

# Monitoring of Discussion Forums on New Psychoactive Substances in the Czech Republic – Content and Trends



DRÁPALOVÁ, E., BĚLÁČKOVÁ, V.

Department of Addictology, 1<sup>st</sup> Faculty of Medicine, Charles University in Prague and General University Hospital in Prague, Czech Republic

**Citation:** Drápalová, E., Běláčková, V. (2016). Monitoring of Discussion Forums on New Psychoactive Substances in the Czech Republic – Content and Trends. *Adiktologie*, 16(2), 130–142.

**BACKGROUND:** Given the lack of information about new psychoactive substances (NPS), their effects and risks, analysis of online discussion forums is a useful method to obtain this data. **AIMS:** Monitoring of Czech online discussions about NPS aimed to describe and categorise their content and identify trends in the use and purchase of NPS. **DESIGN AND MEASUREMENTS:** The content of two Czech discussion forums for users of NPS with 1916 posts was analysed quantitatively and qualitatively. The forums were monitored on a monthly basis from January 2013 to December 2014. **RESULTS:** The forums contain a wide range of knowledge about NPS and their purchase which is based on users' own experience, supplemented by information from other sources. A substantial decrease in the number of discussants (-20%) and posts (-49%) was observed in 2014. In that year, the share of the posts dedicated to so-called "commercial products/collectors' items" decreased (from 20% to 0.3% of

all the posts), while the share of posts discussing so-called "research chemicals" increased (from 36% to 45%). Qualitative analysis suggests that this may be due to a reduced supply of commercial products on the market and the discouraging properties of such products, such as their unknown and changing content and unpredictable effects. As indicated by the posts, the most popular Czech web-based shops wound up their activities in 2013. Consequently, the members of the forums started to purchase more frequently from foreign online shops that they had previously avoided. To some extent, the outcomes of the analysis correspond with the relevant information on NPS use available from other sources. **CONCLUSIONS:** Discussion forums play a crucial role as a source of information about NPS and are a self-help tool for reducing the potential risks for their users. When made part of a comprehensive monitoring approach, analysis of forum's content can yield information for a wide array of experts.

**KEY WORDS:** NEW PSYCHOACTIVE SUBSTANCES – ONLINE DISCUSSION FORUMS – QUALITATIVE CONTENT ANALYSIS – QUANTITATIVE CONTENT ANALYSIS – TRENDS

**Submitted:** 12 / OCTOBER / 2015

**Accepted:** 26 / FEBRUARY / 2016

**Grant support:** The drafting of this article was supported by the JUST/2012/DPIP/AG/3641 grant (I-TREND) and a grant from the Internal Grant Agency of the Ministry of Health, No. NT/14064.

This publication has been edited with the financial support of the Drug Prevention and Information Programme of the European Union, project No. JUST/2013/DPIP/AG/4774, "New Psychoactive Substances among Problem Drug Users – Towards Effective and Comprehensive Health Responses in Europe".

**Address for correspondence:** Eva Drápalová / [eva.drapalova@gmail.com](mailto:eva.drapalova@gmail.com) / Department of Addictology, 1<sup>st</sup> Faculty of Medicine, Charles University in Prague and General University Hospital in Prague, Apolinářská 4, 128 00 Prague 2, Czech Republic

## ● 1 INTRODUCTION

New psychoactive substances (NPS) are defined as substances of abuse in pure form or in a chemical mixture that have not been scheduled under the 1961 United Nations Single Convention on Narcotic Drugs and the 1971 United Nations Convention on Psychotropic Substances and may pose a threat to public health” (EMCDDA, 2009). These substances are often referred to as “legal highs”, “research chemicals”, or “party pills” (Corazza et al., 2013).

### ● 1 / 1 Typology of NPS in terms of marketing strategies

NPS are marketed as “commercial products” or “research chemicals”. Commercial products are named in such a way as to suggest either the type of the effect they produce or their illegal counterparts. In the Czech Republic they are known as “collectors’ items”, which were offered by so-called Amsterdam Shops in 2010. The names do not provide any clue as to their compounds and they often involve mixtures of multiple substances (Corazza et al., 2014b; Schifano et al., 2009).

“Research chemicals” (RCs) are generally referred to by their chemical or pharmacological names (González et al., 2013). RCs are particularly preferred by “e-psychonauts”, who tend to be highly knowledgeable about NPS and try to use such knowledge in order to minimise the risk the use of them entails. This group of users does not favour “commercial products” because of their unknown and variable content (Davey et al., 2012). According to Corazza et al. (2014b), “commercial products” are more intended to captivate younger and less experienced NPS users.

### ● 1 / 2 Occurrence and supply of NPS

The number of NPS reported in Europe for the first time grows every year (81 new NPS in 2013, 101 in 2014) (EMCDDA, 2015). In the Czech Republic, 48 NPS were intercepted in 2013. 12 of them were identified for the very first time in the Czech Republic, and for three of them it was the first time they had occurred within the EU (Mravčík et al., 2014). 22 NPS were reported for the first time in 2014 (NMS, 2015). At the beginning, the distribution of NPS could be monitored through land-based retail outlets. In recent years, however, a major part of this market has moved online (Bruno et al., 2013; Corazza et al., 2014a).

Using a snapshot survey method (Hillebrand et al., 2010), 651 online shops selling NPS to customers in Europe were identified (EMCDDA, 2014). In the Czech Republic, too, the sale of NPS moved online following the closedown of brick-and-mortar Amsterdam Shops and similar retail outlets in 2011. As of August 2014 NPS could be purchased from 26 online marketplaces in the Czech language. This meant an increase against 2013, when 19 web-based shops

were recorded. There was also a year-on-year increase in the number of the substances on offer: from 42 in 2013 to 64 in 2014 (Mravčík et al., 2014).

### ● 1 / 3 Information about NPS Use

According to the Eurobarometer survey, the lifetime prevalence of NPS use among the European population of young adults (aged 15-24) was 8% in 2014, while in 2011 it was 5%. The highest lifetime prevalence of NPS use was recorded in Ireland (22%), Slovenia (13%), and Spain (13%). As in 2011, NPS use in the Czech Republic reached the 4% level in 2014 (Eurobarometer, 2011, 2014). A Czech general population survey carried out in 2013 recorded a 0.6% lifetime prevalence of the use of other synthetic drugs among the 15-64 age group (Mravčík et al., 2014). However, it is complicated to identify the prevalence of NPS in population surveys, as there is no single generally accepted name for these substances and the number of NPS which respondents could be asked about is high. In addition, users often do not know the names of the substances they have used (Grolmusová & Mravčík, 2012).

The use of NPS seems to be preferred by specific populations, such as dance partygoers (Benshop et al., 2011; Measham et al., 2011) or problem drug users (Abagiu et al., 2014; Malczewski et al., 2013). Online discussion forums (“forums”) are used as sources of information about the effects of the substances, particularly when no long-term pharmacological and toxicological studies or other peer-reviewed evidence is available (Corazza et al., 2014b; Deluca et al., 2012; Jebadurai et al., 2013; Schifano et al., 2009; Schifano et al., 2011; Schifano et al., 2005; Soussan & Kjellgren, 2014).

### ● 1 / 4 Online Discussion Forums and Their Role in the Monitoring of NPS

Members of discussion forums work as a self-supporting community, the primary focus of which is to obtain and share information about substance use (Kjellgren et al., 2013; Stockdale et al., 2007). The information that is exchanged there includes that concerning the composition of commercial products (Soussan & Kjellgren, 2014), the origin of substances and their chemical structures and pharmacological and toxicological characteristics, and that about tolerance and both desirable and undesirable effects. Users were found to be highly knowledgeable in this respect (Soussan & Kjellgren, 2014).

The exchange of information is useful in reducing the risk of NPS use and maximising the pleasurable sensation the use of them may induce (Drápalová & Běláčková, 2014; Soussan & Kjellgren, 2014). Czech-speaking discussion forums were studied by Drápalová and Běláčková (2014). They confirmed that some users perceive the effects of NPS as low and, therefore, there is a risk of overdosing on sub-

stances which are capable of inducing strong effects even in small doses.

As the NPS market is undergoing constant development and changes, it is vital that it is monitored on a regular and long-term basis in order to identify the latest trends and patterns of NPS use (Corazza et al., 2014b; Deluca et al., 2012; Schifano et al., 2009). According to Soussan and Kjellgren (2014), information on specific NPS appears on the forums before the substances are identified by the Early Warning System. It is also important to monitor the forums as a method of keeping a record of local trends, as the use of NPS may differ dramatically at the national and subnational levels (Deluca et al., 2012).

The objective of the monitoring of the content of Czech online discussions about NPS which this article reports on was to describe the developments concerning (i) NPS use (the NPS being discussed, what experience users have with NPS is reflected in the subjects raised in the discussions, the quality of the substances used, and whether forum members advise each other and what such advice pertains to, and any other NPS-related information they may share among themselves) and (ii) NPS-related purchasing practices (the shops/transactions being discussed and their characteristics, the purchasing process, the quality of the shops, and whether the people involved in the discussions offer to sell or buy NPS among themselves).

## ● 2 METHODS

Internet discussion forums for NPS users were looked for using Google's full-text search engine. The first ten results of each search operation involving the key phrases "Amsterdam Shop", "legal highs", "research chemicals", and the Czech equivalents of "new drugs", "discussion", "forum", and "experience" were subjected to thorough scrutiny. The search process yielded two forums that were dedicated to NPS and in operation from January 2013 to December 2014. The forums are described in more detail in *Table 1*.

Both forums were monitored on a monthly basis and their content was saved in text files. As part of the I-TREND project, the monitoring of discussion forums was

also undertaken in other European countries (France, the United Kingdom, Poland, and the Netherlands). Both forums generated a total of 1,916 posts (an average of 80 posts per month), which were subjected to content analysis (Holsti, 1969). The amount of data made it possible to analyse all the posts in both forums.

Content analysis is a research method which makes it possible to provide an objective and systematic account of the explicit content of communication (Berelson, 1952). Both qualitative and quantitative approaches were applied. The qualitative approach was used to examine the content of the forums in order to create representative semantic categories, to which larger segments of text could be assigned on the basis of their meaning. Using the open coding method, the authors identified semantic units represented by codes. Then they broke down all the semantic units found in the text into a multi-level code structure, described in more detail in *Table 2*. The categories were created partly by using the template provided under the I-TREND project (Martinez, 2013), partly on the basis of previous research studies (Drápalová & Běláčková, 2014; Soussan & Kjellgren, 2014), and partly inductively, reflecting the content of the text under analysis (Kondracki & Wellman, 2002). Such an approach is typical of a conventional content analysis (Hsieh & Shannon, 2005).

The quantitative content analysis focused on the number of posts dedicated to specific NPS and web-based marketplaces, i.e. their "topicality". Because of the structure and volume of the data in the Czech forums, other indicators proposed by the I-TREND project (Martinez, 2013) could not be monitored. Qualitative content analysis was helpful in interpreting the changes in the study indicators from 2013 to 2014. The conceptualisation and categorisation of the meanings was useful in sorting the results and in formulating several theoretical outcomes, using the grounded theory method (Glaser & Strauss, 1967).

The validity of the research was assured by the triangulation of the data collection methods (qualitative and quantitative content analysis and the data being analysed by both authors independently of each other) and data

**Table 1 / Tabulka 1**

Internet discussion forums for NPS users under analysis  
*Analyzovaná internetová diskuzní fóra pro uživatele NPS*

Name	Accessibility	Administrator	Number of posts			Number of unique discussants		
			2013	2014	2013 vs. 2014 change	2013	2014	2013 vs. 2014 change
Forum 1 (lide.cz)	Public	Yes	968	124	-87.2%	49	28	-42.9%
Forum 2 (nyx.cz)	Accessible after logging in	Yes	299	525	75.6%	49	50	2.0%
<b>TOTAL</b>	<b>n. a.</b>	<b>n. a.</b>	<b>1267</b>	<b>649</b>	<b>-48.8%</b>	<b>98</b>	<b>78</b>	<b>-20.4%</b>

**Table 2 / Tabulka 2**

Semantic categories describing the content of discussion forums

*Významové kategorie charakterizující obsah diskuzních fór*

Main categories	Subcategory I	Subcategory II
<b>Discussion about NPS</b>	Substances discussed	Commercial products
		Research chemicals
	Experience with the substances	Appearance
		Dosage
		Route of administration
		Effect
		Duration of effect
		Quantity used and the frequency of use
		Other substances
		Preparation
		Duration of effect
		Set and setting
	Quality of the substances	Strength of effect
		Changes in quality
		Purity
	Counselling	Request for a review of a substance
		Recommendation of a suitable NPS
		Maximisation of effect
		Risk minimisation
	Information about the substances	Chemical composition
Mechanism of action		
Risk potential		
Content		
Legality		
<b>Discussion about the purchase and sale of NPS</b>	Specific shops discussed	Names
		Purchases in the Czech Republic
		Purchases abroad
	Characteristics of online shops	Provenance
		Accessibility
	Buying process	Ordering
		Payment
		Delivery
	Quality of online shops	Satisfaction
		Issues
		Comparison of quality
	Purchase, sale, and sharing of NPS among forum members	Purchase
		Sharing
		Sale
		Manufacturing

sources (comparison of the data with that generated by similar research projects in the Discussion section).

All the discussants' statements were quoted anonymously. In order to strengthen the measures taken to prevent any identification, it is not indicated which forum the statements were taken from and it was checked that they cannot be retrieved using internet search engines.

### ● 3 RESULTS

The number of posts that were analysed suggests that from 2013 to 2014 there was a decline in the number of posts pertaining to NPS (see *Table 1*). The year 2014 saw an overall drop in the number of discussants (-20%) and posts (-49%). While the activity on *www.lide.cz* subsided (the numbers of discussants and posts declined by 43% and 87% respectively), an increase in the number of posts was observed on the *www.nyx.cz* forum (the number of discussants rose by 2% and the number of posts by 76%).

The results of the work were divided according to semantic categories (see *Table 2*) into two semantic units – discussions concerning the individual NPS and the topics related to the purchase of NPS.

#### ● 3 / 1 Discussions about NPS

Specific NPS and experience of their use and quality were discussed on the forums. A great number of the posts also involved recommendations concerning the choice of the right NPS and the circumstances for using it which might maximise the desired effects while minimising the adverse ones. Forum participants often shared information obtained from other online sources, too.

##### 3 / 1 / 1 Substances under Discussion

The substances addressed in the discussions were informally categorised by the discussants into “commercial products” and “RCs”. Herbal products and illegal drugs included in the discussions were not classified as NPS for the purposes of this study. The number of posts mentioning a specific commercial product or RC was followed for a period of two years; *Table 3* provides an overview of the “commercial products” and RCs were discussed most.

In 2013 a total of 27 commercial products were discussed in 258 posts (approximately 20% of all the 1,267 posts in that year), while in 2014 it was only two commercial products in two posts (approximately 0.3% of the total of 649). In 2013 altogether 45 different RCs were discussed in 453 posts (36% of the total), while in 2014 it was 66 RCs in 291 posts (45% of the total); see *Table 3*. To summarise, there was a major decrease in the proportion of posts addressing so-called “commercial products/collectors' items” and a growth in the percentage of posts on “research chemicals” was observed, together with a greater range of RCs.

##### 3 / 1 / 2 Experience with the Substances Used

The discussants exchanged information about their experience with the use of specific substances. They described their appearance, the dose used, the route of administration, specific physical and psychological effects and the duration of such effects, the total quantity used, and the circumstances and frequency of use. The comparison of the effect of an NPS in contrast to an illicit substance or to an already-known NPS, and the indication of the substances used in combination with a specific NPS, whether to maximise their effects or mitigate the adverse ones, were common topics. Instances of shared experience including all the above information in a single post and thus coming close to the fulfilment of the criteria for a “trip report”<sup>1</sup> were rather rare during the period under study; they were more frequent in relation to NPS with hallucinogenic effects. Other reports tended to limit themselves to a short description of several aspects of experience with NPS, sometimes involving only a basic summary account indicating whether a specific NPS works or not: “*Cherry Cocolino – very weak, kind of wishy-washy, just for a while and unpleasant comedown. MPA at least works in comparison with other products.*”

The effects of some of the substances, e.g. hallucinogens, synthetic cannabinoids, and some euphorising substances and stimulants such as 3-MMC or 4-FA, were found to be strong. Soon after they had been tried, low-effect substances received negative reviews: “*4-FMA is a weak substance with a negligible effect, something like a coffee made of grounds that have already been used.*” The quality of a specific NPS could change over time, as observed in discussions about commercial products, in particular: “*I'd say that in the case of White Champagne they really went down with the quality. The first batch (about half a year ago) worked better, I think – in terms of both stimulation and euphoria. About a month ago I ordered another batch, but it is far weaker and the comedown is harder, too.*”

The users also mentioned differences in the quality of the individual RC products (across different producers, in particular), despite the fact that the products were sold under the same chemical formula: “*You may find it strange, but there are five different makers of EP (ethylphenidate), but the products have completely different effects, although you get the basic thing, i.e. stimulation, from all of them. Of this assortment, LegalWeed has the highest quality, at least it did until recently.*” Low or unexpected effects were explained by the discussants by the presence of admixtures intended to either increase the volume of the product being sold or provide a new dimension of the effect of the product.

1/ Trip report, or a detailed description using a conventional formal structure produced by a user in response to their personal experience with a psychoactive substance (Lahaie et al., 2013).

**Table 3 / Tabulka 3**

NPS discussed in Czech online discussion boards in 2013 and 2014 – NPS with five and more posts  
*NPS diskutované v českých online diskusních fórech v letech 2013 a 2014 – NPS s pěti a více příspěvky*

	Commercial products		Research chemicals	
	2013	2014	2013	2014
<b>NAME OF PRODUCT</b> (number of posts; number of users describing direct experience); products and chemicals that were discussed in both years are in bold print	Funky (88;24) Cherry Cocolino (47;22) EX (13;6) Wlodziu (11;6) No Name (10;4) El Magico (9;5) Fresh and Funky (9;4) Pikon (9;1) Chujnia (8;3) White champagne (8;2) Herbal Blend (6;1) Ibiza (5;1)	n.a.	<b>3-MMC (92;14)</b> <b>pentedrone (52; 12)</b> <b>MPA (50;12)</b> <b>ethylphenidate (29;9)</b> <b>dextromethorphan (26;5)</b> <b>DMT (24;0)</b> <b>2C-B (21;8)</b> <b>6-APB (14;2)</b> <b>4-FA (13;6)</b> <b>AMT (11;7)</b> <b>4-MEC (11;2)</b> ethcathinone (9;6) <b>methoxetamine (9;3)</b> <b>5-Meo-DMT (8; 1)</b> <b>2C-E (8;2)</b> <b>Nbome (7;0)</b> 3-FMC (7;1) <b>3-FA (6;0)</b> <b>2C-C (5;2)</b> 2C-Nbome (5;1)	<b>3-MMC (22;4)</b> <b>25I-NBOME (19;5)</b> <b>AMT (16;8)</b> <b>ethylphenidate (15;10)</b> <b>5-meo-DMT (14;3)</b> <b>DOB (14;6)</b> 25C-NBOH (13;4) MDPV (13;0) <b>NBOME (12;3)</b> 25i-NBOH (11;2) <b>DMT (9;1)</b> <b>4-FA (8; 3)</b> AL-LAD (7;0) 25c-NBOME (6;2) 2-FMA (5;0) bk-2C-B (5;1) LSZ (5;0), <b>methoxetamine (5; 1)</b> <b>MPA(5;2)</b> <b>pentedrone (5;0)</b>
<b>TOTAL number of unique products discussed</b>	27	2	45	66
<b>TOTAL number of posts in which a product discussed</b>	258	2	453	291
<b>Total PERCENTAGE of posts on specific NPS in the study period</b>	20%	0.3%	36%	45%

The composition of the NPS used was a major topic. RCs were viewed by the forum members as products that contain the components as declared, while the composition of commercial products was viewed as unknown. The discussants tried to guess the composition on the basis of the effects and appearance of the substances and the information from international forums, often calling for a drug checking service. Some discussants considered that the use of commercial products posed a higher risk. Neither was the use of RCs considered safe: *“I don’t understand how anybody can gamble with his health by taking something he really knows nothing about (with reference to a commercial product of unknown composition). RCs pose a great deal of risk anyway.”*

In their efforts to orient themselves in a tangle of several hundred products of varying quality and originating

from different sellers, the forums provided the discussants with a platform on which to share and exchange experiences. Before using a new NPS, the discussants asked others about their own experience. Some let their more experienced peers recommend a specific NPS which would meet their expectations. Posts referring to various attempts to maximise the “high” achieved by NPS use, e.g. through suitable combinations of several NPS, were also recorded: *“As I already had some MPA at home, I tried it both alone and together with 3-MMC. When taken alone, it really has no effect on the mood, although perhaps it does just a little. With 3-MMC, it seems to me that the states link up nicely.”* The discussants tended to minimise adverse effects and the NPS-related risk of damage to health by means of alternative routes of administration, for example: *“For some substances, rectal administration is the best (...) In AMT use,*

for example, this greatly reduces the nausea which is common when it is digested.” The discussants warned each other against the harm which other NPS users could be exposed to: “Just to warn you. I used something between 0.5g and 0.75g of 3-MMC. As with mephedrone, very realistic hallucinations occurred.”

Knowledge attained through direct experience was added to by information from other sources, such as other internet discussion forums and scientific publications and the media, to create a comprehensive body of knowledge about the individual substances, including their chemical properties and the mechanism of their action on the human body, including their toxicity, as applicable. Some of the participants in the discussion possessed detailed knowledge of chemistry, biology, and even medicine. Despite a great amount of information from international forums, some of the forum participants found the experience of Czech NPS users more reliable and authentic: “Have any of you got any negative feedback on 25i-nbome directly from the Czech Republic or your surroundings? Most of the messages from abroad do not sound very compelling to me.”

A body of information in its own right was provided by discussions about the legality of the substances. The discussants wanted to avoid the potential risk of ordering a substance which had already been banned. The safe delivery of a shipment requires the NPS to be legal both in the Czech Republic and the country where the shops dispatched their goods from.

### ● 3 / 2 Discussion about the Purchase of NPS

The second main thematic category involved discussions concerning the purchase of NPS. Forum members discussed different web-based marketplaces, their attributes, the process of shopping for NPS, and the quality of online shops. The selling, demanding the purchase, and sharing of NPS among the members occurred. A total of 38 shops were discussed in 2013, while in 2014 it was no more than 21. The shops are summarised in Table 4.

#### 3 / 2 / 1 Online Shops under Discussion

The discussants tended to divide the online shops into Czech and foreign ones, according to the domain and the language interface. It should be noted at this point that the .cz domain suffix in the URL address does not necessarily guarantee that the shop is Czech. The shop Rc-lab.cz, for example, is in the Polish language. For some of the discussants it was the use of the Czech language in the interface of an e-shop that mattered; for example, the Rc-chem.eu marketplace was considered Czech despite its eu. domain suffix. Even this feature was complicated by the presence of several versions of the e-shop in different languages, with the translation often being generated by online machine translators: “I would not take that Czech too seriously. It’s just an online automated translation. When you go for Czech, price values are the same like in Euros, only currency suffix is changed to CZK.”

The year 2013 saw a gradual increase in problems with the operation of “Czech” online shops, such as Amsterdam Shop (selling mainly “commercial products”) and Rc-chem.eu

**Table 4 / Tabulka 4**

Online shops with NPS discussed in Czech online discussion boards in 2013 and 2014 – shops with five and more posts  
Online obchody s NPS diskutované v českých diskusních fórech v letech 2013 a 2014 – obchody s pěti a více příspěvky

	2013	2014
<b>Name of shop</b> (the figure in parentheses indicates the number of posts). Shops that were discussed in both years are in bold print.	Amsterdam Shop (136)	<b>Genuine RC shop (23)</b> Research-blotz.com (20) Rcchem.eu (10) Research-chemical-wholesale.com (9) Rcnet-chemicals.com (6) Buy-jwh.com (5) Officialbenzofury.com (5) Sklep-euforia.pl (5)
	Rcchem.eu (72)	
	<b>Legalweed shop (34)</b>	
	<b>Euforia Shop (31)</b>	
	Partyshop6.webnode.cz (16)	
	Kolekcjoner.nl (11)	
	<b>Rc-lab.cz (11)</b>	
	Triloxboxx.cz (11)	
	<b>Genuine RC shop (8)</b>	
	Buckledbonzi.co.uk (7)	
	Mefedronshop.cz (7)	
	Upalacze.eu (7)	
	Astro-lab.com (6)	
	Botanic.cz (6)	
	Isomerism.org (5)	
<b>TOTAL</b>	<b>38 unique shops</b>	<b>21 unique shops</b>

(selling exclusively RCs). While Amsterdam Shop definitively wound up its activities in July 2013, Rc-chem.eu remained in operation, although intermittently, until 2014. By the end of 2014 users of discussion forums had concluded that “Czech” online shops had been taken down: *“There are no longer any e-shops in Czech I know of. You need to order from the EU.”* One explanation is the effective law enforcement associated with the efforts to tackle the activities of such marketplaces: *“Thanks to the legislation effective in the Czech Republic (“promotion of drug use”), the operation of an RC shop is quite a risky business here.”*

### 3 / 2 / 2 Experience with the Purchase of NPS

The discussants’ description of the process of online shopping for NPS involved the exchange of their experience with the actual placement of orders for goods. Cash-on-delivery transactions (COD), where a customer pays at the post office when collecting the product, seemed to be popular with the discussants. Advance payment methods, including bank transfers and payments by means of debit/credit cards, the PayPal system, and the Bitcoin virtual currency, were not so popular, as they exposed the buyers to a higher risk of fraud and increased the total cost of the order: *“So the ordering system on Rc-chem.eu has changed a bit, for the worse, unfortunately. There is no cash-on-delivery any more. You must send the money upfront to a bank account in Hungary, which is quite pricy if you do it through a Czech bank.”* *“Well, it’s always a bit of a gamble to send money in advance; with these items, especially, it’s hard to claim your rights – I’d be reluctant with greater amounts.”*

The quality of online shops was a common topic of discussion. In this respect, too, the forum worked as a sort of counselling service where the less experienced looked for a shop on the basis of recommendations and evaluation from other participants in the discussion. When happy with a specific shop, the discussants tended to recommend it to others. They thought that positive characteristics of a shop included reliability, the provision of information about product composition, a simple payment system, short delivery time, and a wide assortment of goods. The image of a shop was further improved by bonuses, discounts, or other products added to the buys as extras: *“Hi, has anybody tried BK-2CB? They offer it now on rc-net with a 30% Christmas discount, so I’m thinking of giving it a try.”* *“I did two orders from them. Once I got a present from them and the other time there was no postal charge. So just happy with that.”*

Amsterdam Shop and Rc-chem.eu, the two marketplaces which were brought up the most frequently in connection with the year 2013, were often compared. The popularity of Amsterdam Shop was due to the low prices of the products on offer and the much preferred cash-on-delivery payment method: *“When compared to Rc-chem.eu, the AS (Amsterdam Shop) prices are superb, given that you don’t*

*pay fees, and the hassle in the bank, and you can get it sent COD! The question is, though, what the quality is.”* Rather than price, it was the size of its assortment and the higher quality of the same products as those offered by Amsterdam Shop that the Rc-chem.eu marketplace, which specialised exclusively in research chemicals, seemed to attract its customers with: *“I was happy to find out that AS offers MPA at very reasonable prices with no extra fees. So I gave it a shot and used 0.5g of MPA. But it looks and tastes totally different from the stuff supplied by Rc-chem.eu and I was quite disappointed by the effect, too! It’s a lot weaker, unfortunately.”* *“With Rcchem.eu, you know what the substance is about – well, not 100%, but there’s more to choose from.”*

It was not rare for the discussants to encounter poor service and fraud from online vendors. Specifically, there were problems with the processing of orders for goods, long delivery times, and also failures to deliver pre-paid products. In 2014 the discussants began to scale up their use of the services provided by the *Safe or Scam* website, which is good for looking up reviews of online shops offering various product ranges which are posted by other buyers.

Some discussants offered to sell NPS that they had bought in greater quantities or acted as agents for a shop. Forum administrators tried to eliminate posts of this type. Some discussants wanted to buy NPS from others, for example, in situations in which they were hurriedly seeking a substitute for a shipment that had failed to arrive. The discussions also contained offers for collective shopping in web-based marketplaces motivated by savings on postal charges or good deals on buying in larger quantities. Some discussion forum members decided to take advantage of people’s dissatisfaction with some of the shops because of their unreliability and considered becoming involved in the NPS distribution process: *“I just thought, given that AS shop is closing down, that I’d buy from my own source and sell it off. I’d send it COD or personal delivery around Prague, for you to be sure, no problem; moreover, I’ve been around on this forum for some time now.”* Some of the discussants showed efforts to obtain instructions for manufacturing selected NPS and prepare substances on a make-shift basis.

## ● 4 DISCUSSION

The results of the study indicate that the content of the first thematic category (Discussion about NPS) was basically consistent with those of other studies, the objective of which was to analyse the content of forums for NPS users, especially the phenomena which reflect aspects of experience with the substances used (Deluca et al., 2012; Jebadurai et al., 2013; Schifano et al., 2009; Schifano et al., 2011; Schifano et al., 2005; Soussan & Kjellgren, 2014) and subject areas concerning counselling about the minimisation of risk and maximisation of effect (Barratt, 2012; Drápalová &



Table 5 / Tabulka 5

Results and proposal triangulation with other data sources

Výsledky a triangulace s dalšími zdroji

ANALYSIS OF DISCUSSION FORUMS		SOURCES FOR DATA TRIANGULATION		LIMITATIONS AND OTHER COMMENTS
RESULT OF ANALYSIS	HYPOTHESIS	VERIFICATION SOURCES	RESULTS	
i. Decline in activity on the forums under analysis (a drop in the total numbers of posts and discussants)	a. Decline in the level of NPS use in the Czech Republic in 2013-2014	General population surveys conducted by the National Focal Point (NFP)	2013: LTP 1.3%, LYP 0.3% 2014: LTP 0.3%, LYP 0%	The characteristics of the participants in online forums are unknown – they are unlikely to constitute a representative sample of the NPS user population. The number of posts does not necessarily reflect the level of use among the population of online forum members. The results of the general population surveys hover near the statistical error threshold.
		The Eurobarometer survey	2011: LYP 4% 2014: LYP 4%	
		Study on PDUs 2013 and 2014	2013: LYP 52% 2014: LYP 53%	
ii. General decline in the number of commercial products/collectors' items being discussed and a relative increase in the number of RCs discussed	b. Decline in the level of the use of "commercial products" c. Rise in the level of RC use d. Users of commercial products switched to RCs because of the latter's better availability and quality	General population surveys, the Eurobarometer survey	N/A No data on the use of specific substances is available.	The number of posts does not reflect the level of use among the population of participants in discussion forums. The number of posts, or "topicality", does not reflect the level of NPS use (e.g. controversies associated with the NPS). The monitoring of discussion forums is primarily concerned with buyers' behaviour; the shop-specific monitoring looks into the supply and number of shops. The population of forum members does not reflect the behaviour of all the buyers. Problematic definition and perception of a shop as "Czech" (Czech domain, Czech IP address, Czech in the language interface, etc.).
		Study on PDUs 2013 and 2014	N/A Specific names of NPS to be included in the analysis.	
		I-TREND SASS monitoring	2014: 22% of shops selling CPs, 35% selling RCs 2015: 13% CPs, 43% RCs	
		NFP/EMCDDA snapshot survey	N/A Product typology not specified.	
iii. Decline in the number of "Czech" shops and an increase in the utilisation of online shops abroad	e. Decline in the number of shops in the Czech language accessible via Czech search engines f. Increase in the utilisation of online shops abroad	I-TREND SASS monitoring	2014: 30 unique shops in Czech 2015: 32 unique shops in Czech	Problematic definition and perception of a shop as "Czech" (Czech domain, Czech IP address, Czech in the language interface, etc.).
		NMS/EMCDDA snapshot survey	2013: 26 shops in Czech 2014: 33 shops in Czech	
iv. Varying quality of commercial products and RCs	g. The composition of commercial products tends to vary over time h. Research chemicals do not always contain what they are declared to i. The content of RCs tends to vary over time	The www.party-trend.cz project database (user-supplied samples)	Out of 11 substances which were declared to contain a specific NPS, four contained more than one substance and three a substance other than that declared.	Neither data collection nor online purchases are randomised and are representative. Several online shops might not be "functioning" from the experience of users.
		I-TREND project sample analysis (RCs purchased from online shops)	Four out of 26 samples (25%) ordered online from "Czech" marketplaces did not contain the substance that was declared, two contained another additional substance, and one sample contained a mixture of three substances.	

SOURCES: National Monitoring Centre for Drugs and Addiction & ppm factum research (2014, 2015), Běláčková et al. (2015, 2016), Kmetonyová & Pažitný (2015), Martinez et al. (2016), Grohmannová et al. 2016, Eurobarometer (2011, 2014), Brunt et al. (2015)

Note: LTP = lifetime prevalence, LYP = last-year prevalence

ZDROJE: National Monitoring Centre for Drugs and Addiction & ppm factum research (2014, 2015), Běláčková et al. (2015, 2016), Kmetonyová & Pažitný (2015), Martinez et al. (2016), Grohmannová et al. 2016, Eurobarometer (2011, 2014), Brunt et al. (2015)

Poznámka: LTP = celoživotní prevalence, LYP = prevalence v předchozím roce

Běláčková, 2014; Soussan & Kjellgren, 2014). For some NPS users, the existence of Czech forums has an essential role in that it makes it possible to share NPS-specific experience which the discussants find more authentic than that of users from abroad. It is therefore fair to assume that Czech discussion forums for NPS users could also serve as a source of information about new and unexplored substances and their effects and potential for harm for both public health professionals and clinicians.

Discussions dealing with the purchase and sale of NPS provide an insight into the patterns of behaviour involved in shopping for NPS. Addressing the topic of the NPS market either in terms of the monitoring of online shops per se (Bruno et al., 2013; Hillebrand et al., 2010), or in more comprehensive terms, looking into the monitoring of the content of the internet as a whole (Corazza et al., 2014a; Schifano et al., 2009), previous studies only reported about the number and assortment of web-based marketplaces.

Analysis of the content of forums may generate useful information about NPS users' buying strategies, about the practices of the shops, and, potentially, about the extent to which specific shops are utilised.

The quantitative part of this study suggests the possibility of using quantitative analysis in order to look for trends between different time periods. While the quantitative monitoring of the content of the internet in order to map the offer of online shops has been applied for several years – e.g. snapshot methods (Hillebrand et al., 2010) or the Psychonaut Web Mapping Project methods (Bruno et al., 2013; Deluca et al., 2012) – quantitative monitoring of internet forums is a new method, which was, to the best of our knowledge, applied for the first time as part of the I-TREND project (Martinez, 2013).

Using the results of the analysis of the discussion forums, we have identified four trends which should be subjected to triangulation with the results of the previous mon-

itoring and research studies in the field of NPS (Table 5). To what extent these trends are consistent with information obtained from other sources is discussed below.

One trend is the overall drop in the number of posts and the degree of activities on forums (i), which may imply a decline in the level of NPS use. While the prevalence of NPS use among the general population did decrease between 2013 and 2014 (National Monitoring Centre for Drugs and Addiction & ppm factum research, 2014, 2015), no such decline was recorded in specific subpopulations (Běláčková et al., 2016; Eurobarometer, 2011, 2014). The decline in the number of posts may thus suggest, for example, that the discussions have moved to other communication channels which are not freely accessible to the public. The question is, too, whether the concept of the “topicality” of a substance is really associated with NPS use; a high number of posts may not necessarily reflect the popularity of a substance as it can also indicate controversy surrounding the substance.

While the so-called “commercial products” almost disappeared from users’ discussions from 2013 to 2014, there was a relative increase in the number of posts on RCs (ii). This may well be indicative of an overall decline in the use of “commercial products” in the Czech Republic, or their place having been taken by research chemicals. The qualitative analysis of the discussion forums suggests that it may be due to mistrust in the safety of “commercial products” or an increase in purchases from (RC) shops abroad. A similar trend is also indicated by the results of the monitoring of online shops carried out as part of the I-TREND project. They show that during the years 2014 and 2015 the ratio of shops selling “commercial products” to RC shops rose in favour of the latter (Kmetonyová & Pažitný, 2015). As neither the absolute number of posts on RCs nor the number of discussants grew, this may indicate an increase in the diversity of the substances used among the same group of users (the number of RCs under discussion rose from 45 in the previous year to 66) rather than the enlargement of the group of RC users (e.g. to include users of commercial products). Such developments correspond to the fact that in 2014, 22 new substances were identified in the Czech Republic by the EWS. Given that this is 24 substances less than in 2013 (NMS, 2015), one might assume a reduction in the variety of substances brought up in discussions. The truth is, nevertheless, that the chemical names of the substances under discussion partly overlapped in both years.

The conclusions ensuing from both the qualitative and quantitative analyses of discussion forums can be interpreted as indicative of the lower availability of Czech online marketplaces and the discussants’ greater willingness to buy from shops abroad in 2014 in comparison with 2013 (iii). On the other hand, the data from the monitoring of on-

line shops conducted by both the National Focal Point and the I-TREND project does not show any decline in the number of Czech online shops. Conversely, it suggests that their number is growing (Kmetonyová, Pažitný, 2015; Grohmanová et al., 2016). There may also be a discrepancy between the users’ and the monitors’ ideas of what a functioning “Czech” online shop actually is. It may also be that the users use only a fraction of the shops covered by the monitoring. Analysis of discussion forums which looks into buyers’ behaviour may help in obtaining a more comprehensive picture of the supply of NPS via the internet.

Last but not least, the quality of “commercial products” received a negative response. Their composition was regarded as unknown and changeable (iv). The effects of some of the RCs that were described varied depending on the producers of the respective RCs, which may suggest that the RCs do not necessarily contain the NPS as declared, or they may be of dubious purity. This is also confirmed by the analyses of the content of NPS carried out under the I-TREND project, which led to the conclusion that the purity ranged from 100%-50%, depending on the type of RC. Approximately 55% of the RCs analysed in Poland did not contain the substances they were declared to; four out of 26 samples (25%) ordered online from “Czech” marketplaces did not contain the substance that was declared, two contained another additional substance, and one sample contained a mixture of three substances (Brunt et al., 2015).

The limitations of the qualitative and quantitative content analyses of discussion forums for NPS users include the specific nature of the population engaging in the online discussion of NPS (patterns of NPS use may not necessarily reflect the patterns of use among the population of recreational and problem users) and the low volume of discussions conducted in the Czech language in comparison with abroad. The volume of data encountered on forums abroad makes it possible to start subforums (threads) for individual NPS. In 2013 and 2014 5,169 of those were identified in Poland, France, the Netherlands, and the United Kingdom (Martinez & Cadet-Tadrou, 2015), while on Czech forums all the substances were discussed within two unstructured message boards. It is also possible, though, that there are covert discussion forums in the Czech Republic which could not be identified.

## ● 5 CONCLUSIONS

This work involved the analysis of the content of Czech internet forums for NPS users in the period from January 2013 to December 2014. The discussants shared a considerable amount of knowledge about NPS and buying them. The two years’ monitoring of the discussions showed a decline in the number of discussants (-20%) and posts (-49%). During that period a dramatic decline in the proportion of posts dealing with the so-called “commercial products/collectors’

items" (from 20% to 0.3% of all the posts) and an increase in the proportion of posts on so-called research chemicals (from 36% to 45% of all the posts) were recorded. The qualitative content analysis of the posts indicates that this may be due to the reduced supply of commercial products on the market and the deterrent characteristics of these products, such as unknown composition and unpredictable effects. The most popular Czech web-based shops wound up their activities in 2013 and the forum members began to use the services of foreign online marketplaces.

The results of this analysis are congruent with other relevant evidence in that they suggest a decline in the occurrence of "commercial products/collectors' items" on the NPS market, which are partly giving way to substances sold under their chemical names. In addition, they all indicate the varying quality of the substances sold. A decrease in the level of NPS use in the Czech Republic, which might be implied by the lower number of posts concerning NPS, was confirmed only to a certain extent (among the general population). The results of this study are at odds with those of the monitoring of online shops selling NPS: unlike the discussants, the latter recorded an increase in the number of e-shops in the Czech language.

In order to provide a comprehensive picture of the issue of NPS use in the Czech Republic, analysis of internet discussion forums should be used in parallel with other both quantitative and qualitative methods for studying recreational users and problem users and the school and general populations or monitoring online marketplaces.

**The role of the authors:** Eva Drápalová and Vendula Běláčková adapted the study design to the Czech setting. Eva Drápalová collected the data and created the main analytical categories. Vendula Běláčková participated in the analysis of the data and in writing of the paper.

**Conflict of interest:** This study involved no conflicts of interest.

**Role autorů:** Autorky Eva Drápalová a Vendula Běláčková přizpůsobily design studie českému prostředí. Eva Drápalová provedla sběr dat a vytvářela hlavní analytické kategorie. Vendula Běláčková se spolupodílela na analýze dat a na přípravě publikace.

**Konflikt zájmů:** V uvedené studii nedošlo ke střetu zájmů.

## REFERENCES / LITERATURA

- Abagiu, A. O., Marinescu, A. G., Niculescu, I. T., Koulosousas, A., Paris, E., & Mardarescu, M. (2014). 5 years of legal highs in Romania – consequences and solutions. *Alcohol and Alcoholism*, 49(Suppl 1), i5. doi:10.1093/alcal/agu052.13
- Barratt, M. J. (2012). The efficacy of interviewing young drug users through online chat. *Drug and Alcohol Review*, 31(4), 566-572. doi:10.1111/j.1465-3362.2011.00399.x
- Běláčková, V., Ivanovová, L., Drápalová, E., & Zábranský, T. (2015). Nové drogy – analýzy trhu, epidemiologie užívání a identifikace možností pro snižování škod. Předběžné výsledky projektu [New Drugs – market analyses, epidemiology of use, and identification of harm reduction options. Preliminary project results]. Unpublished. Klinika adiktologie 1. LF UK v Praze.
- Běláčková, V., Janíková, B., Tomková, A., Vacek, J., Zábranský, T., Mravčík, V., Csémy, L. (2016). The Use of New Synthetic Drugs among Problem Drug Users – Prevalence, Patterns of Use, and Related Risks as a Challenge for Harm Reduction Programmes in the Czech Republic. *Adiktologie*, 16(2), 106–119.
- Benschop, A., Nabben, T., & Korf, D. (2011). *Antenne 2010*. Retrieved from Amsterdam: <https://www.jellinek.nl/wp-content/uploads/2012/10/antenne-2010-jellinek-preventie-amsterdam.pdf>
- Berelson, B. (1952). *Content analysis in communication research*. Glencoe: Free Press.
- Bruno, R., Poesiat, R., & Matthews, A. J. (2013). Monitoring the Internet for emerging psychoactive substances available to Australia. *Drug and Alcohol Review*, 32(5), 541-544. doi:10.1111/dar.12049
- Brunt, T., Cadet-Tai'rou, A., Martinez, M., Lahaie, E., Brandt, S., Grohmanová, K., Malczewski, A., & Nefau, T. (2015). Workstream 4 – Outcomes of chemically analysing NPS in EU partner countries. preliminary results of the project Internet Tools for Research in Europe on New Drugs (I-TREND): interdisciplinary and integrated approaches to substances, users and markets. Unpublished.
- Corazza, O., Demetrovics, Z., Brink, W. V. D., & Schifano, F. (2013). 'Legal highs' an inappropriate term for 'Novel Psychoactive Drugs' in drug prevention and scientific debate. *International Journal of Drug Policy*, 24(1), 82-83. doi:10.1016/j.drugpo.2012.06.005
- Corazza, O., Martinotti, G., Santacroce, R., Chillemi, E., Giannantonio, M. D., Schifano, F., & Celtek, S. (2014a). Sexual Enhancement Products for Sale Online: Raising Awareness of the Psychoactive Effects of Yohimbine, Maca, Horny Goat Weed, and Ginkgo biloba. *BioMed Research International*, 2014.
- Corazza, O., Valeriani, G., Bersani, F. S., Corkery, J., Martinotti, G., Bersani, G., & Schifano, F. (2014b). "Spice," "Kryptonite," "Black Mamba": An Overview of Brand Names and Marketing Strategies of Novel Psychoactive Substances on the Web. *Journal of Psychoactive Drugs*, 46(4), 287-294. doi:10.1080/02791072.2014.944291
- Davey, Z., Schifano, F., Corazza, O., & Deluca, P. (2012). e-Psychonauts: Conducting research in online drug forum communities. *Journal of Mental Health*, 21(4), 386-394. doi:10.3109/09638237.2012.682265
- Deluca, P., Davey, Z., Corazza, O., Di Furia, L., Farre, M., Flesland, L. H., Mannonen, M., Majava, A., Peltoniemi, T., Pasinetti, M., Pezzolesi, C., Scherbaum, N., Siemann, H., Skutle, A., Torrens, M., van der Kreeft, P., Iversen, E., & 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. doi:10.1016/j.pnpbp.2012.07.011
- Drápalová, E., & Běláčková, V. (2014). Vnímání rizikosti nových psychoaktivních látek neboli „sběratelských předmětů“ jejich uživateli [Risk perception of new psychoactive substances („legal highs“) among their users]. *Adiktologie*, 14(3), 190-205.
- EMCDDA. (2009). *Risk assessment of new psychoactive substances – operating guidelines*. Retrieved from Luxembourg: <http://www.emcdda.europa.eu/html.cfm/index100978EN.html>

- EMCDDA. (2014). *European Drug Report*. Retrieved from Luxembourg: [http://www.emcdda.europa.eu/attachements.cfm/att\\_228272\\_EN\\_TDAT14001ENN.pdf](http://www.emcdda.europa.eu/attachements.cfm/att_228272_EN_TDAT14001ENN.pdf)
- EMCDDA. (2015). *New psychoactive substances in Europe: An update from the EU Early Warning System* (9789291687640). Retrieved from Luxembourg: [http://www.emcdda.europa.eu/attachements.cfm/att\\_235958\\_EN\\_TD0415135ENN.pdf](http://www.emcdda.europa.eu/attachements.cfm/att_235958_EN_TD0415135ENN.pdf)
- Eurobarometer. (2011). *Eurobarometer: Youth attitudes on drugs – analytical report*. Retrieved from [http://ec.europa.eu/public\\_opinion/flash/fl\\_330\\_en.pdf](http://ec.europa.eu/public_opinion/flash/fl_330_en.pdf)
- Eurobarometer. (2014). *Eurobarometer: Youth attitudes on drugs – analytical report*. Retrieved from [http://ec.europa.eu/public\\_opinion/flash/fl\\_330\\_en.pdf](http://ec.europa.eu/public_opinion/flash/fl_330_en.pdf)
- Glaser, B. G., & Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New York: Aldine Publishing Company.
- González, D., Ventura, M., Caudevilla, F., Torrens, M., & Fare, M. (2013). Consumption of new psychoactive substances in a Spanish sample of research chemical users. *Human Psychopharmacology*, 28, 332-340. doi:10.1002/hup.2323
- Grohmannová, K., Kmetonyová, D., Štefunková, M., Běláčková, V., Zábranský, T., Mravčík, V. (2016). Online Sales of New Synthetic Drugs in the Czech Republic in 2015. *Adiktologie*, 16(2), 120–128.
- Grolmusová, L., & Mravčík, V. (2012). *Nové syntetické drogy: aktuální situace* [New synthetic drugs – the latest developments]. Retrieved from [http://www.drogy-info.cz/data/obj\\_files/4572/555/Zaostreno\\_na\\_drogy\\_2012-05\\_Nove\\_synteticke\\_drogy.pdf](http://www.drogy-info.cz/data/obj_files/4572/555/Zaostreno_na_drogy_2012-05_Nove_synteticke_drogy.pdf)
- Hillebrand, J., Olszewski, D., & Sedefov, R. (2010). Legal Highs on the Internet. *Substance Use & Misuse*(45), 330-340.
- Holsti, O. R. (1969). *Content analysis for the social sciences and humanities*. Reading: Addison-Wesley.
- Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277-1288. doi:10.1177/1049732305276687
- Jebadurai, J., Schifano, F., & Deluca, P. (2013). Recreational use of 1-(2-naphthyl)-2-(1-pyrrolidinyl)-1-pentanone hydrochloride (NRG-1), 6-(2-aminopropyl) benzofuran (Benzofury/ 6-APB) and NRG-2 with review of available evidence-based literature. *Human Psychopharmacology*, 28, 356-364. doi:10.1002/hup.2302
- Kjellgren, A., Henningsson, H., & Soussan, C. (2013). Fascination and Social Togetherness—Discussions about Spice Smoking on a Swedish Internet Forum. *Substance Abuse: Research and Treatment*, 7, 191-198. doi:10.4137/SART.S13323
- Kmetonyová, D., & Pažitný, M. (2015). Workstream 2: Monitoring of Online Shops Year 2. Report on online shops. Unpublished. preliminary results of the project Internet Tools for Research in Europe on New Drugs (I-TREND): interdisciplinary and integrated approaches to substances, users and markets. Unpublished.
- Kondracki, N. L., & Wellman, N. S. (2002). Content analysis: Review of methods and their applications in nutrition education. *Journal of Nutrition Education and Behavior*(34), 224-230.
- Lahaie, E., Martinez, M., & Cadet-Tadrou, A. (2013). *New psychoactive substances and the Internet : current situations and issues. Tendances no. 84*. Retrieved from: [https://www.researchgate.net/publication/285900715\\_New\\_Psychoactive\\_Substances\\_and\\_the\\_Internet](https://www.researchgate.net/publication/285900715_New_Psychoactive_Substances_and_the_Internet)
- Malczewski, A., Kidawa, M., Struzik, M., Strzelecka, A., Sollich, K., Misiurek, A., Jedruszak, L., Jablonksi, P., Radomska, A., Stawecka, E., Jurkovski, P., Gryn, K., & Chojecki, D. (2013). *Poland: New Development, Trends and in-depth information on selected issues*. Retrieved from Warsaw, Poland: [http://www.emcdda.europa.eu/attachements.cfm/att\\_191625\\_EN\\_Poland\\_2011.pdf](http://www.emcdda.europa.eu/attachements.cfm/att_191625_EN_Poland_2011.pdf)
- Martinez, M. (2013). Methodology for Workstream forums. Methodological guide for the I-TREND project. Unpublished. OFDT, France.
- Martinez, M., & Cadet-Tadrou, A. (2015). Learning from the monitoring of NPS popularity on drug users' forums: The I-TREND experience. Paper presented at the Special EMCDDA technical conference. Retrieved from: [http://www.emcdda.europa.eu/attachements.cfm/att\\_243610\\_EN\\_02.%20M.%20Martinez%20-%20The%20I-TREND%20experience.pdf](http://www.emcdda.europa.eu/attachements.cfm/att_243610_EN_02.%20M.%20Martinez%20-%20The%20I-TREND%20experience.pdf)
- Martinez, M., Kmetonyova, D., Běláčková, V. (2016). *A method for exploring the number of online shops selling new psychoactive substances: initial I-TREND project results*. In The internet and drug markets (European Monitoring Centre for Drugs and Drug Addiction: Insights 21). Luxembourg: Publications Office of the European Union.
- Measham, F., Wood, D., Dargan, P., & Moore, K. (2011). The rise in legal highs: prevalence and patterns in the use of illegal drugs and first- and second-generation "legal highs" in South London gay dance clubs. *Journal of Substance Use*, 16(4), 263-272.
- Mravčík, V., Chomynová, P., Grohmannová, K., Nečas, V., Grolmusová, L., Kiššová, L., Nechanská, B., Sopko, B., Fidesová, H., Vopravil, J., & Jurystová, L. (2014). *Výroční zpráva o stavu ve věcech drog v České republice v roce 2013* [National Report: The Czech Republic – 2013 Drug Situation]. Praha: Úřad vlády České republiky.
- Národní monitorovací středisko pro drogy a závislosti, & ppm factum research. (2014). Prevalence užívání drog v populaci ČR v roce 2013 [Prevalence of Drug Use in the Czech Republic 2013]. Retrieved from <http://www.drogy-info.cz/drogova-situace/uzivani-drog-v-populaci/uzivani-drog-v-obecne-populaci/vyzkum-prevalence-uzivani-drog-v-populaci-cr-2013/>
- Národní monitorovací středisko pro drogy a závislosti, & ppm factum research. (2015). Prevalence užívání drog v populaci ČR v roce 2014 [Prevalence of Drug Use in the Czech Republic 2014]. Retrieved from [http://www.drogy-info.cz/drogova-situace-2014/uzivani-drog-v-populaci-2014/uzivani-drog-v-obecne-populaci-2014/vyzkum-prevalence-uzivani-drog-v-populaci-cr-2014-2014/#center\\_column](http://www.drogy-info.cz/drogova-situace-2014/uzivani-drog-v-populaci-2014/uzivani-drog-v-obecne-populaci-2014/vyzkum-prevalence-uzivani-drog-v-populaci-cr-2014-2014/#center_column)
- NMS (2015). *Systém včasného varování před novými drogami - zpráva za rok 2014*. [Early Warning System – 2014 Report] Unpublished report. Národní monitorovací středisko pro drogy a drogové závislosti.
- Schifano, F., Corazza, O., Deluca, P., Davey, Z., Di Furia, L., Farre, M., Flesland, L., Mannonen, M., Pagani, S., Peltoniemi, T., Pezzolesi, C., Scherbaum, N., Siemann, H., Skutle, A., Torrens, M., & Van Der Kreeft, P. (2009). Psychoactive drug or mystical incense? Overview of the online available information on Spice products. *International Journal of Culture and Mental Health*, 2(2), 137-144. doi:10.1080/17542860903350888
- Schifano, F., D'Offizi, S., Piccione, M., Corazza, O., Deluca, P., Davey, Z., Di Melchiorre, G., Di Furia, L., Farré, M., Flesland, L., Mannonen, M., Majava, A., Pagani, S., Peltoniemi, T., Siemann, H., Skutle, A., Torrens, M., Pezzolesi, C., van der Kreeft, P., & Scherbaum, N. (2011). Is there a recreational misuse potential for pregabalin? Analysis of anecdotal online reports in comparison with related gabapentin and clonazepam data. *Psychotherapy and Psychosomatics*, 80(2), 118-122. doi:10.1159/000321079
- Schifano, F., Deluca, P., Agosti, L., Martinotti, G., Corkery, J. M., Alex, B., Caterina, B., Heikki, B., Raffaella, B., Anna, C., Lucia, D. F., Dorte, D. R. E., Maggi, F., Susana, F., Irene, F., Claude, G., Lisbet, H., Lene, S. J., Mauro, L., Christopher, L., Aino, M., Teuvo, P., Milena, P., Salman, R., Damien, R., Angela, R. M., Francesco, R., Norbert, S., Holger, S., Josep, T., Marta, T., & Francesco, Z. (2005). New trends in the cyber and street market of recreational drugs? The case of 2C-T-7 ('Blue Mystic'). *Journal of Psychopharmacology*, 19(6), 675-679. doi:10.1177/0269881105056660
- Soussan, C., & Kjellgren, A. (2014). Harm reduction and knowledge exchange—a qualitative analysis of drug-related Internet discussion forums. *Harm Reduction Journal*, 11, 25-25. doi:10.1186/1477-7517-11-25
- Stockdale, S. E., Wells, K. B., Tang, L., Belin, T. R., Zhang, L., & Sherbourne, C. D. (2007). The importance of social context: Neighborhood stressors, stress-buffering mechanisms, and alcohol, drug, and mental health disorders. *Social Science & Medicine*, 65(9), 1867-1881. doi:http://dx.doi.org/10.1016/j.socscimed.2007.05.045