PŮVODNÍ PRÁCE

Užívání nových syntetických drog mezi problémovými uživateli drog – prevalence, vzorce užívání a související rizika jako výzva pro programy snižování škod v České republice

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***VÝCHODISKA**: Nové syntetické drogy se v České republice po uzavření tzv. Amsterdam shopů vyskytují ve specifických skupinách uživatelů. **CÍLE**: Cílem této analýzy je (a) zjistit vývoj v prevalenci užívání NSD mezi problémovými uživateli drog v regionech, kde jsou tyto látky rozšířené, (b) popsat charakteristiky populace zasažené užíváním NSD a důvody užití těchto látek, (c) identifikovat rozdíly mezi Prahou a dalšími regiony, (d) vyhodnotit hlavní rizika užívání těchto látek. Práce diskutuje možnosti a limity snižování škod v této populaci. **METODY**: Strukturovaný dotazník a polostrukturovaný dotazník v regionech Praha, Třebíč, Ostrava, Brno, Pardubice. Práce prezentuje rozdíly v regionech a mezi roky 2013 a 2014 s využitím metody chi2 testu a kvalitativní analýzy dat. **VZOREK**: V roce 2013 bylo celkem získáno 271 dotazníků a 64 kvalitativních rozhovorů. V roce 2014 proběhlo druhé kolo sběru dat, kdy bylo odebráno 195 dotazníků a 23 rozhovorů. 71 % dotazníků bylo získáno v Praze. 72,2 % byli muži, průměrný věk byl 32,9 let. **VÝSLEDKY**: Užití NSD během posledních 12 měsíců uvedla přibližně polovina z dotazovaných (52,4 % v roce 2013, 53,0 % v roce 2014). V Praze uvedlo v roce 2013 užití NSD 58,6 % respondentů, mimo Prahu to pak bylo 38,7%. V roce 2014 hlásilo užití nějaké NSD v posledních 12 měsících 57,6 % z klientů pražských programů, v ostatních regionech zmínilo užití NSD 23,7% (šlo převážně o opakované užití). Jednalo se o problémové uživatele drog, kteří vykazovali ve všech sledovaných indikátorech vyšší míru rizikového užívání než ti, kteří NSD v posledním roce neužili. **ZÁVĚRY**: NSD se u určité skupiny PDUs etablovaly, zpravidla jako jedna (z mnoha) užívaných látek. Prioritou by měl být oboustranný tok informací mezi uživateli (popř. službami, jež jsou s nimi v kontaktu) a tzv. systémem včasného varování.*

KLÍČOVÁ SLOVA: PROBLÉMOVÍ UŽIVATELÉ DROG – NOVÉ SYNTETICKÉ DROGY – RIZIKOVÉ CHOVÁNÍ – SNIŽOVÁNÍ ŠKOD

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ORIGINAL ARTICLE

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

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BACKGROUND: After the closure of smart shops (also referred to as "Amsterdam shops") in the Czech Republic in 2011, new synthetic drugs (NSDs) spread within specific groups of drug users in the country, problem drug users (PDUs) being one of them. AIMS: The aim of this analysis is to assess: (a) the prevalence of NSD use among PDUs in regions where these substances are present; (b) the characteristics of the population affected by NSD use and the motivations for this use; (c) the differences between the capital city and other regions, and (d) the main risks related to NSD use. This article also discusses the possibilities of harm reduction within this population. METHODS: Structured questionnaires and semi-structured interviews in five regions affected by NSD use were deployed. This study demonstrates differences between the years 2013 and 2014 using the chi2 test and qualitative data analysis. SAMPLE: 466 respondents filled in the questionnaire (72.2% male, Ø age 32.9 years), 271 in 2013 and 195 in 2014; 71% in Prague. 87 semi-structured interviews were conducted (64 in 2013 and 23 in 2014). FINDINGS: About half of the respondents had used NSDs in the past 12 months (52.4% in 2013 and 52.0% in 2014). In both years, over half of the respondents in Prague used NSDs; outside Prague the prevalence of NSD use decreased to 23.7% in 2014. Those who had used NSDs in the past 12 months showed higher levels of risky drug use. CONCLUSIONS: NSDs became well established among the group of PDUs, usually as one of many substances used. Information exchange between PDUs and the EWS should be a priority for public health-oriented policies.

KEY WORDS: PROBLEM DRUG USERS – NEW SYNTHETIC DRUGS – RISK BEHAVIOUR – HARM REDUCTION

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1 BACKGROUND

The growing market in new synthetic drugs (NSDs)[1] in Europe has inevitably led to the spread of these substances in the Czech Republic too. The greatest boom in NSDs was observed in 2010, when brick-and-mortar retail outlets, smart shops, or "Amsterdam Shops", selling these substances were opened (Běláčková, Mravčík, & Zábranský, 2011; Mravčík et al., 2015). As a result of a rapid legal and law enforcement response, the network of these shops had been closed down by the end of 2011. However, the NSDs continue to be present in the Czech Republic. Information about the occurrence of these substances and the risks they pose is continuously collected under the (European) Early Warning System. In the Czech Republic, the operation of the system is coordinated by the National Monitoring Centre for Drugs and Addiction. In 2013 no less than 48 substances, and 22 in 2014, were identified thanks to the Early Warning System. 25 of the substances were reported for the very first time in the Czech Republic and for five of them it was the first time they had been identified within the whole of the EU. The cathinone MDPPP was the substance which was reported with by far the highest frequency (Mravčík et al., 2015; Mravčík et al., 2015b).

According to a general population survey conducted in 2013, the lifetime prevalence (LTP) of NSD use among the general population aged 15–64 was 1.3% and the last-year prevalence (LYP) 0.3%. In 2014 the LTP was 0.3%, and the LYP was negligible (National Monitoring Centre for Drugs and Drug Addiction & ppm factum research, 2014 and 2015). According to the Eurobarometer survey, which studied a representative sample of approximately 500 respondents in the Czech Republic in 2011 and 2014, these substances had been used at least once at some point in their lives by 4% of the population (the same result in both years) (European Commission, 2014). This experience probably dates back to the period when these substances were available from "legal" shops.

NSD use continues in specific populations, particularly in the nightlife settings and among problem drug users. In a survey carried out among dance partygoers in 2013 and 2014, 17% of the representatives of this at-risk population reported the lifetime use (LTP) of these substances, with approximately 7% of them having used such substances in the last 12 months (LYP) and 3% in the last 30 days (last month prevalence – LMP) (Mravčík et al., 2015). This is approximately one third of the level of the use of other drugs, e.g. methamphetamine, in this population (in the same study, the prevalence rates of methamphetamine use were 41% (LTP), 23% (LYP), and 10% (LMP). The level of the use of NSDs was just slightly lower than that of the increasingly widespread ketamine and slightly higher than that of heroin, GHB, and inhalants (Mravčík et al., 2015). This comparison may suggest that NSDs have become a (legal) alternative to illegal drugs in the nightlife settings.

NSD use has also persisted among the group of problem drug users (PDUs), who use primarily methamphetamine (76%), heroine (9%) or illegal buprenorphine (15%). In a 2013 survey looking into drug use among PDUs the use of NSDs in the last 12 months was reported by 10.5% of 1797 respondents from the entire Czech Republic. However, the occurrence of these substances is not distributed evenly among the regions of the Czech Republic. The same survey indicated that approximately one third of the PDUs in Prague and approximately one fifth of the users in the South Moravia and Hradec Králové regions had come across NSDs (Mravčík et al., 2014). According to a Prague-based outreach programme run by the SANANIM organisation, NSDs had been tried by about 50% of their clients and 6% had used them on a regular basis. The main reasons for the lack of interest in new drugs included negative one-off experience and clients' opinion that these substances were dangerous and generally of a lower "quality" than methamphetamine (known locally as pervitin) (Grund et al., 2015a). With the exception of three respondents from Prague, these substances were not reported as "primary drugs of choice". In general, they were probably cathinones and were sold under the names *Funky*, *Cocolino*, *El Padrino*, and *El Magico*. The fact that NSD use is more common in larger cities can be attributed to the way the substances are distributed. It usually involves meetings of dozens of users with a contact person summoned by phone and held in public areas in the cities. Sealed packages containing 0.5 or 1 gram of the product are sold on these occasions (Beranová, 2015). "Under-the-counter" selling practices in brick-and-mortar outlets continued in some cities.

The use of "NSDs" (especially synthetic cathinones) among PDUs has become widespread in other European countries too. It was recorded in 10 out of 22 EU countries and Switzerland, according to Grund and his colleagues. Studies of NSD use among this population are scarce; in the majority of the countries relevant data originates from local surveys or estimates made by harm reduction programmes (Grund et al., 2015a). A recent growth in NSD use among problem drug users, particularly in Eastern European countries, including Hungary, Romania, and Poland, has been documented, though (Gorun et al., 2011; Malczewski et al., 2013; Peterfi et al., 2014; Abagiu et al., 2014). In comparison with the Czech Republic, where methamphetamine has been widespread among PDUs in the long term, the rise

1/ This term refers to a subgroup of "new psychoactive substances" (NPSs), i.e. substances with effects that are similar to those of already illegal drugs such as cocaine, heroin, and marijuana, but which are not yet controlled under the UN international conventions or at the national level; in general, the term NPSs also encompasses herbal substances (Běláčková & Mravčík, 2015). As this article mainly deals with synthetic psychoactive substances in powdered form, the term *new synthetic drugs* (NSDs) was found more apt.

in intravenous stimulant use against the previously well-established opiates marks a new phenomenon in these countries (Csák, Demetrovics, & Rácz, 2013; Rácz & Csák, 2014). Low-threshold services in these countries thus had to respond to a higher rate of the injecting use of NSDs with stimulating effects. Other countries where NSD use among problem drug users occurred include Spain, France, the United Kingdom, and Finland (EMCDDA, 2015).

The short-term presence of NSDs among users and their highly variable nature make it difficult to document the risks they pose. The major negative effects include skin problems and fatigue, mental health problems, and a severe withdrawal state. In addition, these substances are injected more frequently than other drugs. This leads to increased risk of the transmission of infectious diseases through sharing the paraphernalia used to administer NSDs. This particularly occurs after a collective purchase of a packaged dose in the presence of a severe withdrawal state (Grund et al., 2015b). Another major risk is the absence of information about the content of the substance and its adverse effects, including the risk associated with its interaction with other substances.

The core of the interventions targeted at users of new psychoactive substances (NPSs) is work on motivation, as with other substances. Other responses include NPS-related harm reduction approaches, encouraging people to engage in controlled use or stop using, and relapse prevention (Public Health England, 2014). Specific features of work with NPS users are based on the assumption that NPSs may be used by individuals who do not consider themselves drug users. Therefore, services should strive to assure maximum accessibility. Another specific characteristic is the "inscrutable" composition and effects of the substances, which place a special demand on liaison with the system of acute care and toxicology experts. The need for an individual approach and general knowledge of various types of substances and their physical and psychological effects and risks on the part of the staff of drug services is also noted. In September 2014 the UK Royal College of Psychiatrists recommended six steps to be taken to address these specific issues in professional practice (Royal College of Psychiatrists, 2014).

Using the outcomes of focus groups with NPS users and programme staff, Grund et al. (2015b) proposed 14 interventions that should be prioritised with respect to the NPS phenomenon. Interventions highlighted as being of particular significance included drug consumption rooms, the promotion of self-help resources, and drug checking programmes. It is noteworthy that the latter are only available in nine European countries (Ritter, 2014). In Spain, the Netherlands, and France this service is made accessible to the problem drug users. An outline of drug checking programmes and further international experience in working with different types of NPS users were summarised by Janíková et al. (2015). Specific recommendations to addiction treatment and harm reduction services in the Czech Republic were outlined by Běláčková et al. (2015). These include the assurance of awareness-raising and professional training on the part of practitioners, liaison and information exchange, frontline work with clients, the identification (testing / checking of content) of the substances, and counselling on specific NPSs being used.

This paper presents the results of a study focusing on the risk behaviour of PDUs in relation to NSDs. The data was collected in XI–XII/2013 and in XI–XII/2014 in regions that were selected to be risky to NSD use among PDUs. The objective of this study was to identify risk behaviour among PDUs in relation to so-called NSDs and thus provide the staff of low-threshold services with guidance concerning options for harm reduction strategies. The following research questions were addressed as part of the analysis:

a/ What was the development of the prevalence of NSD use in 2013 and 2014 among problem drug users in the regions where these substances had become widespread?

b/ What were the characteristics of the NSD-using population and the reasons for the use of these substances?

c/ What differences were there between Prague (as the capital city with > 1 000 000 inhabitants) and other cities (< 500 000 inhabitants) in other regions where NSD use was present?

d/ What were the main risks associated with NSD use?

Furthermore, the article discusses NSD use-related harm reduction possibilities and limits with respect to this population.

2 METHODOLOGY

The research focused on selected high-risk regions where NSD use among PDUs was identified on the basis of the results of the "Multiplier" survey. Conducted periodically by the National Monitoring Centre for Drugs and Addiction (the National Focal Point), it is aimed at identifying the proportion of clients in contact with low-threshold services and "hidden" populations of PDUs (Mravčík et al., 2013). Collaboration with seven low-threshold facilities[2] was established in the regions under consideration They were two drop-in centres and one outreach programme in Prague and drop-in centres in Pardubice, Ostrava, Třebíč, and Brno, with the Ostrava facility participating in the first wave of data collection only.

Prague is the capital city of the Czech Republic, with estimated population > 1 million, and is considered one of the 14 regions (higher-level territorial self-governing units) of the Czech Republic. Brno, Ostrava and Pardubice are capital cities of 3 other regions. Their population ranges between approximately 100,000 and 400,000 inhabitants. Třebíč, the

2/ In total, there are 58 drop-in centres and 81 outreach programmes in the Czech Republic.

smallest of the 5 towns, has a population < 50 000 and is the second largest town in its region (after Jihlava).

The total sampling method was used for the purposes of the study, involving all the clients of the service who were willing to participate. Data collection in these facilities lasted from three to five days. All the clients who visited the facility during the data collection phase were addressed, irrespective of whether they had used NSDs, i.e. NSD users were not given preference. Ethical principles were adhered to. All the study participants signed informed consent forms and received respondents' information sheets. Participation in the study was anonymous. Clients who had already participated in the survey in a given year and those who were heavily intoxicated, psychotic, or aggressive were not included in the study.

Structured questionnaires (completed with the interviewer's assistance) and semi-structured interviews were used to collect data from problem drug users. The structured questionnaires contained sociodemographic characteristics and items concerning the use of illicit drugs and NSDs. Those who reported NSD use in the last year were asked to proceed with the completion of a series of questions pertaining to the substance they had last used and their motives for NSD use. The respondents who had used NSDs repeatedly in the last year were asked to participate in a semistructured interview involving open-ended questions. If the clients were willing to provide samples of substances, these were sent for chemical analysis. The clients were informed by the service staff about the results of the analyses under anonymous codes. The clients were also provided with additional available information about the risks associated with the use of the substances that were identified by the analysis.

The data was transcribed and cleansed (those respondents who failed to state their gender and age were excluded from the analysis). All the regions other than Prague were aggregated for regional comparison to ensure the statistical significance of the results. The chi2 test was used to ascertain the statistical significance of the differences in frequencies across categories, with the differences at the 95% significance level or above ($p < 0.05$) being considered statistically significant. The qualitative data from the open-ended questions was processed using the NVIVO software. The respondents' statements were coded into semantic categories and clustered. For the purposes of this analysis the qualitative data was used to complement the answers to the research questions in areas where the quantitative data did not provide conclusive results.

3 SAMPLE

The survey in 2013 yielded a total of 271 questionnaires and 64 qualitative interviews. 195 questionnaires and 23 interviews were collected in 2014.

The largest number of respondents was in Prague (71%). 7.5% of the respondents were from Brno, 6.6% from Ostrava, 7.2% from Třebíč, and 7.7% from Pardubice. From 2013 to 2014 the respondent ratio changed in favour of Prague (63.4% of all the questionnaires in 2013 and 80.7% in 2014) and the proportion of the respondents from Brno decreased (from 9.2% in 2013 to 5.1% in 2014).

The respondents' average age was 32.9 years (median 32). The majority of the respondents were male (72.2%). As for the highest level of education attained, elementary and lower secondary education predominated (43.3% and 39.0% respectively). 15.8% of the respondents had completed higher secondary education and only 0.2% had attained higher vocational education or college/university education (1.7%). Individuals who were unemployed accounted for the largest part of the respondents (44.7%). Only 6.0% reported having steady employment. Employment on the basis of contracts for work was reported by 6.6% of the respondents; 0.9% reported being self-employed and 17.4% taking occasional part-time jobs. 5.1% reported pensions as their sources of income.

The greatest part of the respondents (26.9%) lived in squats at the time of the study. The second most frequent variant was housing of their own, including homes shared with their parents or partner (a total of 23.0% of the answers). 14.9% were staying in hostels and 14.5% had rented flats. Having no permanent place to stay, a certain percentage of the respondents (11.7%) were on the street. Dormitories and homeless shelters were mentioned by 3.6% of the respondents. The remaining 5.3% used other types of accommodation. Interestingly, 66.4% of the respondents had found themselves without a home at some point in the last 12 months.

Irrespective of the legality of the source, the most frequent highest net monthly income reported was up to CZK 5,000 (39%), approx. 200 EUR and about half the minimum wage in 2014. CZK 5,001 to 15,000 was reported by 35% of the respondents. 16.2% reported earning from CZK 15,001 to 30,000, and the income of 9.8% of the respondents exceeded CZK 30,000.

4 FINDINGS

4 / 1 Prevalence

Of the total of 466 PDUs, NSD use in the last 12 months was reported by 52.2% (52.4% in 2013 and 52.0% in 2014). 15.6% of all the respondents reported having used NSDs on a single occasion in the last 12 months (15.0% in 2013 and 16.3% in 2014), while 36.7% of the respondents had used them repeatedly within the same period (37.4% in 2013 and 35.7% in 2014). The year-on-year differences in the prevalence of NSD use among the entire sample were not statistically significant.

Table 1 / Tabulka 1

Prevalence of NSD use in the last year and the substances used in Prague and other cities (Brno, Trebic, Ostrava, and Pardubice) in the years 2013 and 2014

Prevalence užití NSD v posledním roce a konkrétní užité látky v Praze a v dalších městech (Brno, Třebíč, Ostrava, Pardubice) v letech 2013 a 2014

		TOTAL				2013				2014				Statistical significance			
		Prague		Others		Prague		Others		Prague		Others		2013		2014	
		Number	*%*	*Number*	*%*	Number	*%*	Number	*%*	Number	*%*	*Number*	*%*	*Chi2 test*	p-value	*Chi2 test*	p-value
NSD use in the last 12 months	None	139	41.9%	89	65.4%	72	41.4%	60	61.2%	67	42.4%	29	76.3%	14.405	.001*	14.977	.001*
	Yes, once	52	15.7%	17	12.5%	23	13.2%	16	16.3%	29	18.4%	1	2.6%				
	Yes, repeatedly	141	42.5%	30	22.1%	79	45.4%	22	22.4%	62	39.2%	8	21.1%				
Funky		188	97.4%	7	12.3%	97	96.0%	4	8.3%	91	98.9%	3	33.3%	115	.000*	55	.000*,b,c
El Magico		20	10.4%	0	0.0%	13	12.9%	0	0.0%	7	7.6%	0	0.0%	7	.009*,b	1	.391b,c
Cherry		0	0.0%	6	10.5%	0	0.0%	6	12.5%	0	0.0%	0	0.0%	13	.000*,b	0	0.0%
El Padrino		0	0.0%	15	26.3%	0	0.0%	15	31.3%	0	0.0%	0	0.0%	35	.000*,b	0	0.0%
Other NSDs		10	5.2%	35	61.4%	9	8.9%	27	56.3%	1	1.1%	8	88.9%	40	.000*	78	.000*,b,c

* Statistically significant result; $p < 0.05$.

The NSD reported with the highest frequency was "Funky",[3] which had been used at some point in their lives by 77.7% of the clients of the seven programmes under scrutiny (67.3% in 2013 and 93.1% in 2014). 8% mentioned having used "El Magico"[2] (8.7% in 2013 and 6.9% in 2014), 6% had used "El Padrino"[2] (10% in 2013 and 0.0% in 2014), had used 2.4% "Kerry" (4.0% in 2013 and 0% in 2014), and 18.3% had used any of the other NSDs (24.7% in 2013 and 8.7% in 2014). A more detailed summary is provided in *Table 1*. There were also other substances, such as "Coffee shop/**Kofák**", "Penthedrone", "Fresh", "P1/P2", "Golden Gate", "Speedy Mix", "High Voltage", "**Krokodyl**", "Fentanyl", "**Mente**", and those referred to under the Czech equivalents of the names "Elephant/Pink Elephant", "Meow Meow" (mephedrone), "Citrus/Letter C", and "Presents/Collectors' Items".[4]

4 / 2 NSD users' characteristics

In the analysis, responses of those who had used an NSD repeatedly in the last 12 months (NPS users) were compared to those who had used it only once (experimenters), and those who hadn't used it at all. Men were more likely to be repeated NSD users (55.7% of men used an NSD repeatedly in the past 12 months vs. 43.1% of the women). Repeated NSD users included a significantly higher percentage of individuals who reported having been homeless in the last 12 months (83.1% of them, versus 69.9% of the respondents who had used NSDs only once in the last year and 52.7% of the respondents who had never used any NSDs; chi2=18.922, p=0.00). Repeated NSD use was more likely with individuals who lived in urban areas with over 50,000 inhabitants (chi2=24.174, p=0.00), were unemployed and not registered with labour offices (chi2=27.063, p=0.000) and their income was more likely to originate from illegal activities (chi2=9.478, p=0.009).

In terms of risk behaviour, the NSD users were more likely to administer drugs by injecting (94.1% versus 91.7% of the one-off users and 85.3% of the individuals who had used no NSDs in the last year; see *Table 3*). NSD users were also more likely to have used cannabis, ecstasy, LSD, ketamine, or other substances in addition to methamphetamine or heroin in the last 12 months or 30 days (*Table 2*). Hence, they were more likely to be polydrug users. The greatest difference between NSD users and those who had never tried a substance of that type was the use of methamphetamine (pervitin) and heroin (or buprenorphine) as a "speedball", i.e. combined in one dose or used in rapid succession (this was the case in Prague). All the above differences were statistically significant.

The respondents who had used NSDs also showed additional (statistically significant) riskier forms of drug use in comparison to those who had used NSDs only once in the last year or had not used them at all. Almost a quarter (22.1%) of the repeated NSD users had used shared needles or syringes in the last 30 days (versus 13.7% of those who had used them only once and 11.1% of those who had used no NSD in the last year). Similar results were found in relation to other practices under study, such as syringe-mediated drug sharing (frontloading/backloading) or the sharing of injecting paraphernalia. For details see *Table 3*.

3/ Name of the substance (trade name) containing mainly cathinones as active ingredients (Mravčík et al., 2013).

4/ The analysis also took account of the answers to the questions asking whether the respondents had used substances other than the (traditional) illegal drugs and NSDs. If they stated an NSD, they were subsequently coded as NSD users. Under this item, however, the respondents were most likely to indicate pharmaceuticals, mainly of the benzodiazepine category.

Table 2 / **Tabulka 2**

Differences between the use of illegal drugs among individuals who had not used any NSDs in the last 12 months, those who had used it/them at least once, and those who had used it/them repeatedly (statistically significant differences)

Rozdíly v užívání nelegálních drog mezi osobami, které neužily NSD v posledních 12 měsících, které ji užily a které ji užily opakovaně (statisticky významné rozdíly)

		NSD use in the last 12 months					
		None		Yes, once		Yes, repeatedly	
		Number	%	Number	%	Number	%
THC, hashish (chi2 = 23.455, p = 0.01*)	Never	25	11.2%	7	9.6%	4	2.3%
	Lifetime use	57	25.6%	18	24.7%	27	15.8%
	Last-year use	22	9.9%	7	9.6%	12	7.0%
	Last-month use	119	53.4%	41	56.2%	128	74.9%
XTC (chi2 = 18.208, p = 0.06*)	Never	103	46.0%	28	38.4%	46	26.9%
	Lifetime use	100	44.6%	32	43.8%	94	55.0%
	Last-year use	13	5.8%	8	11.0%	20	11.7%
	Last-month use	8	3.6%	5	6.8%	11	6.4%
Pervitin (AMPh) (chi2 = 33.239, p = 0.00*)	Never	14	6.3%	1	1.4%	0	0.0%
	Lifetime use	18	8.1%	1	1.4%	3	1.7%
	Last-year use	22	9.9%	6	8.2%	6	3.5%
	Last-month use	168	75.7%	65	89.0%	163	94.8%
Cocaine, crack (chi2 = 22.950, p = 0.01*)	Never	124	55.6%	37	52.1%	57	33.3%
	Lifetime use	77	34.5%	26	36.6%	80	46.8%
	Last-year use	13	5.8%	3	4.2%	19	11.1%
	Last-month use	9	4.0%	5	7.0%	15	8.8%
Heroin, buprenorphine (chi2 = 56.653, p = 0.000*)	Never	78	35.1%	14	19.2%	21	12.3%
	Lifetime use	39	17.6%	14	19.2%	24	14.0%
	Last-year use	15	6.8%	5	6.8%	9	5.3%
	Last-month use	90	40.5%	40	54.8%	117	68.4%
Pervitin and opioid combined in one dose or used in rapid succession (chi2 = 56.653, p = 0.00*)	Never	121	54.3%	30	42.3%	38	22.6%
	Lifetime use	39	17.5%	8	11.3%	24	14.3%
	Last-year use	17	7.6%	9	12.7%	16	9.5%
	Last-month use	46	20.6%	24	33.8%	90	53.6%
LSD, mushrooms (chi2 = 13.714, p = 0.033*)	Never	114	51.1%	31	42.5%	60	35.1%
	Lifetime use	82	36.8%	32	43.8%	74	43.3%
	Last-year use	17	7.6%	5	6.8%	19	11.1%
	Last-month use	10	4.5%	5	6.8%	18	10.5%
Ketamine (chi2 = 23.240, p = 0.01*)	Never	189	84.4%	59	80.8%	110	64.3%
	Lifetime use	27	12.1%	11	15.1%	48	28.1%
	Last-year use	6	2.7%	2	2.7%	11	6.4%
	Last-month use	2	0.9%	1	1.4%	2	1.2%
Synthetic cannabis (Spice, JVH) (chi2 = 16.422, p = 0.012*)	Never	201	89.7%	60	83.3%	131	76.6%
	Lifetime use	16	7.1%	9	12.5%	22	12.9%
	Last-year use	5	2.2%	1	1.4%	13	7.6%
	Last-month use	2	0.9%	2	2.8%	5	2.9%
Other (chi2 = 13.215, p = 0.040*)	Never	116	78.9%	39	79.6%	83	66.9%
	Lifetime use	13	8.8%	3	6.1%	14	11.3%
	Last-year use	7	4.8%	1	2.0%	2	1.6%
	Last-month use	11	7.5%	6	12.2%	25	20.2%

* Statistically significant result; $p < 0.05$.

Table 3 / Tabulka 3

Differences in the risky behaviour associated with the use of illegal drugs among those who had not used any NSDs in the last 12 months, it/them at least once, and those who had used it/them repeatedly (statistically significant differences)

Rozdíly v rizikovosti užívání nelegálních drog mezi osobami, které neužily NSD v posledních 12 měsících, které ji užily jednou a které ji užily opakovaně (statisticky významné rozdíly)

		NSD use in the last 12 months					
		None		Yes, once		Yes, repeatedly	
		Number	*%*	*Number*	*Number*	*%*	*Number*
Sharing of needles/syringes (chi2 = 27.763, p = 0.000*)	Never	115	53.0%	34	46.6%	54	31.4%
	Lifetime use	57	26.3%	13	17.8%	51	29.7%
	Last-year use	21	9.7%	16	21.9%	29	16.9%
	Last-month use	24	11.1%	10	13.7%	38	22.1%
Sharing of other injecting paraphernalia (chi2 = 15.891, p = 0.014*)	Never	109	50.2%	33	45.2%	64	37.2%
	Lifetime use	53	24.4%	15	20.5%	34	19.8%
	Last-year use	28	12.9%	11	15.1%	28	16.3%
	Last-month use	27	12.4%	14	19.2%	46	26.7%
Frontloading/backloading (chi2 = 17.411, p = 0.08*)	Never	87	40.5%	30	41.1%	48	28.1%
	Lifetime use	34	15.8%	5	6.8%	16	9.4%
	Last-year use	20	9.3%	7	9.6%	17	9.9%
	Last-month use	74	34.4%	31	42.5%	90	52.6%
Drug administration by injecting (chi2 = 8.216, p = 0.016*)	Injectors	186	85.3%	66	91.7%	159	94.1%

* Statistically significant result; $p < 0.05$.

4 / 3 Motives for use

The most frequently reported motive for the use of (most recent) NSD among all the respondents who used it in the last 12 months was the temptation to try new substances (indicated by 23.9% of the Prague-based users and 49.1% of the users from outside Prague). Affordability was more likely to be mentioned in regions other than Prague (22.8%). In Prague it was mentioned as the motivation by 9.6% of the respondents. For some of the respondents the motivation for use was that they enjoyed the state of intoxication (13.2% in Prague and 12.3% outside Prague); a smaller proportion chose the answer in the questionnaire that they liked NSDs better than other drugs (5.6% in Prague and 5.3% outside Prague). The legality of the substances was the reason for NSD use for a mere 1% of the NSD-using participants in Prague and 5.3% outside Prague. However, other motives for NSD use were often brought up (50.3% in Prague-based services and 47.4% in other regions). These motives were explored by means of qualitative analysis, see below.

The semistructured interviews suggest that the motive behind the first use was simply curiosity (n=14) or an urge to experience a new substance. This is illustrated by the following examples: *"I tried Funky just because I'm a junkie and I like trying new stuff."* Another motive behind the use of NSDs which was mentioned frequently was friends who either recommended or gave the substance to the person (n=10): *"I guess it was the friends' reactions, that they raved about it, that they got cool highs on it..."* or "*Well, it was like more the people I knew, actually, when a mate of mine met me, he told us to come along and try it."* Relatively common motives for use were also "invitation" or "treat" (n=6).

A number of respondents were led to the use of NSDs by the unavailability of other drugs (n=27): *"You couldn't get anything else …"* or just *"I couldn't get hold of him [the dealer] on the phone."* Some mentioned that a NSD was offered to them as a different drug: "*Because I wanted to take pervitin and was offered this as pervitin in fact."* Some had used an NSD *"by mistake" (n=7).* In other cases it was the lower price than that for other drugs that mattered: "*I was short of 50 crowns so I went with them."* The price of NSDs was around CZK 300 per 0.5 gram. But whether the price was lower than that of illegal drugs depended on the dose one would take, which, according to the respondents, could vary dramatically from person to person. The reasons for repeated use included the better onset of the effects in comparison with methamphetamine, dependence on NSDs, and the opportunity to abstain from the "primary drug of choice" (methamphetamine or opiate).

On the contrary, the respondents who didn`t use NSD in the past 12 months reported that their reason was not being attracted by the effects of NSDs (25.7% in 2013 and 26.4% in 2014). The percentage of users who reported the

potential harmfulness of these substances as the reason for not using them declined between 2013 and 2014 (it was 23.6% in 2013 and 16.7% in 2014); this was, however, compensated for by an increase in the proportion of the respondents who had never heard of NSDs (the reason for non-use in 10.4% of the respondents in 2013 and 25.3% of the respondents in 2014). Satisfaction with their "primary drug of choice" was reported as the reason by 17.4% of the respondents in 2013 and 17.6% in 2014.

As for the source of information on NSDs and their effects, the greatest number of the users made their decisions on the basis of the experience of their friends or acquaintances. It was the deciding factor for 70.8% of the respondents in Prague and 78.9% outside Prague. Four users (outside Prague) decided to go for a substance following consultation with the seller. Only one respondent's decision was influenced by experience described in online discussion forums.

● 4 / 4 Regional differences

In statistical terms, the prevalence of NSD use among problem drug users in both years was significantly higher in Prague than in the other cities / regions under study (chi2=14.7, p=0.001).

In 2013 NSD use was reported by more than half of the respondents (58.6%) from Prague, with 77% of them having used NSDs repeatedly (42.5% of all the respondents from Prague). In the cities other than Prague, NSDs were used in the same year by 38.8% of the respondents, with 57% of them having used NSDs repeatedly (22.1% of all the respondents from outside Prague in that year).

In 2014 the last-year prevalence of NSD use was reported by 57.6% of the clients of Prague-based programmes, of whom 68% had used the substances repeatedly (39.2% of all the respondents from Prague in 2014). In other regions NSD use was mentioned in 2014 by 23.7% of the respondents, with 89% having used NSDs repeatedly (21.1% of all the non-Prague respondents). These differences were statistically significant (chi2=14.997, p=0.001).

The main difference between Prague and the other regions laid in the product being used. While Funky (used by 97.4% of the Prague respondents) and El Magico (10.4% of the Prague respondents) predominated in Prague, in other regions Funky had been used by only 12.3% of the respondents and El Magico had not been used by any of the respondents. Substances referred to as Cherry (12.5% of the respondents from outside Prague) and El Padrino (26.3%) appeared outside Prague in 2013, but none of these substances was reported any longer by the respondents in 2014. In 2014 the respondents from regions other than Prague reported having used Funky (33.3%) or any other NSDs (88.9%). See *Table 1* for a detailed summary.

Major differences between Prague and other urban areas were also found in the way in which NSDs were obtained. PDUs in Prague were most likely to buy the NSDs through somebody they knew (36.0% of the respondents in 2013 and 37.8% in 2014) and directly from a dealer or friend (32.0% in 2013 versus 41.1% in 2014). The percentage of those who were given the drug for free dropped from 2013 to 2014 in Prague (from 27.0% in 2013 to 18.9% in 2014). In other urban areas the substances were mainly purchased from brick-and-mortar shops in 2013 (52.1%, versus 8% of the Prague-based respondents in the same year). In 2014 this supply channel ceased to exist both in and outside Prague. As a consequence, the rate of those who were given the substance for free increased in the regions other than Prague (44.4% – double the rate of the respondents who obtained the substance in this way in Prague in the same year) and so did the rate of those who bought it from a friend or dealer (44.4% – similar to Prague) in 2014.

● 4 / 5 NDS use-related risks

Intravenous use was the most frequently mentioned route of administration, both in Prague (96.0% in 2013 and 95.6% in 2014) and in the other regions (70.8% in 2013 and 88.9% in 2014). The second most frequently reported route of administration was snorting, which was more common outside Prague (22.8% of the respondents from other urban areas vs. 3.1% of the respondents in Prague). Oral use (3.5%) and smoking (10.5%) were also reported by the respondents from regions other than Prague. Neither of those two routes of administration was recorded among the Prague-based respondents. Other administration practices were reported by 1% of the people in Prague and 1.8% of the respondents from regions other than Prague.

Furthermore, the respondents were asked what they thought the content of the NSD they had last used was. This question was answered by 142 respondents in 2013 and 81 in 2014. In both years approximately one third of the respondents answered that they did not know. In 2013 a substantial proportion of the respondents (16.9%) thought that the substance had in fact contained pervitin (methamphetamine) or "something like pervitin" (4.9%) or ephedrine (2.1%), while in 2014 pervitin and ephedrine were associated with the substance by no more than 7.4% and 3.7% of the respondents, respectively, and a higher rate of the respondents relative to 2013 (9.9%) indicated "something like pervitin" in this respect. In both years, hence, about one quarter to one fifth of the respondents altogether (23.4% in 2013 and 21% in 2014) associated the composition of NSDs with methamphetamine-based substances.

A small proportion of the respondents, specifically 6.3% in 2013 and 3.7% in 2014, believed that the substances contained a combination of stimulants and opiates (often pervitin and heroin for that matter), while some thought

Table 4 / Tabulka 4
Use of NSDs together with other substances, 2013 and 2014
Užití NSD společně s dalšími látkami v letech 2013 a 2014

	2013		2014		chi2 test	p
	Number	%	Number	%		
None	57	37.7%	7	7.6%	26.767	,000*
Alcohol	11	7.3%	14	15.2%	3.897	,048*
Pervitin	38	25.2%	40	43.0%	3.897	,004*
Cannabis	26	17.2%	25	27.2%	.065	.065
Buprenorphine	42	27.8%	48	52.7%	,000*	,000*
Other	13	8.6%	24	25.8%	,000*	,000*

* Statistically significant result; $p < 0.05$.

that they contained only opiates (1.4% in 2013 and 3.7% in 2014). The answers included "fertilisers", "mephedrone", "hallucinogen", "MDMA", "brown derivative", "scraps", and "something like coca", but also "shit", "crap", and "rubbish". In addition, the respondents indicated a number of various substances, including herbal ones. In 2013 only two respondents stated a composition which corresponded with the actual situation, cathinone, and two indicated khat (the latter was also referred to by two respondents in 2014). In total, 6 samples were submitted for analysis by the respondents, 3 of them contained the cathinone MDPBP, one contained methamphetamine, one contained MDMA and one had not been provided in substantial amount for the analysis could be performed.

As for NSDs being combined with other substances, from 2013 to 2014 there was a statistically significant increase in the percentage of clients who engaged in this type of polydrug use[5] (from 62.3% to 94.3%, chi2=26.767, p=0.000); see *Table 4*. The combination of NSDs with other substances was more frequent in Prague, where this type of polydrug use in both years was mentioned by 70.6% of the respondents, while outside Prague it was only 43.8% (the difference is statistically significant for the year 2013 only).

In response to the question as to what effect NSDs had on their use of "old drugs" (a term used in the questionnaire), the majority of the respondents (74.1%) reported no changes in that respect. This meant, in fact, that they used NSDs in combination with other substances. Unlike in the other regions, in Prague the use of NSDs in combination with buprenorphine was higher with statistical significance (50% of the respondents who had used NSDs in the last year). None of the respondents from outside Prague had used NSDs together with buprenorphine. Equally, the combination of NSDs with methamphetamine (pervitin) had a much higher representation in Prague (36.0%) in comparison to regions other than Prague, where this combination was reported by 19.3% of the clients. Other combinations of NSD with other drugs included those with methadone (Prague, n=7), heroin (Prague and Brno, n=11), and benzodiazepines (Prague and Pardubice, n=8). Outside Prague a combination with cannabis was higher with statistical significance (33.3%, vs. 17.3% in Prague).

Some respondents reported having used NSDs just for the sake of variety (6.3% in Prague and 15.3% outside Prague) or having combined them with other drugs according to their availability (5.8% in Prague and 15.8% outside Prague). A small percentage of the respondents mentioned combining the drugs on purpose in order to achieve some expected effects (1.1% in Prague and 5.3% outside Prague). One of the Prague-based respondents mentioned that he had used "old drugs" to alleviate the comedown In response to other questions, nevertheless, two of these respondents reported having used another substance, namely buprenorphine, together with NSDs. Switching to NSDs was mentioned by only six respondents, specifically 2.1% of the participants in Prague and 3.5% of the respondents in the other regions who responded to the effect that they were no longer using "old drugs". Other implications for the use of conventional drugs were reported by 7.4% of NSD users in Prague and 14.0% outside Prague.

4 / 6 Complications after use

As regards adverse side effects related to NSD use, no complications after use were experienced by 21.1% of the respondents from Prague and 36.8% from the other regions. Those who experienced adverse consequences most commonly mentioned a headache (32.6% of the Prague-based respondents). The same proportion of the PDUs in contact with the Prague-based services reported palpitations as a complication. In the regions outside Prague, headaches were experienced by 24.6% of the participants and palpitations by 26.3%. Nausea and vomiting after using NSDs were experienced by 31.1% of the respondents in Prague

5/ Answers to the question "Did you use anything else together with this substance or on the same day"?

and 36.8% of the respondents in the other regions. A rise in body temperature was experienced by 19.5% of the PDUs in Prague and 10.5% of those outside Prague.

Another frequently reported side effect was paranoid ideas during the comedown (31.1% of the participants in Prague and 32.1% outside Prague). A statistically significant increase in the proportion of the Prague-based respondents who experienced paranoia after using NSDs was recorded from 2013 to 2014 (from 24.5% to 31.3%). Disorientation was reported by 29.5% of the Prague-based NSD users and 12.5% of the respondents from the other regions. Other negative side effects that were chosen out of the list provided to the respondents were a loss of coordination, impaired vision, and intense hallucinations.

In Prague 33.9% of the respondents mentioned having experienced NSD use-related complications other than those indicated above (while in the other regions such complications were reported by 43.9% of the respondents). They included stomach-ache and diarrhoea, difficulty urinating, perspiration, tingling in the limbs, difficulty breathing, excessive sexual arousability, pain at the injection site, joint and muscle pain, and a number of psychological complications (such as severe comedown, anxiety, and depression).

5 DISCUSSION

The level of use of NSDs among the population of what is referred to as problem drug users appeared stable from 2013 to 2014, particularly in Prague. Approximately half of the study respondents had used these substances in the last 12 months (with about two thirds of them having done so repeatedly). In view of the fact that the respondents were selected only from areas where elevated NSD use among the population of PDUs had been recorded, the overall LYP of NSD use on the national scale is likely to be lower, i.e. it can come close to the 11% level found by the 2012 Multiplier survey (Mravčík et al., 2013). The results of this study can be further compared to the above survey of the situation in the capital city performed by Sananim o.s. where the LYP of NSD use among PDUs was estimated at 33%. The fact that the LYP in this study is higher may be due to methodological differences (e.g. our study being focused on NSDs).

In regions other than Prague, no changes in the proportion of respondents who had used NSDs repeatedly were recorded, but the percentage of respondents who had used NSDs only once declined. This may suggest that these substances have "established themselves" with a certain segment of the users, while they ceased to be available or appealing to others. On the other hand, NPSs do not seem to have become a "primary drug of choice" in the Czech Republic. In this sense, the risks posed by this phenomenon there appear lower than in the majority of Eastern European countries; NSDs were referred to as the "primary drug of choice" by 15% of PDUs in Hungary (EMCDDA, 2015), 30% in Romania (Abagiu et al., 2014), and 80% in Hungary (Petrefi et al., 2014). Additionally, in the Czech Republic, unlike in the United Kingdom, there were no users who reported cathinones as the first (problem) drug they had used (EMCDDA, 2015).

Nevertheless, NSD use among the population of PDUs in the Czech Republic is rarely a matter of a one-off experiment, although it is a single experience that deters some of the users from further use. As for the adverse effects of NSDs, the most common physical complications included headaches, palpitation, nausea and vomiting, loss of coordination, and impaired vision. Psychological side effects included paranoia during the comedown, disorientation, and intense hallucinations. Some of the respondents experienced no complications. The above adverse effects are similar to those described in other European countries. Moreover, a European report about the injecting of cathinones highlights adverse effects that were not so prevalent in this study, namely high-risk sexual behaviour, skin problems, and a strong craving for these substances (EMCDDA, 2015). Last but not least, international studies confirm a higher level of injecting use among PDUs who use NSDs; in Hungary this was probably the main cause of the rising incidence of viral hepatitis C among this population (EMCDDA, 2015). Equally, the respondents in this study showed a higher level of injecting use than PDUs who used no NSDs.

PDUs who continued using NSDs despite the negative effects did not report "liking" these substances better than other drugs. The most common reasons for use included the unavailability of other drugs, being offered by a friend and a motivation to try new substances. Majority of respondents however didn`t change their use of other substances. For comparison, the use of NSDs as a replacement for (conventional) illegal drugs that were unavailable was typically observed in the years 2010 and 2011 in Hungary and Romania in response to the long-term shortage of heroin (EMCDDA, 2015) and its high prices (Csak et al., 2013).

The respondents who had used NSDs in this study also showed generally higher levels of the use of other substances. NSD use can thus be considered common behaviour among polydrug users. This is consistent with the situation in other EU countries - a combination with opiates (recorded in Barcelona or the United Kingdom, for example; EMCDDA, 2015) or with substitution agents (recorded in about 50% of the clients of substitution programmes in Hungary; EMCDDA, 2015) proved particularly significant. Among PDUs, the legality of NSDs does not play a major role in their deciding whether to use these substances. However, the semilegal status of NSDs may be the reason for their relative affordability. Because of their lower prices, these substances become appealing to people without regular incomes.

In the period from 2013 to 2014 the market in NSDs in the Czech Republic finally moved to the grey zone of (specific) "street" distribution. Purchases from brick-and-mortar retail outlets ceased to exist and so did the chances of any regulation or control of the supply. Also, this paper highlighted the importance of regional differences in NPS use (especially in the products used) which are, to an extent, driven by the localized sources of supply. Such description of spatial diversity has not been described in pre-existing research. While the available data does not suggest that NSDs are entering the same distribution channels as (conventional) illegal drugs, some respondents reported that they had used them "by mistake" or that somebody was "selling them as pervitin". These findings are supported by the outcomes of drug checking programmes in Europe which show that new drugs occur as adulterants to illegal drugs or are sold as illegal drugs (Gine, Espinosa, et al., 2014). This mixing of NSDs with conventional (illegal) drugs implies that users may not pay enough attention to the risks associated with NSD use.

With their limited availability, the number of the respondents who had never heard of the substances under study more than doubled in the period from 2013 to 2014 (in 2014 this applied to no less than one quarter of the respondents). Similarly, in 2013 Romania experienced a marked decline in the injecting use of cathinones, following a boom in 2011 and 2012 (EMCDDA, 2015). The NPS phenomenon in this group of users may have the nature of a passing trend, or the use of these substances may stabilise at lower levels following the initial rise. The question is, in this context, whether the users' "short-term memory" is desirable or whether harm reduction programmes should provide systematic information about the risks posed by the new substances.

The study has identified factors conducive to NSD use. A greater proneness to the use of these substances was found among various vulnerable individuals, such as those with no income or home, individuals engaging in frequent injecting drug use and other high-risk drug-using practices, and those who combined stimulants with opiates in one dose or in rapid succession (in Prague). In addition to the fact that the supply of NSDs was met by demand on the part of the already strongly marginalised group of problem drug users, it is the most vulnerable of them who are affected in this population (the more serious health and social consequences of NSD use can also be an explanation, though). Moreover, many respondents, including those who use NSDs, find them inferior products (referred to as "rubbish", etc.), which may result in their users being stigmatised within the PDU community. No detailed information concerning specific characteristics of NPS users among the population of PDUs abroad were found in the literature.

Another aspect is the total lack of information about the active substance contained in the NSDs the respondents use (only six respondents out of the total of 223 who reported the presumed content of the NSD correctly specified the type of substance which the NSD most frequently contained). In addition, international experience indicates that measures to ban specific NPSs lead to such substances being quickly replaced by new and unknown ones (EMCDDA, 2015) and, in general, the content of the products is highly variable (Gine, Espinosa, et al., 2014; Galan, 2015). The lack of information about the content of the substances prevents their users from using effective strategies to reduce harm (such as reasonable dosing and avoiding mixing with other substances or medication). This highlights the importance of drug checking targeted at the population of PDUs.

While "recreational" drug users resort to the internet as an important source of information about a new substance, problem users tended to obtain information about the substances from their friends. In this respect, peer support and education and proactive approaches on the part of harm reduction organisations may be vital. Given that NSDs do not generally become the "primary drug of choice" for problem users and the growing proportion of users who combine these substances with other drugs, awareness raising with regard to the risks of combining NSDs with other drugs appears to be one of the crucial areas for harm reduction interventions to address. Routes of administration other than injecting were also recorded among users (although their rate dropped from 2013 to 2014). It is therefore advisable that harm reduction (HR) messages provide information about safer application practices and the availability of injecting paraphernalia.

Overall, efforts aimed at reducing the harm associated with the use of the NSDs in the population of problem drug users are facing multiple challenges. The Czech Republic is one of the countries where no systematic collection of drug samples from users is in place (except for limited research purposes) and the occurrence of specific NSDs is inferred mainly on the basis of seizures by law enforcement agencies and the monitoring of the internet (Grohmannová et al, 2016). The second problem is the lack of information about emerging substances and their risks possessed by professionals and the staff of helping programmes. This situation turns users into "guinea pigs" for the manufacturers and sellers of these substances and, at the same time, into the only "experts" on the effects and risks of the substances; the sharing of such users' experience, by means of users' forums, for example, is often the only source of information for users (Drápalová & Běláčková, 2016). The effective dissemination of information about risks requires the quick two-way exchange of information about new substances (in which users are both the sources and recipients of information). In this respect, it is advisable to make the Early Warning System more accessible to drug services and scale

up the exchange of information at both the national and international levels, which drug users and the services that maintain contact with them must be an integral part of.

6 CONCLUSIONS

Although they generally do not represent the "primary drug of choice", the use of NSDs has become established among some PDUs in selected regions. These users generally exhibit higher levels of risk behaviour and tend to engage in polydrug use. These aspects should be taken into account by harm reduction interventions intended for NSD users. Furthermore, in view of the possible higher frequency of injecting associated with the use of NSDs, this population should be sufficiently supplied with injecting equipment.

The absence of information about the content of NSDs imposes limitations on the resources harm reduction programmes can deploy. The finding that a number of PDUs have used an NSD unintentionally suggests that it is the entire population of PDUs rather than those who repeatedly seek NSDs that is placed at risk by these substances. In this context, the establishment of drug checking programmes for (not only) the population of PDUs should become a priority.

Harm reduction programmes lack information about the content of specific NSDs and the risks posed by them, including the risks ensuing from these substances being combined with other drugs. A two-way flow of information between users, services that maintain contact with them, and the Early Warning System should be developed to address this problem.

The role of the authors: Tomáš Zábranský, Viktor Mravčík, and Vendula Běláčková proposed the study design and prepared the research tools together with Barbara Janíková and Ladislav Csémy. Vendula Běláčková and Barbara Janíková coordinated the data collection process. Jaroslav Vacek performed the statistical analyses. Alexandra Tomková participated in the interpretation of the data and the preparation of the manuscript. Vendula Běláčková drafted the initial version of the manuscript, performed the literature search, and reviewed the relevant evidence. All the authors contributed to the article and approved the final version of the manuscript.

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