



Research paper

Non-prescribed use of opioid substitution medication: Patterns and trends in sub-populations of opioid users in Germany



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ABSTRACT

Background: Non-prescribed use of opioid substitution medication (NPU) appears to represent a relevant source of opioids among European drug users. Little is known about the prevalence of NPU in Germany and possible differences between subgroups of opioid users. The present study examines NPU and other drug use patterns among drug consumption room (DCR) clients, opioid substituted DCR clients, and patients recruited in opioid substitution treatment (OST) practices.

Methods: Cross-sectional data was collected in 2011 from 842 opioid users in 10 DCRs and 12 OST practices across 11 German cities. Structured interviews comprised indicators for socio-demographics, health status, drug use, motives for NPU, and the availability and price of illicit substitution medication. Group differences were examined with one-way ANOVAs, chi-square tests, or *t*-tests, and factors for NPU were included in a multivariate model. Over-time comparisons were performed with similar data collected in 2008.

Results: Lifetime, 30-day and 24-h NPU prevalence for the total sample was 76.5%, 21.9%, and 9.3%, respectively, with methadone being the most frequently used substance. NPU, poly-drug use and injection drug use were more common among DCR clients, especially among DCR clients not in OST. The three groups featured distinct socio-demographic characteristics, with substituted patients being more socially integrated, while few differences in health parameters emerged. Motives for NPU were mostly related to potential shortcomings of OST, such as insufficient dosages, difficulties with transportation, and lack of access. NPU prevalence was found to be higher than in 2008, while injection rate of substitution medication was similarly low. Main factors associated with NPU were not being in OST, past 24-h use of other drugs, and younger age.

Conclusion: Although diverted methadone or buprenorphine are rarely used as main drugs, NPU is prevalent among opioid users, particularly among DCR clients not in OST. OST reduces NPU if opioid users' needs are met.

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Introduction

Non-prescribed use of opioid substitution medication (NPU), such as methadone and buprenorphine, seems to represent a relevant source of opioids among drug users. In some European countries, NPU even exceeds heroin use (EMCDDA, 2014). Yet our

understanding of specific dynamics and patterns of NPU is limited by a lack of comprehensive investigations.

NPU is the “illicit” use of substitution medication beyond medical prescription (e.g. black market, faked prescriptions) and represents a violation of the narcotics law in most countries (for Germany, see *Narcotic Drugs Act, 2009*). The prevalence of NPU varies across countries and settings (Ambekar, 2012; Lofwall & Walsh, 2014; Yokell, Zaller, Green, & Rich, 2011). Among users of low-threshold drug services, such as needle exchange sites and drug consumption rooms (DCR; also known as supervised injecting facilities), prevalence of lifetime NPU ranges from 9% (United

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States) to 89% (Sweden), with 30-day prevalence ranging from 23% to 41% (Bazazi, Yokell, Fu, Rich, & Zaller, 2011; Genberg et al., 2013; Hakansson, Medvedeo, Andersson, & Berglund, 2007). Also patients in opioid substitution treatment (OST) engage in NPU, with prevalence varying from 1.6% (past-month, US) to 60% (past-year, Ireland) (Duffy & Baldwin, 2012; Moratti, Khashanpour, Lombardelli, & Maisto, 2010; Roche, McCabe, & Smyth, 2008; Wu, Blazer, Stitzer, Patkar, & Blaine, 2008). Studies report that illicit substitution medication is available at low cost (Roche et al., 2008; Winstock & Lea, 2010) and that consumers prefer buprenorphine over methadone, since the latter is often viewed as a less desirable or more harmful substance (Bazazi et al., 2011; Gryczynski et al., 2013; Magura et al., 2009).

Systematic differences between countries or continents or between industrialized and developing countries, are not identifiable. Thus, NPU and the illegal diversion of methadone or buprenorphine occur not only in countries with a good OST coverage (Bretteville-Jensen, Lillehagen, Gjersing, & Andreas, 2015), but also in developing parts of the world such as south Asia (Larance et al., 2011), where, in some countries, Buprenorphine turned out to be the most commonly injected drug, although oral use of non-prescribed buprenorphine tablets is compared to this very rare (Ambekar, 2012; Larance et al., 2011).

Injecting substitution medication, as opposed to administering it orally, appears to be common practice. Studies have found buprenorphine and methadone injection use in 18% (Moratti et al., 2010) to 66% (Winstock & Lea, 2010) of patients in OST programs. Respondents recruited from needle exchange programs and street-based populations report an even higher prevalence of injection use, with rates of up to 75% (Aitken, Higgs, & Hellard, 2008; Alho, Sinclair, Vuori, & Holopainen, 2007). Evidence on the impact of injecting substitution medication is mixed; reports vary from unpleasant incidents (Alho et al., 2007; Moratti et al., 2010) to experiences of similar beneficial effects from injection as from oral consumption (Aitken et al., 2008). While injection drug use increases the risk of infection and virus transmissions, one may argue that it is better to inject pharmaceutical substances than adulterated street products (e.g. heroin). However, adulterated OST medication may also lead to overdose or death, and a recent study in India reports even higher rates of abscesses and blocked veins in buprenorphine injectors compared to heroin injectors (Ambekar, Rao, Mishra, & Agrawal, 2015).

Motives for NPU vary between individuals in and out of OST. Patients in substitution treatment commonly report organizational barriers within OST programs (e.g. long distances, missing appointments), self-managing withdrawal symptoms, and topping up dosage levels (Duffy & Mackridge, 2014; Moratti et al., 2010; Roche et al., 2008). For individuals not in OST, the main motives include physical withdrawal symptoms, preventing cravings, and trying to quit the use of other opioids (Bazazi et al., 2011; Genberg et al., 2013; Hakansson et al., 2007). Thus, self-medicating purposes prevail for both groups, with limited availability of OST playing an important contextual role (Bazazi et al., 2011; Lofwall & Havens, 2012). In this regard, obtaining or “trying” illicit substitution medication can have positive aspects: two studies report higher OST retention rates among individuals with prior experience with non-prescribed buprenorphine (Cunningham, Roose, Starrels, Giovanniello, & Sohler, 2013; Monico et al., 2015), ‘Getting high’ appears to play an only marginal role in NPU (Genberg et al., 2013; Roche et al., 2008).

Nevertheless, the protective role of OST with regard to NPU remains unclear. In some populations, the prevalence of illicit methadone use among patients in OST is very low (1.6% (Wu et al., 2008)). On the contrary, other studies have demonstrated associations between enrolment in OST and buprenorphine injections, as well as a marked increase in NPU over a 6 month-period while in OST (Aitken et al., 2008; Best et al., 2000).

In conclusion, investigations of NPU are limited and findings are mixed. Furthermore, it is difficult to compare data due to the heterogeneity of the studies in terms of setting, drug of concern, and characteristics of the study populations. Especially the heterogeneity of the target population opioid users recruited from public places in terms of OST status, sociodemographic differences, risk behaviours and drug use patterns can be problematic, and a clearer distinction between subgroups is necessary.

This study aims to provide a comprehensive overview of NPU in Germany, including a comparison of user subgroups, and the investigation of motives and factors for NPU. In our previous study (Schmidt et al., 2013), we found relatively high rates of NPU among clients of low-threshold DCRs. In Germany, DCRs are “facilities that provide drug addicts with the opportunity to consume narcotics that have been brought with them and have not been prescribed by a physician” (Drug Consumption Rooms in Germany – A Situational Assessment by the AK Konsumraum, 2011). DCR clients are typically involved in the drug scene and poorly connected to the help system. We hypothesize that opioid users who are better integrated in the help system, such as (long-term) OST patients, may show lower rates of NPU. The present study investigates this hypothesis. We extend our focus to patients recruited in OST practices (for more information about OST in Germany, see Michels, Stöver, & Gerlach, 2007; Schulte et al., 2013). Thus, the present study includes three groups of opioid dependent individuals: DCR clients (not in OST), DCR clients in OST, and registered OST patients recruited in OST practices. We compare indicators of NPU, as well as other drug use patterns, health status, and socio-demographic indicators. In addition, we examine over-time trends in NPU by comparing the present findings to our previously generated research data (Schmidt et al., 2013).

Material and methods

Between January and March 2011, participants were recruited from 12 OST practices and 10 DCRs across 11 German cities. All 24 DCRs that were available at the time in Germany were asked to participate, and 10 of them agreed. The OST practices were selected from the same cities and regions, partly based on contacts established in previous studies. Usually, one DCR and one OST practice were recruited per city. The authors approached individuals in front of the respective facilities. Eligibility criteria were non-intoxication and sufficient knowledge of the German language. Thirty-minute structured interviews were carried out inside mobile vans by trained external research staff to reduce the potential for coercion and/or response bias. Participation was voluntary, written informed consent was obtained, and participants were compensated with €5. Ethical approval was obtained from the Hamburg Medical Association.

Group differences were examined between the following three target groups:

- (I) Respondents recruited in DCRs, who reported that they were currently not in OST (DCR/non-OST subsample)
- (II) Respondents recruited in DCRs, who reported to be in OST (DCR/OST subsample)
- (III) Registered OST patients, recruited in their OST practices after receiving medication (OST practice subsample)

Measures

Sociodemographic and health status parameters

Sociodemographics included gender, age, education, employment, housing, relationship, migration, family, and incarceration status/history. Health status (past 30-days) was assessed by means of a self-made list with 15 physical and mental symptoms that are

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