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Short communication

Veni, vidi, vici: The appearance and dominance of new psychoactive substances among new participants at the largest needle exchange program in Hungary between 2006 and 2014

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ABSTRACT

Background: There has been an almost exponential growth in the number of new psychoactive substances (NPS) on the drug markets in Europe during the past decade. While most users of NPS use them by routes other than injecting, percutaneous use of NPS is associated with very frequent injecting episodes and paraphernalia sharing.
Methods: We assessed to what extent new clients between 2006 and 2014 ($N = 3680$) at Blue Point, Hungary's largest needle exchange program, exhibited a shift during these years in the drugs they primarily injected.
Results: Until 2010, 99% of clients injected either heroin or amphetamines. After 2010, however, there was a "replacement chain" of new substances, with one appearing and disappearing after the other: between 2010 and 2014, NPS under five names appeared and gained dominant prevalence (from 0% to 80%), and gradually replaced first the two "traditional" drugs amphetamine and heroin (which diminished to 17% together in 2014) and later each other. We also saw an increase in the proportion of female and older clients.
Conclusions: While our findings are restricted to injected NPS, they suggest that NPS affect the vast majority of the population of people who inject drugs not only in terms of drug use patterns, but maybe also in terms of demographics. Given that over 80% of people who inject drugs use NPS and injecting NPS is associated with increased injecting risks, harm reduction services should be made more available to avoid an epidemic of blood-borne infections.

1. Introduction

New psychoactive substances (NPS) are "substances of abuse, either in a pure form or a preparation, that are not controlled by the 1961 Single Convention on Narcotic Drugs or the 1971 Convention on Psychotropic Substances, but which may pose a public health threat" (United Nations Office on Drugs and Crime, 2013a). The risks of NPS include any risks associated with the use of drugs of unknown components, and it can be said that acute toxicity is the leading cause of NPS-induced fatalities (Karila et al., 2015). While most users of NPS use them by routes other than injecting – including a variety of methods as described by Karila et al. (2015) – the percutaneous use of NPS is associated with very frequent injecting episodes and equipment sharing (Tarján et al., 2015).

About 90% of countries in Asia, the Americas, and Europe reported that NPS have emerged on their drug markets, concerning a wide array of new substances (United Nations Office on Drugs and Crime, 2013b). In Europe, there has been an almost exponential growth in the number of NPS on the drug markets during the past decade. In 2014 alone, the European Union Early warning system registered 101 NPS: 31 cathinones, 30 cannabinoids, 9 phenethylamines, 5 opioids, 5 tryptamines, 4 benzodiazepines, 4 arylalkylamines, and 13 other substances not belonging to the previous groups (European Monitoring Centre for Drugs and Drug Addiction, 2015b). Furthermore, the number of NPS seizures

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increased almost 10-fold in Europe during the past ten years: in 2013, about 47,000 seizures in a total of 3.1 t were reported—most of which was synthetic cannabinoids (1.6 t) and synthetic cathinones (1.1 t) (European Monitoring Centre for Drugs and Drug Addiction, 2015b). As a comparison, 32,000 seizures in a total of 5.6 t of heroin were reported the same year in the EU (European Monitoring Centre for Drugs and Drug Addiction, 2015a). While little is known about the spread of NPS within Europe, they are an increasing problem in certain countries, such as Ireland – where 16% of young people between 15–24 years of age reported ever using NPS (United Nations Office on Drugs and Crime, 2013b) – Poland, the United Kingdom, Romania, and Hungary – where half of all drug related deaths were due to NPS (European Monitoring Centre for Drugs and Drug Addiction, 2015a).

NPS are also called "legal highs" because due to their easily and therefore rapidly changing chemical structure they are difficult to control. For example, mephedrone, a stimulant with an effect similar to cocaine and amphetamine, was legal before 2011 and cheaper than other drugs (Schifano et al., 2011), which may explain its rapid spread on the drug market. MDPV, which was legal in Hungary until 2012, causes acute neurological, cardiovascular and psychotic symptoms such as tachycardia, hypertension, hypothermia, and hallucination (Coppola and Mondola, 2012; Szily and Bitter, 2013). Pentedrone, also a stimulant, was legal until 2014 (Seely et al., 2013; Szily and Bitter, 2013). As a response to an increasing number of emerging NPS, a government decree created a new list of these NPS, referred to as "Schedule C" (Rácz et al., 2015). This list contains both actual substances and chemical groups. Therefore, when an NPS emerges, if it belongs to any of the chemical groups listed in "Schedule C", then the drug automatically becomes "C listed" (King and Sedefov, 2007). The goal of our study was to assess to what extent new clients in Hungary's largest needle exchange program (NEP) shifted to using NPS between 2006 and 2014, and how client demographics may have changed during this time.

2. Methods

Blue Point Drug Counseling and Outpatient Center is located in the 8th district of Budapest—a district with very low socioeconomic status and a high proportion of people belonging to the Roma ethnic minority (György, 2009). Blue Point offers an array of services, including needle exchange (which opened in 2006 but was forced to close down in the second half of 2014 due to extreme political pressure), free and confidential HIV and HCV testing and counselling, addiction counselling, and other social services.

Data for this analysis come from the registration database and daily client turnover data of the NEP that recorded the gender, age, residence area, and the drug primarily injected, during the period between 2006 and 2014. Between 2006 and 2014, a total of 3680 new clients visited the NEP—gender was missing for 3, age was missing for 11, and no primary drug data were missing. All data refer to new clients, since the drug primarily injected by clients was recorded consistently only for new clients between 2006 and 2013. During the assessment period, the proportion of new clients decreased significantly from 100% in 2006 to 17% in 2014, reflecting the establishment of the needle exchange over time (Table 1).

In 2014, 112,898 sterile syringes were distributed to a total of 1529 clients (of these, 17% were new, and old clients had been using the program for a mean of 4.1 [SD = 2.3] years). Altogether 45,185 used syringes were returned to the programme, and the total number of client contacts was 14,004. When we compared established clients with new clients, there was no significant difference between the proportions of females vs. males but new clients were significantly more likely to be under age 25. In addition, there was no significant difference among the proportions of established vs. new clients in regards to their injecting of new vs. old substances. Human subjects protocols were approved by the Supervisory Board of the NEP.

Table 1
Number of all clients and proportion of new clients at Blue Point Needle Exchange Program between 2006 and 2014.

Year	Number of all clients	New clients (%)
2006	265	100
2007	898	55
2008	833	56
2009	1128	39
2010	1332	32
2011	1260	38
2012	1188	31
2013	2065	23
2014	1529	17

All data management and analysis was performed in SPSS version 13. Chi-square tests for trend with their corresponding p-values were used to assess significant ($p < 0.05$) differences in gender and age category distribution across study years, and ANOVA F-test assessed significant differences for age as a continuous variable. We verified our findings by means of ARIMA, which yielded the same significance results as the Chi-square tests for trend and the ANOVA F-test.

3. Results

In 2014, 68% of new clients reported living in the 8th district, 15% in surrounding districts (7th, 9th, and 10th), and 17% in other parts of Budapest or outside the city. Clients living in the 8th district accounted for 85% of all client contacts in 2014. The proportion of females significantly increased from 18% in 2006 to 30% in 2014 (Fig. 1a). Furthermore, age distribution also changed significantly during the study time interval: while in 2006, 41% of clients were under 25 years of age, 45% were between 25–34, and 14% were aged 35 or above; in 2014, 30% were under 25, 33% were between 25–34, and 37% were 35 or above (Fig. 1b). This reflects an increase in mean age from 27 years (SD = 6.3) to 32 years (SD = 9.2) during this time ($p < 0.001$ in ANOVA F-test).

There was virtually no change between 2006 and the first half of 2010 in the distribution of the primary drugs injected, with almost everybody injecting either heroin or amphetamine. Between the second half of 2010 and the first half of 2014, drugs under five new street names were reported by clients, as follows (Fig. 1c). Between 2006 and the first half of 2010, the combined share of amphetamine and opiates (mostly heroin) was 99%; by 2014, heroin virtually disappeared (4%) and the share of amphetamine decreased to 13%. Mephedrone appeared in the second half of 2010, but virtually vanished by the second half of 2011. MDPV emerged in the second half of 2011, but practically disappeared by the second half of 2012. Pentedrone under the street name "crystal" surfaced in the first half of 2012. Two new drugs with unknown components under the street names "benzon" and "music" appeared during 2013. By 2014 "benzon" essentially disappeared, while "music" was mentioned by almost 20% of the new clients. While "crystal" was still dominant in 2014, it became evident during the year that several different substances were sold under this street name.

4. Discussion

In this study, we assessed to what extent new clients ($N = 3,680$) at Blue Point, Hungary's largest needle exchange program, exhibited a shift between 2006 and 2014 in the drugs they primarily injected. We found that following 2010 there was a "replacement chain" of new substances, with one appearing and disappearing