res*, 16(4), 457-469.
- Bradley, E. H., Curry, L. A., & Devers, K. J. (2007). Qualitative data analysis for health services research: developing taxonomy, themes, and theory. *Health services research*, 42(4), 1758-1772.
- Brandt, S. D., King, L. A., & Evans-Brown, M. (2014). The new drug phenomenon. *Drug Test Anal*, 6(7-8), 587-597.
- Brunt. (2017). Drug checking as a harm reduction tool for recreational drug users: opportunities and challenges. *Lisbon: European Monitoring Centre for Drugs and Drug Addiction*.
- Buchanan, J. (2015). Ending Drug Prohibition with a Hangover? *British Journal of Community Justice*, 13(1), 55-74.
- Campbell, A., O'Neill, N., & Higgins, K. (2017). Health and Social Care workers' perceptions of NPS use in Northern Ireland. *Int J Drug Policy*, 40, 93-101.
- Campbell, A., & O'Neill, N. (2017). *Service providers' perceptions of new psychoactive substance use in Northern Ireland*. Retrieved from Belfast:
- Cantrill, Sibbald, & Buetow. (1996). The Delphi and nominal group techniques in health services research. *International Journal of Pharmacy Practice*, 4(2), 67-74. doi:10.1111/j.2042-7174.1996.tb00844.x
- Chatwin. (2017). Assessing the 'added value' of European policy on new psychoactive substances. *Int J Drug Policy*, 40, 111-116.
- Chatwin, Blackman, S., & O'Brien, K. L. (2018). Intersections in (New) drug research. *Drugs: Education, Prevention and Policy*, 25(4), 297-300. doi:10.1080/09687637.2018.1466867
- Chatwin, Measham, O'Brien, & Sumnall. (2017). New drugs, new directions? Research priorities for new psychoactive substances and human enhancement drugs. *Int J Drug Policy*, 40, 1-5. doi:10.1016/j.drugpo.2017.01.016
- Collins, J. (2017). Regulation as global drug governance: how new is the NPS phenomenon? In *Novel Psychoactive Substances* (pp. 23-41): Springer.
- Colson, R. N. (2017). Harmonizing NPS Legislation Across the European Union: An Utopia. In O. a. R.-U. Corazza, A. (eds.) (Ed.), *Novel Psychoactive Substances; Policy, Economics and Drug Regulation* (pp. 143-153). Cham, Switzerland: Springer International Publishing AG.
- Comiskey, C. (2020). Reducing Harm, Supporting Recovery: a partnership and evidence-informed approach to developing the new Irish health led, National Drug Strategy. *Harm Reduct J*, 17(1), 3.

- Coopman, V., Cordonnier, J., De Leeuw, M., & Cirimele, V. (2016). Ocfentanil overdose fatality in the recreational drug scene. *Forensic Science International*, 266, 469-473.
- Cope, I. (2014). Legal highs: a problem of definitions? – Authors' reply. *The Lancet*, 383(9930), 1715-1716.
- Corazza, O. (2017). The Proliferation of NPS as a 'Game Changer' for Public Health Policy. In O. Corazza & A. Roman-Urrestarazu (Eds.), *Novel Psychoactive Substances; Policy, Economics and Drug Regulation* (pp. xiii-xviii). Cham, Switzerland: Springer.
- 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. *Int J Drug Policy*, 24(1), 82-83.
- 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).
- Corkery, Orsolini, Papanti, & Schifano. (2017). From concept(ion) to life after death/the grave: The 'natural' history and life cycle(s) of novel psychoactive substances (NPS). *Hum Psychopharmacol*, 32(3). doi:10.1002/hup.2566
- Corkery, Orsolini, L., Papanti, D., & Schifano, F. (2018). Novel psychoactive substances (NPS) and recent scenarios: Epidemiological, anthropological and clinical pharmacological issues. In.
- Coulson, C., & Caulkins, J. P. (2012). Scheduling of newly emerging drugs: a critical review of decisions over 40 years. *Addiction*, 107(4), 766-773.
- Council of the European Union. (2005). *Council Decision 2005/387/JHA of 10 May 2005 on the information exchange, risk-assessment and control of new psychoactive substances*. (32005D0387). Luxembourg: Official Journal of the European Union Retrieved from <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32005D0387>.
- d'Angelo, L., Camilla, S., Savulich, G., & Sahakian, B. J. (2017). Lifestyle use of drugs by healthy people for enhancing cognition, creativity, motivation and pleasure. *British Journal of Pharmacology*, 174(19), 3257-3267.
- Das, P., & Horton, R. (2019). The global drug problem: change but not progression. *The Lancet*, 394(10208), 1488-1490.
- Decorte, T., Mortelmans, D., Tieberghien, J., & De Moor, S. (2009). *Drug use: overview of general population surveys in Europe: EMCDDA %@ 92-9168-375-2*.
- Decorte, T., & Zaitch, D. (2016). *Kwalitatieve methoden en technieken in de criminologie* (Derde, grondig herwerkte editie ed.). Leuven / Den Haag: Acco.
- Degenhardt, L., Wolfe, D., Hall, W., Hickman, M., Chang, J., Bruneau, J., . . . Griffiths, P. (2019). Strategies to reduce drug-related harm: responding to the evidence base. *The Lancet*, 394(10208), 1490-1493.
- Degreef, M., Blanckaert, P., Berry, E. M., van Nuijs, A. L. N., & Maudens, K. E. (2019). Determination of ocfentanil and W-18 in a suspicious heroin-like powder in Belgium. *Forensic Toxicology*.

- Deligianni, E., Corkery, J. M., Schifano, F., & Lione, L. A. (2017). An international survey on the awareness, use, preference, and health perception of novel psychoactive substances (NPS). *Hum Psychopharmacol*, 32(3).
- Deluca, P., Davey, Z., Corazza, O., Di Furia, L., Farre, M., Flesland, L. H., . . . Schifano, F. (2012). Identifying emerging trends in recreational drug use; outcomes from the Psychonaut Web Mapping Project. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 39(2), 221-226 %U <https://linkinghub.elsevier.com/retrieve/pii/S0278584612001844>.
- Dening, K. H., Jones, L., & Sampson, E. L. (2013). Preferences for end-of-life care: A nominal group study of people with dementia and their family carers. *Palliative Medicine*, 27(5), 409-417. doi:10.1177/0269216312464094
- Desai, M., Bourne, A., Hope, V., & Halkitis, P. N. (2018). Sexualised drug use: LGTB communities and beyond. *International Journal of Drug Policy*, 55, 128-130.
- Dines, A. M., Wood, D. M., Yates, C., Heyerdahl, F., Hovda, K. E., Giraudon, I., . . . Group, E.-D. R. (2015). Acute recreational drug and new psychoactive substance toxicity in Europe: 12 months data collection from the European Drug Emergencies Network (Euro-DEN). *Clinical toxicology*, 53(9), 893-900.
- Doessel, D. P., & Williams, R. F. G. (2008). The Simple Analytics of Illicit Drug Policy. *Australian Economic Review*, 41(3), 239-249.
- Drummer, O. H. (2018). Fatalities caused by novel opioids: a review. *Forensic Sciences Research*, 1-16.
- Duke, K. (2019). Producing the 'problem' of new psychoactive substances (NPS) in English prisons. *International Journal of Drug Policy*.
- Dunham, R. B. (1998). Nominal group technique: a users' guide. *Madison: Wisconsin School of Business*, 2.
- EMCDDA. (2006). Monitoring new drugs [Press release]
- EMCDDA. (2015). *New psychoactive substances in Europe; An update from the EU Early Warning System*. Retrieved from Luxembourg: www.emcdda.europa.eu/publications/2015/new-psychoactive-substances
- EMCDDA. (2016a). *EMCDDA–Europol 2016 Annual Report on the implementation of Council Decision 2005/387/JHA* (ISSN 1977-7841). Retrieved from
- EMCDDA. (2016b). *Health Responses to New Psychoactive Substances*. Retrieved from Luxembourg:
- EMCDDA. (2016c). *Legal approaches to controlling new psychoactive substances*. Retrieved from
- Emcdda. (2016d). *New psychoactive substances in Europe - Legislation and prosecution — current challenges and solutions*.
- EMCDDA. (2016e). *Preventing opioid overdose deaths with take-home naloxone*: Publications Office of the European Union.
- EMCDDA. (2017a). *Health and social responses to drug problems: A European guide*. Retrieved from Luxembourg:

- EMCDDA. (2017b). *High-risk drug use and new psychoactive substances; Results from an EMCDDA trendspotter study*. Retrieved from Luxembourg:
- EMCDDA. (2017c) Synthetic cannabinoids in Europe. In, *Perspectives on Drugs* (Update 6. 6 2017 ed.): EMCDDA.
- EMCDDA. (2018a). *Fentanils and synthetic cannabinoids: driving greater complexity into the drug situation; An update from the EU Early Warning System*. Retrieved from Luxembourg:
- EMCDDA. (2018b). *New psychoactive substances in prison; Results from an EMCDDA trendspotter study*. Retrieved from Luxembourg: <http://www.emcdda.europa.eu/system/files/publications/8869/nps-in-prison.pdf>
- EMCDDA. (2019a). *Drugs in syringes from six European countries_ results from the ESCAPE project 2017*. Retrieved from
- EMCDDA. (2019b). *European Drug Report 2019; Trends and Developments*. Retrieved from Luxembourg: http://www.emcdda.europa.eu/system/files/publications/11364/20191724_TDAT19001ENN_PDF.pdf
- EMCDDA, & Europol. (2010). *EMCDDA–Europol 2010 Annual Report on the implementation of Council Decision 2005/387/JHA*
- Emerson, B., & Haden, M. (2018). Public Health and the Harm Reduction Approach to Illegal Psychoactive Substances☆. In *Reference Module in Biomedical Sciences*: Elsevier %@ 978-0-12-801238-3.
- ESPAD. (2015). *The 2015 ESPAD Report: Results from the European School Survey Project on Alcohol and Other Drugs*. Retrieved from Luxembourg::
- European Council. (1997). *97/396/JHA: Joint Action of 16 June 1997 adopted by the Council on the basis of Article K.3 of the Treaty on European Union, concerning the information exchange, risk assessment and the control of new synthetic drugs*. (31997F0396). Luxembourg: Official Journal of the European Communities Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31997F0396&from=EN>.
- Evans-Brown, M., & Sedefov, R. (2018). Responding to New Psychoactive Substances in the European Union: Early Warning, Risk Assessment, and Control Measures. In H. H. Maurer & Brandt (Eds.), *New Psychoactive Substances, Handbook of Experimental Pharmacology* (Vol. 252, pp. 3-49 %@ 0171-2004 (Print) 0171-2004 (Linking)). Switzerland: Springer International Publishing AG, part of Springer Nature.
- Farré, M., Galindo, L., & Torrens, M. (2015). Addiction to Hallucinogens, Dissociatives, Designer Drugs and “Legal Highs”. In N. e.-G. e. a. (eds.) (Ed.), *Textbook of addiction treatment: International perspectives* (pp. 567-596). Italy: Springer-Verlag Italia.
- Feng, L.-Y., Battulga, A., Han, E., Chung, H., & Li, J.-H. (2017). New psychoactive substances of natural origin: A brief review. *Journal of Food and Drug Analysis*, 25, 461-471. doi:10.1016/j.jfda.2017.04.001
- Fletcher, E., Tasker, S., Easton, P., & Denvir, L. (2015). Improving the help and support provided to people who take new psychoactive substances ('legal highs'). *Journal of public health*, 38(4), e489-e495.

- Freitas, H., Oliveira, M., Jenkins, M., Popjoy, O. . (1998). The Focus Group, a Qualitative Research Method; Reviewing The theory, and Providing Guidelines to Its Planning. *ISRC, Merrick School of Business, University of Baltimore (MD, EUA),*, 22.
- Friedman, S. R., de Jong, W., Rossi, D., Touzé, G., Rockwell, R., Des Jarlais, D. C., & Elovich, R. (2007). Harm reduction theory: Users' culture, micro-social indigenous harm reduction, and the self-organization and outside-organizing of users' groups. *International Journal of Drug Policy*, 18(2), 107-117.
- GDS, & Van Havere, T. (2017). *Global Drug Survey; country report for Belgium*. Retrieved from
- Giraudon, I., Schmidt, A. J., & Mohammed, H. (2018). Surveillance of sexualised drug use – the challenges and the opportunities. *International Journal of Drug Policy*, 55, 149-154.
- Green, A. R., & Nutt, D. J. (2014). Pharmacology should be at the centre of all preclinical and clinical studies on new psychoactive substances (recreational drugs). *Journal of Psychopharmacology*, 28(8), 711-718.
- Greer, A. M., & Ritter, A. (2019). "It's about bloody time": Perceptions of people who use drugs regarding drug law reform. *Int J Drug Policy*, 64, 40-46.
- Griffiths, P., Evans-Brown, M., & Sedefov, R. (2013). Getting up to speed with the public health and regulatory challenges posed by new psychoactive substances in the information age. *Addiction*, 108(10), 1700-1703.
- Griffiths, P., & Götz, W. (2013). Forewords. In P. L. a. W. Dargan, D.M. (eds.) (Ed.), *Novel Psychoactive Substances: Classification, Pharmacology and Toxicology* (Vol. 252): Academic Press, Elsevier.
- Griffiths, P., Sedefov, R., Gallegos, A., & Lopez, D. (2010). How globalization and market innovation challenge how we think about and respond to drug use: 'Spice' a case study. *Addiction*, 105(6), 951-953.
- Groves, A. (2018). 'Worth the test?' Pragmatism, pill testing and drug policy in Australia. *Harm Reduct J*, 15(1), 12.
- Grund, J.-P. C., Vavrincikova, L., Fidesova, H., & Janikova, B. (2016). *New Psychoactive Substances among People Who Use Drugs Heavily. Towards Effective and Comprehensive Health Responses in Europe*. (JUST/2013/DPIP 4000004774). Retrieved from www.npsineurope.eu
- Guirguis, A. (2017). New psychoactive substances: a public health issue. *Int J Pharm Pract*, 25(5), 323-325.
- Head, B. W. (2016). Toward More "Evidence-Informed" Policy Making? *Public Administration Review*, 76(3), 472-484.
- Helander, A., & Bäckberg, M. (2017). New Psychoactive Substances (NPS) - the Hydra monster of recreational drugs. *Clin Toxicol (Phila)*, 55(1), 1-3.
- Hill, S. L., & Dargan, P. I. (2018). Patterns of Acute Toxicity Associated with New Psychoactive Substances. In H. H. Maurer & S. D. e. Brandt (Eds.), *New Psychoactive Substances, Handbook of Experimental Pharmacology* (2018/06/14 ed., Vol. 252, pp. 475-494). Switzerland: Springer.
- Home Office. (2016). New Psychoactive Substances (NPS); Resource pack for informal educators and practitioners. In (Resource pack ed., pp. 19). United Kingdom: Public Health England (PHE).

- Horton, J. (1980). Nominal group technique: A method of decision-making by committee. *Anaesthesia*, 35(8), 811-814.
- Hughes, B., Evans-Brown, M., & Sedefov, R. (2016). Legal Controls of Psychoactive Substances in Europe. *Handbuch Psychoaktive Substanzen*, 1-15.
- Hunt, N., Albert, E., & Sánchez, V. M. (2010). User involvement and user organising in harm reduction. In T. Rhodes & D. Hedrich (Eds.), *EMCDDA Monographs; Harm reduction: evidence, impacts and challenges Monographs* (Vol. 10, pp. 333-354). Luxembourg: Publications Office of the European Union. doi:10.2810/29497
- Jansen, H. (2010). *The logic of qualitative survey research and its position in the field of social research methods*. Paper presented at the Forum Qualitative Sozialforschung/Forum: Qualitative Social Research.
- Joyce, N., MacNeela, P., Sarma, K., Ryall, G., & Keenan, E. (2018). The Experience and Meaning of Problematic 'G' (GHB/GBL) Use in an Irish Context: an Interpretative Phenomenological Analysis. *International Journal of Mental Health and Addiction*, 16(4), 1033-1054.
- Kalant, H. (2010). Drug classification: science, politics, both or neither? *Addiction*, 105(7), 1146-1149.
- Karila, Marillier, M., Chaumette, B., Billieux, J., Franchitto, N., & Benyamina, A. (2018). New synthetic opioids: Part of a new addiction landscape. *Neurosci Biobehav Rev*. doi:10.1016/j.neubiorev.2018.06.010
- Kavanagh, P. V., & Power, J. D. (2014). New psychoactive substances legislation in Ireland - Perspectives from academia. *Drug Test Anal*, 6(7-8), 884-891.
- Kettner, H., Mason, N. L., & Kuypers, K. P. (2019). Motives for Classical and Novel Psychoactive Substances Use in Psychedelic Polydrug Users. *Contemporary Drug Problems*, 46(3), 304-320.
- Khaled, S. M., Hughes, E., Bressington, D., Zolezzi, M., Radwan, A., Badnapurkar, A., & Gray, R. (2016). The prevalence of novel psychoactive substances (NPS) use in non-clinical populations: a systematic review protocol. *Syst Rev*, 5(1), 195.
- King, & Nutt. (2014). *Deaths from "legal highs": a problem of definitions* (01406736). Retrieved from www.thelancet.com
- King, L. A., & Kicman, A. T. (2011). A brief history of 'new psychoactive substances'. *Drug Testing and Analysis*, 3, 401-403. doi:10.1002/dta.319
- King, L. A., & Nutt, D. J. (2014). Legal highs: a problem of definitions? – Authors' reply. *The Lancet*, 383(9930), 1715-1716.
- Kjellgren, A., Jacobsson, K., & Soussan, C. (2016). The quest for well-being and pleasure: experiences of the novel synthetic opioids AH-7921 and MT-45, as reported by anonymous users online. *Journal of Addiction Research & Therapy*, 7(4).
- Koning, R., & Niesink, R. (2013). Nieuwe Psychoactieve Stoffen (NPS): niets nieuws onder de zon. *Verslaving*, 9(1), 47-59.
- Korf, D., Benschop, A., Werse, B., Kamphausen, G., Felvinczi, K., Dabrowska, K., . . . Bujalski, M. (2019). How and Where to Find NPS Users: a Comparison of Methods in a Cross-National Survey Among Three

Groups of Current Users of New Psychoactive Substances in Europe. *International Journal of Mental Health and Addiction*, 1-18.

- Kraemer, M., Boehmer, A., Madea, B., & Maas, A. (2019, Feb 25). *Death cases involving certain new psychoactive substances: A review of the literature*. Literature review. [2019/03/30]. *Forensic Sci Int*, (298).
- Krajewski, K. (1999). How flexible are the United Nations drug conventions? *International Journal of Drug Policy*, 10(4), 329-338.
- Lamy, F. R., Daniulaityte, R., Nahhas, R. W., Barratt, M. J., Smith, A. G., Sheth, A., . . . Carlson, R. G. (2017). Increases in synthetic cannabinoids-related harms: Results from a longitudinal web-based content analysis. *International Journal of Drug Policy*, 44, 121-129.
- Leppo, A., & Perala, R. (2009). User involvement in Finland: the hybrid of control and emancipation. *J Health Organ Manag*, 23(3), 359-371.
- Li, L., & Vlisides, P. E. (2016). Ketamine: 50 Years of Modulating the Mind. *Frontiers in Human Neuroscience*, 10, 15. doi:10.3389/fnhum.2016.00612
- Lievens, D., Vander Laenen, F., Verhaeghe, N., Putman, K., Pauwels, L., Hardyns, W., & Annemans, L. (2017). Economic consequences of legal and illegal drugs: The case of social costs in Belgium. *International Journal of Drug Policy*, 44, 50-57.
- Logan, B. K., Mohr, A. L. A., Friscia, M., Krotulski, A. J., Papsun, D. M., Kacinko, S. L., . . . Huestis, M. A. (2017). Reports of Adverse Events Associated with Use of Novel Psychoactive Substances, 2013–2016: A Review. *Journal of analytical toxicology*, 41(7), 573-610. doi:10.1093/jat/bkx031
- MacCoun, R. J. (1993). Drugs and the Law: A Psychological Analysis of Drug Prohibition. *Psychological Bulletin (American Psychological Association-APA)*, 113(3), 497-512.
- MacCoun, R. J., & Reuter, P. (2001). *Drug War Heresies: Learning from Other Vices, Times, & Places*. USA: Cambridge University Press.
- Macfarlane, A. (2016). Sex, drugs and self-control: why chemsex is fast becoming a public health concern. *Journal of Family Planning and Reproductive Health Care*, 42(4), 291-294.
- MacPhail, A. (2001). Nominal group technique: a useful method for working with young people. *British Educational Research Journal*, 27(2), 161-170.
- Madras, B. K. (2017). The Growing Problem of New Psychoactive Substances (NPS). *Curr Top Behav Neurosci*, 32, 1-18.
- Martins, D., Barratt, M. J., Pires, C. V., Carvalho, H., Vilamala, M. V., Espinosa, I. F., & Valente, H. (2017). The detection and prevention of unintentional consumption of DOx and 25x-NBOMe at Portugal's Boom Festival. *Hum Psychopharmacol*, 32(3).
- McAuley, A., Aucott, L., & Matheson, C. (2015). Exploring the life-saving potential of naloxone: A systematic review and descriptive meta-analysis of take home naloxone (THN) programmes for opioid users. *International Journal of Drug Policy*, 26(12), 1183-1188.

- McLeod, K., Pickering, L., Gannon, M., Greenwood, S., Liddell, D., Smith, A., . . . Burton, G. (2016). Understanding the patterns of use, motives, and harms of New Psychoactive Substances in Scotland.
- McMillan, Kelly, F., Sav, A., Kendall, E., King, M. A., Whitty, J. A., & Wheeler, A. J. (2014). Using the Nominal Group Technique: how to analyse across multiple groups. *Health Services and Outcomes Research Methodology*, 14(3), 92-108.
- McMillan, King, M., & Tully, M. P. (2016). How to use the nominal group and Delphi techniques. *International journal of clinical pharmacy*, 38(3), 655-662.
- Meador, N., Mdege, N., & McCambridge, J. (2018). The public health evidence-base on novel psychoactive substance use: scoping review with narrative synthesis of selected bodies of evidence. *Journal of Public Health*, 40(3), e303-e319.
- Measham, F. (2013). Social issues in the use of novel psychoactive substances: Differentiated demand and ideological supply. In *Novel Psychoactive Substances* (pp. 105-127): Elsevier.
- Measham, F., & Newcombe, R. (2016). What's So 'New' About New Psychoactive Substances? Definitions, Prevalence, Motivations, User Groups and A Proposed New Taxonomy. In *The SAGE Handbook of Drug and Alcohol Studies* (pp. 576-596 %@ 978-571-4462-9866-4464 4978-4461-4739-2198-4466).
- Monaghan, M., Wincup, E., & Wicker, K. (2018). Experts, expertise and drug policymaking. *The Howard Journal of Crime and Justice*, 57(3), 422-441.
- Moosmann, B., & Auwärter, V. (2018). Designer Benzodiazepines: Another Class of New Psychoactive Substances. In S. D. B. H. H. Maurer (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology 252* (pp. 383-410). Cham, Switzerland: Springer International Publishing AG, part of Springer Nature 2018.
- Morgan, & Spanish. (1984). Focus groups: A new tool for qualitative research. *Qualitative Sociology*, 7(3), 253-270.
- Móro, L., & Rácz, J. (2013). Online drug user-led harm reduction in Hungary: a review of "Daath". *Harm Reduct J*, 10(18), 11.
- Mounteney, J. (2017). *Monitoring new substances at European level*. Paper presented at the NPS Seminar 'Old wine in new bottles', Brussel.
- Moyes, H. (2018). How Do New Psychoactive Substances Affect the Mental Health of Prisoners? In A. Mills & Kendall (Eds.), *Mental Health in Prisons* (pp. 131-157 %@ 978-133-319-94089-94082 94978-94083-94319-94090-94088): The Author(s).
- Musto, D. F. (1999). *The American Disease; Origins of Narcotic Control* (Third edition ed.). New York: Oxford University Press.
- Naumann, R. B., Durrance, C. P., Ranapurwala, S. I., Austin, A. E., Proescholdbell, S., Childs, R., . . . Shanahan, M. E. (2019). Impact of a community-based naloxone distribution program on opioid overdose death rates. *Drug Alcohol Depend*, 204, 107536.

- Negrei, C., Galateanu, B., Stan, M., Balalau, C., Dumitru, M. L. B., Ozcagli, E., . . . Tsatsakis, A. (2017). Worldwide legislative challenges related to psychoactive drugs. *Daru*, 25(1), 14.
- Neicun, J., Steenhuizen, M., van Kessel, R., Yang, J. C., Negri, A., Czabanowska, K., . . . Roman-Urrestarazu, A. (2019). Mapping novel psychoactive substances policy in the EU: The case of Portugal, the Netherlands, Czech Republic, Poland, the United Kingdom and Sweden. *Plos One*, 14(6), e0218011.
- Neptune. (2015). *Guidance on the Clinical Management of Acute and Chronic Harms of Club Drugs and Novel Psychoactive Substances*. Retrieved from <https://www.drugsandalcohol.ie/24292/>
- Norton, A. (2015). *'Spicing up the subject' The recorded experiences of prisoners and prison staff on the subject: New psychoactive substance use in a North West Prison*. (John Sunley Prize winning masters dissertation), Manchester Metropolitan University, Manchester UK.
- Nutt, D. (2011). Perverse effects of the precautionary principle: how banning mephedrone has unexpected implications for pharmaceutical discovery. *Therapeutic advances in psychopharmacology*, 1(2), 35-36. doi:10.1177/2045125311406958
- O'Brien, K., Chatwin, C., Jenkins, C., & Measham, F. (2014). New psychoactive substances and British drug policy: A view from the cyber-psychonauts. *Drugs: Education, Prevention and Policy*, 22(3), 217-223.
- O'Hagan, & Smith, C. (2017). A New Beginning: An Overview of New Psychoactive Substances. *Forensic Research & Criminology International Journal*, 5(3), 13.
- O'Hagan, A. (2019). To what extent has the United Kingdom law on psychoactive substances been successful? *Foresic Research & Criminology International Journal*, 7(4). doi:10.15406/frcij.2019.07.00284
- Orsolini, L., Papanti, D., Corkery, J., & Schifano, F. (2017). An insight into the deep web; why it matters for addiction psychiatry? *Human Psychopharmacology*, 32(3). doi:10.1002/hup.2573
- Orsolini, L., St John-Smith, P., McQueen, D., Papanti, D., Corkery, J., & Schifano, F. (2017). Evolutionary Considerations on the Emerging Subculture of the E-psychonauts and the Novel Psychoactive Substances: A Comeback to the Shamanism? *Curr Neuropharmacol*, 15(5), 731-737.
- Owie, R. E., Gosney, P., Roney, A., & O'Brien, A. (2017). Psychiatrists' knowledge of novel psychoactive substances. *Drugs and Alcohol Today*, 17(3), 178-185.
- Papaseit, Molto, J., Muga, R., Torrens, M., de la Torre, R., & Farre, M. (2017). Clinical Pharmacology of the Synthetic Cathinone Mephedrone. *Curr Topics Behav Neurosci*, 32, 313-332. doi:10.1007/7854_2016_61
- Patel, N. B. (2019). Khat (*Catha edulis* Forsk) - And now there are three. *Brain Res Bull*, 145, 92-96.
- Peacock, A., Bruno, R., Gisev, N., Degenhardt, L., Hall, W., Sedefov, R., . . . Griffiths, P. (2019). New psychoactive substances: challenges for drug surveillance, control, and public health responses. *The Lancet*, 394(10209), 1668-1684.
- Peacock, A., Leung, J., Larney, S., Colledge, S., Hickman, M., Rehm, J., . . . Griffiths, P. (2018). Global statistics on alcohol, tobacco and illicit drug use: 2017 status report. *Addiction*, 113(10), 1905-1926.

- Peprah, K., & Frey, N. (2017). Intranasal and Intramuscular Naloxone for Opioid Overdose in the Pre-Hospital Setting: A Review of Comparative Clinical and Cost-Effectiveness, and Guidelines. In: Canadian Agency for Drugs and Technologies in Health, Ottawa (ON).
- PHE. (2017). *Thematic analysis of training for prison staff on new psychoactive substances; November 2015 to May 2016*. (2016597). Katie Smith Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/669546/Analysis_of_training_programme_for_prison_staff_on_NPS_2015_to_2016.pdf.
- Pirona, A. (2017). *NPS in Europe-current practices & challenges for health professionals*. Paper presented at the NPS-care Seminar 'Old Wine in New Bottles?', Brussels.
- Pirona, A., Bo, A., Hedrich, D., Ferri, M., van Gelder, N., Giraudon, I., . . . Mounteney, J. (2017). New psychoactive substances: Current health-related practices and challenges in responding to use and harms in Europe. *Int J Drug Policy*, *40*, 84-92.
- Potter, G. R., & Chatwin, C. (2017). Not particularly special: critiquing 'NPS' as a category of drugs. *Drugs: Education, Prevention and Policy*, *25*(4), 329-336. doi:10.1080/09687637.2017.1411885
- Potter, W. L.-D., D. (1999). Rethinking validity and reliability in content analysis. *27*, 258-284. doi:10.1080/00909889909365539
- Public Health England. (2016). *New psychoactive substances or 'legal highs': toolkit for prison staff*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/669541/9011-phe-nps-toolkit-update-final.pdf.
- Racz, J., Csak, R., Toth, K. T., Toth, E., Rozman, K., & Gyarmathy, V. A. (2016). Veni, vidi, vici: The appearance and dominance of new psychoactive substances among new participants at the largest needle exchange program in Hungary between 2006 and 2014. *Drug Alcohol Depend*, *158*, 154-158.
- Ralphs, & Gray, P. (2018). New Psychoactive Substances: New service provider challenges. *Drugs: Education, Prevention and Policy*, *25*(4), 301-312.
- Reuter. (2011). *Options for regulating new psychoactive drugs: a review of recent experiences*. Retrieved from United Kingdom: www.ukdpc.org.uk/publications.shtml
- Reuter, & Pardo. (2017). New Psychoactive Substances: The Regulatory Experience and Assessment of Options. In O. a. R.-U. Corazza, A. (eds.) (Ed.), *Novel Psychoactive Substances: Policy, Economics and Drug Regulation* (pp. 155-177). Cham, Switzerland: Springer International Publishing AG 2017.
- Rhodes, T., & Hedrich, D. (2010). EMCDDA monographs. Harm reduction: Evidence, impacts and challenges. In.
- Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (2013). *Qualitative research practice: A guide for social science students and researchers*: sage %@ 1-4462-9620-2.
- Rolles, S., & Kushlik, D. (2014). Prohibition is a key driver of the new psychoactive substances (NPS) phenomenon. In U. Transform Drug Policy Foundation (Ed.), *Addiction* (Vol. 109, pp. 1587-1594): © 2014 Society for the Study of Addiction.
- Rosiers. (2018). *VAD uitgaansonderzoek 2018*. Retrieved from Brussels:

- Rosino, M., & Linders, A. (2015). Howard Becker in Hyperspace: Social Learning in an On-Line Drug Community. *Deviant Behavior*, 36(9), 725-739. doi:10.1080/01639625.2014.977114
- Rychert, M., & Wilkins, C. (2016). What products are considered psychoactive under New Zealand's legal market for new psychoactive substances (NPS, 'legal highs')? Implications for law enforcement and penalties. *Drug Test Anal*, 8(8), 768-778.
- Scherbaum, N., Schifano, F., & Bonnet, U. (2017). New Psychoactive Substances (NPS) – a Challenge for the Addiction Treatment Services. *Pharmacopsychiatry*, 50(03), 116-122.
- Schifano, F. (2018). Recent Changes in Drug Abuse Scenarios: The New/Novel Psychoactive Substances (NPS) Phenomenon. *Brain Sciences*, 8(12), 221.
- Seddon. (2014). Drug policy and global regulatory capitalism: The case of new psychoactive substances (NPS). *International Journal of Drug Policy*, 25, 1019-1024.
- Seddon. (2016). Inventing drugs: A genealogy of a regulatory concept. *Journal of Law and Society*, 43(3), 393-415.
- Sedefov, R., Gallegos, A., Mounteney, J., & Kenny, P. (2013). Chapter 2 - Monitoring Novel Psychoactive Substances: A Global Perspective. In P. I. Dargan & D. M. Wood (Eds.), *Novel Psychoactive Substances* (pp. 29-54). Boston: Academic Press.
- Semków, D. (2019). New psychoactive substances. The phenomenon development and the institutional and legal mechanisms for its prevention. *Journal of Modern Science*, 40(1), 45-64.
- Simmler, L. D., & Liechti, M. E. (2018). Pharmacology of MDMA- and Amphetamine-Like New Psychoactive Substances. In S. D. e. Maurer; H.H. and Brandt (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology* (Vol. 252, pp. 143-164). Switzerland: # Springer International Publishing AG, part of Springer Nature.
- Simonato, P. (2015). Evaluating and expanding knowledge and awareness of health professionals on the consumption and adverse consequences of Novel Psychoactive Substances (NPS) through innovative information technologic tools.
- Simonato, P., Corazza, O., Santonastaso, P., Corkery, J., Deluca, P., Davey, Z., . . . Schifano, F. (2013). Novel psychoactive substances as a novel challenge for health professionals: results from an Italian survey. *Hum Psychopharmacol*, 28(4), 324-331.
- Singh, D., Narayanan, S., Vicknasingam, B., Corazza, O., Santacroce, R., & Roman-Urrestarazu, A. (2017). Changing trends in the use of kratom (*Mitragyna speciosa*) in Southeast Asia. *Human Psychopharmacology: Clinical and Experimental*, 32(3), e2582.
- Smith, Z., Moore, K., & Measham, F. (2009). MDMA powder, pills and crystal: the persistence of ecstasy and the poverty of policy. *Drugs and Alcohol Today*, 9(1), 13-19.
- Smithson, J. (2000). Using and analysing focus groups: limitations and possibilities. *International Journal of Social Research Methodology*, 3(2), 103-119.
- Soussan, C., Andersson, M., & Kjellgren, A. (2018). The diverse reasons for using Novel Psychoactive Substances - A qualitative study of the users' own perspectives. *Int J Drug Policy*, 52, 71-78.

- Soussan, C., & Kjellgren, A. (2014). Harm reduction and knowledge exchange—a qualitative analysis of drug-related Internet discussion forums. *Harm Reduction Journal*, 11(25), 9.
- Soussan, C., & Kjellgren, A. (2016). The users of Novel Psychoactive Substances: Online survey about their characteristics, attitudes and motivations. *Int J Drug Policy*, 32, 77-84.
- South, J., Bagnall, A.-M., & Woodall, J. (2017). Developing a typology for peer education and peer support delivered by prisoners. *Journal of Correctional Health Care*, 23(2), 214-229.
- Stephenson, & Richardson, A. (2014). *New Psychoactive Substances in England; A review of the evidence*. United Kingdom: Home Office.
- Stevens, A., Fortson, R., Measham, F., & Sumnall, H. (2015). Legally flawed, scientifically problematic, potentially harmful: The UK Psychoactive Substance Bill. *Int J Drug Policy*, 26(12), 1167-1170.
- Stiegel, U. (2017). Legislating NPS in the European Union. In O. Corazza & A. Roman-Urrestarazu (Eds.), *Novel Psychoactive Substances: Policy, Economics and Drug Regulation* (pp. 13-22 %@ 978-973-319-60600-60602). Cham: Springer International Publishing.
- Sumnall, Evans-Brown, M., & McVeigh, J. (2011). Social, policy, and public health perspectives on new psychoactive substances. *Drug Test Anal*, 3(7-8), 515-523.
- Sumnall, Hamilton, & Monaghan. (2017). Novel Psychoactive Substances: important information for health professionals (Blog). Retrieved December 2019, from National Elf Service (<https://www.nationalelfservice.net/>) <https://www.nationalelfservice.net/mental-health/substance-misuse/novel-psychoactive-substances-important-information-for-health-professionals/>
- Sumnall, McVeigh, J., & Evans-Brown, M. J. (2013). Epidemiology of use of novel psychoactive substances. In *Novel psychoactive substances* (pp. 79-103): Elsevier.
- Taylor, J. (2015). The Stimulants of Prohibition: Illegality and New Synthetic Drugs. *Territory, Politics, Governance*, 3(4), 407-427.
- Taylor, S., Buchanan, J., & Ayres, T. (2016). Prohibition, privilege and the drug apartheid: The failure of drug policy reform to address the underlying fallacies of drug prohibition. *Criminology & Criminal Justice*, 16(4), 452-469.
- Tetty, Crean, C., Ifeagwu, S. C., & Raithelhuber, M. (2018). Emergence, Diversity, and Control of New Psychoactive Substances: A Global Perspective. In S. D. B. e. H. H. Maurer (Ed.), *New Psychoactive Substances, Handbook of Experimental Pharmacology 252* (Vol. 252, pp. 51-67): Springer International Publishing AG.
- TNS Political & Social. (2014). *Flash Eurobarometer 401 - Young people and drugs*. Retrieved from
- Totikidis, V. (2010). Applying the nominal group technique (NGT) in community based action research for health promotion and disease prevention. *Aust Community Psychol*, 22(1), 18-29.
- Tracy, D. K., Wood, D. M., & Baumeister, D. (2017). Novel psychoactive substances: identifying and managing acute and chronic harmful use. *BMJ*, 356, i6814.

- Tzanetakos, M. (2018). Comparing cryptomarkets for drugs. A characterisation of sellers and buyers over time. *International Journal of Drug Policy*, 56, 176-186. doi:10.1016/j.drugpo.2018.01.022
- UNODC. (2013). *The challenge of new psychoactive substances*. Retrieved from Vienna, Austria: <http://www.unodc.org/unodc/en/scientists/smart.html>
- UNODC. (2014). *Global Synthetic Drugs Assessment; Amphetamine-type stimulants and new psychoactive substances*. (E.14.XI.6). Vienna Retrieved from https://www.unodc.org/documents/scientific/2014_Global_Synthetic_Drugs_Assessment_web.pdf.
- UNODC. (2017). *World Drug Report 2017, Pt. 4; Market Analysis of Synthetic Drugs, Amphetamine-type stimulants, new psychoactive substances*. (E.17.XI.6). Vienna.
- UNODC. (2018a). *Understanding the synthetic drug market: the NPS factor*. Retrieved from Vienna, Austria: www.unodc.org/documents/scientific/Global_Drugs_Assessment_2017.pdf
- UNODC. (2018b). *World Drug Report 2018; Executive summary: conclusions and policy implications* (ISBN: 978-92-1-148304-8). Retrieved from https://www.unodc.org/wdr2018/prelaunch/WDR18_Booklet_1_EXSUM.pdf
- UNODC. (2019). *UNODC Early Warning Advisory on New Psychoactive Substances*. Retrieved from Vienna, Austria: <https://www.unodc.org/LSS/Page/NPS>
- VAD. (2017). *Factsheet Nieuwe Psychoactieve Stoffen (NPS)*. Retrieved from Brussels: <http://www.vad.be/materialen/detail/factsheet-smartdrugs--nieuwe-psychoactieve-stoffen>
- VAD, & Sciensano. (2016). Het Drugwiel; een nieuw model voor productinformatie - effecten per categorie. In H. Drugwiel (Ed.), www.thedrugswheel.com (Vertaald door VAD (www.vad.be) en WIV ed., pp. Fig.). UK: Designed in collaboration with DrugWatch.
- VAD&Sciensano. (2018). Het Drugwiel: Een nieuw model voor productinformatie. In D. 2018 (Ed.), *The Drugs Wheel by Mark Adley is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 Unported License*. ([BE versie 1.0 • 17/01/2018] ed., pp. Aangepast aan de Belgische context door VAD en WIV op 17/01/2018.): www.thedrugswheel.com.
- Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*, 15(3), 398-405. doi:10.1111/nhs.12048
- van Amsterdam, J., Brunt, T., Pennings, E., & van den Brink, W. (2014). Risk assessment of GBL as a substitute for the illicit drug GHB in the Netherlands. A comparison of the risks of GBL versus GHB. *Regul Toxicol Pharmacol*, 70(2), 507-513. doi:10.1016/j.yrtph.2014.08.014
- van Amsterdam, J., Nutt, D., Phillips, L., & van den Brink, W. (2015). European rating of drug harms. *J Psychopharmacol*, 29(6), 655-660. doi:10.1177/0269881115581980
- van Amsterdam, J., Nutt, D., & van den Brink, W. (2013). Generic legislation of new psychoactive drugs. *J Psychopharmacol*, 27(3), 317-324. doi:10.1177/0269881112474525

- van Amsterdam, J. G., Nabben, T., Keiman, D., Haanschoten, G., & Korf, D. (2015). Exploring the Attractiveness of New Psychoactive Substances (NPS) among Experienced Drug Users. *J Psychoactive Drugs*, 47(3), 177-181. doi:10.1080/02791072.2015.1048840
- Van Breda, A. (2005). Steps to analysing multiple-group NGT data. *The Social Work Practitioner-Researcher*, 17, 1-14.
- Van De Ven, & Delbecq. (1974). The effectiveness of nominal, Delphi, and interacting group decision making processes. *Academy of management Journal*, 17(4), 605-621.
- van der Gouwe, D., Brunt, T. M., van Laar, M., & van der Pol, P. (2016). Purity, adulteration and price of drugs bought on-line versus off-line in the Netherlands. *Addiction*, 1-9. doi:10.1111/add.13720
- Van Havere, T. (2012). *Prevalence and prevention of substance use in nightlife*. Dissertation). Retrieved from [https://expertise.hogent.be/files/10345888 ...](https://expertise.hogent.be/files/10345888...),
- Van Havere, T., Tutenges, S., De Maeyer, J., Broekaert, E., & Vanderplasschen, W. (2015). 'Keep an eye on your friends, even when you don't know them': Drug use and harm reduction in the Goa trance scene in Belgium. *Drugs: Education, Prevention & Policy*, 22(3), 239-247. doi:10.3109/09687637.2014.899985
- Vander Laenen, F. (2009). The Nominal Group Technique, a participative research technique holding great potential for criminology. In M. Cools, De Kimpe, S., De Ruyver, B., Easton, M., Pauwels, L., Ponsaers, P., Vander Beken, T., Vander Laenen, F., Vande Walle, G., Vermeulen, G.(eds.) (Ed.), *Contemporary Issues in the Empirical Study of Crime* (1 ed., pp. 109-134).
- Vander Laenen, F. (2010). Focusgroepen. In *Kwalitatieve methoden en technieken in de criminologie* (pp. 233-260): Acco.
- Vander Laenen, F. (2015). Not just another focus group: making the case for the nominal group technique in criminology. *Crime Science*, 4(1). doi:10.1186/s40163-014-0016-z
- Vander Laenen, F., Favril, L., & Decorte, T. (2016). Prioriteiten voor het lokale harm reduction-beleid: drugsgebruikers als sleutelfiguren. *Verslaving*, 12(2), 106-120.
- Vander Laenen, F., Nicaise, P., Decorte, T., De Maeyer, J., De Ruyver, B., & Smith, P. (2018). *Feasibility study on drug consumption rooms in Belgium*. Retrieved from Brussels:
- Vander Laenen, F., Vanderplasschen, W., Smet, V., De Maeyer, J., Buckinx, M., Van Audenhove, S., . . . De Ruyver, B. (2013). *Analysis and optimization of substitution treatment in Belgium*. Gent: Academia Press.
- Vandevelde, S., Vander Laenen, F., Vanderplasschen, W., & al., e. (2016). *PRocess and Outcome Study of Prison-basEd Registration points (PROSPER): report*. Brussels: Belgian Scientific Policy.
- Wallach, J., & Brandt, S. D. (2018). 1,2-Diarylethylamine- and Ketamine-Based New Psychoactive Substances. In H. H. Maurer & S. D. Brandt (Eds.), *New Psychoactive Substances; Pharmacology, Clinical, Forensic and Analytical Toxicology* (Vol. 252, pp. 305-352). Switzerland: Springer.
- WHO. (1994). Lexicon of alcohol and drug terms. In (pp. 69). Geneva: World Health Organisation.

- Wilkins. (2014). A critical first assessment of the new pre-market approval regime for new psychoactive substances (NPS) in New Zealand. *Addiction*, *109*(10), 1580-1586. doi:10.1111/add.12484
- Wilkins, Rychert, M., Byrska, B., Van Hout, M. C., Corazza, O., & Roman-Urrestarazu, A. (2017). Exploring Innovative Policy Responses to NPS and 'Legal Highs' in New Zealand, Poland, Republic of Ireland and the UK. In *Novel Psychoactive Substances* (pp. 57-74).
- Wille, S., Richeval, C., Nachon-Phanithavong, M., Gaulier, J., Di Fazio, V., Humbert, L., . . . Allorge, D. (2018). Prevalence of new psychoactive substances and prescription drugs in the Belgian driving under the influence of drugs population. *Drug Testing and Analysis*, *10*(3), 539-547.
- Windelinckx, T. (2018). *Evaluatieonderzoek partnerorganisatie Spuitenruil 2017*. Retrieved from
- Winstock. (2019). GDS 2019 Key Findings Report; executive summary. *Annual Survey Reports*, *12*.
- Winstock, & Ramsey. (2010). Legal highs and the challenges for policy makers. *Addiction*, *105*(10), 1685-1687. doi:10.1111/j.1360-0443.2010.03163.x
- Wood, D. M., Ceronie, B., & Dargan, P. I. (2016). Healthcare professionals are less confident in managing acute toxicity related to the use of new psychoactive substances (NPS) compared with classical recreational drugs. *QJM*, *109*(8), 527-529. doi:10.1093/qjmed/hcv208
- Wood, D. M., & Dargan, P. I. (2012). Understanding how data triangulation identifies acute toxicity of novel psychoactive drugs. *J Med Toxicol*, *8*(3), 300-303. doi:10.1007/s13181-012-0241-3
- Wortley, S., Tong, A., & Howard, K. (2016). Preferences for engagement in health technology assessment decision-making: a nominal group technique with members of the public. *BMJ Open*, *6*(2), e010265. doi:10.1136/bmjopen-2015-010265
- Young, M. M., Dubeau, C., & Corazza, O. (2015). Detecting a signal in the noise: monitoring the global spread of novel psychoactive substances using media and other open-source information. *Human Psychopharmacology: Clinical and Experimental*, *30*(4), 319-326.
- Zaami, S., Busardò, F., Pichini, S., Pacifici, R., & Marinelli, E. (2019). The value of toxicological and forensic analyses in the global challenge to health risks caused by new psychoactive substances. *European review for medical and pharmacological sciences*, *23*(14), 6008.
- Zamengo, L., Frison, G., Bettin, C., & Sciarrone, R. (2014). Understanding the risks associated with the use of new psychoactive substances (NPS): high variability of active ingredients concentration, mislabelled preparations, multiple psychoactive substances in single products. *Toxicol Lett*, *229*(1), 220-228. doi:10.1016/j.toxlet.2014.06.012
- Zamengo, L., Frison, G., & Zwitter, G. (2018). Understanding and managing the new psychoactive substances phenomenon: a holistic approach. *Journal of public health policy*, 1-19.
- Zanda, M., & Fattore, L. (2017). Novel Psychoactive Substances: A New Behavioral and Mental Health Threat. In *Addictive Substances and Neurological Disease* (pp. 341-353): Elsevier.
- Zawilska, & Wojcieszak. (2018). Novel Psychoactive Substances: Classification and General Information. In *Synthetic Cathinones* (pp. 11-24): Springer International Publishing AG, part of Springer Nature 2018.

Zawilska, & Wojcieszak, J. (2019). An expanding world of new psychoactive substances—designer benzodiazepines. *Neurotoxicology*, 73, 8-16. doi:<https://doi.org/10.1016/j.neuro.2019.02.015>

Zawilska, J. B. (2015). Chapter Thirteen - “Legal Highs” – An Emerging Epidemic of Novel Psychoactive Substances. In P. Taba, A. Lees, & K. Sikk (Eds.), *International Review of Neurobiology* (Vol. 120, pp. 273-300): Academic Press.

Annex

French translation of the inventory

1. Une base de données numérique contenant tous les aspects des NPS; continuellement mise à jour, facilement et rapidement accessible, facile d'utilisation et accessible à tous.
2. Soutien structurel européen (par opposition au soutien par projet) des services d'information et des services en ligne (ex., le projet 'Mind your Trip' (B), 'Tripsit' (UK))
3. Recherche scientifique spécifique sur l'usage de NPS sur l'ensemble des produits (Drug), sur les usagers (Set) et l'environnement (Setting; social, espace physique, ex: prison)
4. Un support pour les professionnels pour les informations médicales / pharmacologiques / neurobiologiques liées aux NPS en vue de la prévention sélective (messages spécifiques et/ou pour des groupes cibles) et d'usage en milieu clinique (c.à d. observation et traitement).
5. Un échange de savoirs, d'expertises et de bonnes/mauvaises pratiques entre les (services) professionnels (concernant les NPS).
6. Offrir des formations sur les NPS (sensibilisation, information, suivi psychologique ainsi que sur les marchés en ligne) tant au secteur spécialisé (MASS, centre résidentiel de cure, etc) qu'au secteur des soins de santé généraux (médecins généralistes, hôpitaux, etc).
7. Création d'un cadre juridique clair pour les travailleurs du secteur assuétude afin de pouvoir travailler avec certaines méthodes (éviter ainsi les zones grises, ex. les kits de sniff).
8. Développer des outils / des approches / des recommandations de réduction des risques spécifiques (à l'usage) de NPS.
9. Stimuler le développement et le financement d'initiatives et de politique favorable à la réduction des risques liées à l'usage de NPS.
10. Une politique de prévention et de réduction des risques en prison (NPS et autres drogues illégales).
11. Implémenter ou développer de façon anonyme, facilement accessible et rapide des infrastructures de testing de drogues (entre autres, en services ambulatoires, aux points sensibles de consommation de NPS,...) et incluant un cadre juridique clair pour le testing.
12. Améliorer la rapidité et l'accessibilité du système d'alerte précoce (EWS).
13. Vulgariser le phénomène NPS ainsi que la terminologie au grand public, professionnels du secteur et usagers (et ceci à l'aide de création d'outils spécifiques).
14. Lancer un débat social et honnête (non-politique) dans une optique de normaliser le discours sur les drogues (éliminer les tabous, stéréotypes et la désinformation)
15. Promouvoir et rendre accessible des sources d'informations objectives et fiables ainsi que des suivis psychologiques pour les usagers de NPS, incluant l'utilisation de nouvelles technologie de communication (internet, app).
16. Dialogue et interactions entre les travailleurs professionnels et les usagers (ainsi que dans l'environnement des usagers) afin de détecter et de répondre à leurs besoins, mais aussi reconnaître et faire appel à leurs expertises dans ce domaine.
17. Création d'approches spécialisées pour atteindre des populations spécifiques usagères de NPS (ex. chemsex).
18. Renforcer l'approche par les pairs, la participation des usagers et de l'expertise des usagers (expert par expérience) dans les projets ou la recherche liés aux NPS.
19. La décriminalisation de l'usage et la possession de drogues.

20. La régulation de toutes les drogues.
21. Une stabilité d'emploi dans le secteur des assuétudes.

Dutch translation of the inventory

1. Digitale informatiedatabase over alle aspecten van NPS; snel, gebruiksvriendelijk, voortdurend geüpdatet en voor iedereen toegankelijk
2. Structurele in plaats van projectmatige (Europese)ondersteuning van professionele online-projecten zoals 'Mind your Trip (B)' of 'Tripsit-website (UK)'
3. Wetenschappelijk onderzoek naar NPS-gebruik m.b.t. producten (Drug), gebruikers (Set) en de omgeving (sociaal, cultureel, fysiek) (Setting).
4. Professioneel medium voor medische, farmacologische en neurobiologische informatie inzake NPS, met het oog op selectieve preventieboodschappen / groepen én op klinische zorg (observatie en behandeling).
5. Uitwisseling van kennis, expertise en good / bad practices tussen professionelen (inzake NPS)
6. Aanbieden van vormingen en/of trainingen (o.a. sensibilisering, informatie, online markten, psycho-educatie) aan gespecialiseerde (b.v. MSOC's, residentiële behandelingscentra) en niet-gespecialiseerde (b.v. huisartsen, Algemene Ziekenhuizen) zorgverleners.
7. Duidelijk wettelijk kader voor het uittesten/gebruiken van methodieken door veldwerkers zodat de 'grijze zone' (c.f. distributie van snuifkits, verdeling van ascorbinezuur) verdwijnt.
8. Ontwikkelen van richtlijnen, instrumenten, benaderingen inzake NPS-gebruik vanuit het harm reduction perspectief
9. Stimuleren van de ontwikkeling en financiering van harm reduction-beleidsinitiatieven inzake NPS (gebruik)
10. Een preventief- en schadebeperkend beleid in gevangenissen (NPS én illegale drugs)
11. Implementeren of uitbreiden van anonieme, laagdrempelige en gemakkelijk bereikbare drugtesting services (o.a. in ambulante centra, rond 'hot spots' van (NPS)-gebruik, etc.), inclusief de ontwikkeling van een duidelijk wettelijk kader hiervoor.
12. Verbeteren van de toegang tot en de distributiesnelheid van Early Warning System (EWS)-boodschappen.
13. Vertalen van het NPS-thema in begrijpelijke taal voor de algemene bevolking, voor professionelen en gebruikers (inclusief de ontwikkeling van instrumenten hiervoor).
14. Lanceren van een eerlijk maatschappelijk debat met het oog op een genormaliseerde dialoog over drugs (waarin taboes, stereotypering en desinformatie geen plaats hebben).
15. Het beschikbaar stellen van NPS-specifieke degelijke, objectieve informatiebronnen en psycho-educatie voor gebruikers, ook via nieuwe communicatiekanalen (internet, apps).
16. Dialoog tussen professionelen en NPS-gebruikers om een zicht te krijgen op en tegemoet te komen aan de noden van gebruikers en een beroep te kunnen doen op hun ervaringsdeskundigheid in het algemeen.
17. Aanpak op maat om NPS-gebruikende groepen te bereiken die specifieke behoeften hebben (b.v. chemsex-milieu).
18. Het versterken van peer support, gebruikersparticipatie en ervaringsdeskundigheid in het kader van NPS-gerelateerde projecten en onderzoeken.
19. Decriminaliseren van gebruik en bezit van alle drugs.
20. Regulering van alle drugs.
21. Arbeidsstabiliteit in het (drug)gespecialiseerde werkveld.