



Non-Prescribed Buprenorphine in New York City: Motivations for Use, Practices of Diversion, and Experiences of Stigma



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ABSTRACT

Non-medical use of opioid analgesics (OAs) has increased in the United States over the past decade. Concurrently, access to opioid agonist therapies (OATs) such as buprenorphine has expanded. However, there has been little in-depth qualitative exploration into circumstances surrounding buprenorphine diversion and non-prescribed use. This study reports on qualitative data from in-depth interviews conducted with persons in New York City reporting non-medical OA use in the past 12 months. Participants ($n = 42$) were aged between 18 and 49 years. The majority were male ($n = 29$) and non-Hispanic White ($n = 35$). All participants self-reported physical opioid dependence. Motivations for non-prescribed buprenorphine use included the abatement of withdrawal symptoms or a self-initiated detoxification or treatment plan. Few participants reported buprenorphine use for euphoric effect, and no participants reported using buprenorphine as a primary drug. Buprenorphine diversion primarily occurred as a means of supporting ongoing illicit drug use, and no participants reported selling buprenorphine as a primary source of income. Participants reported misinformation around some key areas of buprenorphine induction and use, as well as stigma within peer networks and from drug treatment providers. As access to buprenorphine treatment continues to expand in the United States, enhancing patient education is a critical step toward minimizing diversion and incidental harms from non-prescribed use.

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1. Introduction

The ongoing increases in overdose deaths due to non-medical opioid use make urgent the need for all effective strategies that have the potential to prevent the adverse health and social consequences of non-medical opioid use (Kenan, Mack, & Paulozzi, 2012; Manchikanti, Fellows, Ailinani, & Pampati, 2010; Paulozzi, Jones, Mack, & Rudd, 2011). Buprenorphine, an opioid agonist medication, has been established as a safe and effective treatment for opioid use disorder (American Society of Addiction Medicine, 2013; ASAM, 2014; United Nations Office on Drugs and Crime & World Health Organization, 2013; WHO, 2009). Despite the demonstrated efficacy and safety of buprenorphine medication, some research findings suggest that increasing access to this drug may result in greater diversion (i.e., the transfer of legally prescribed pharmaceutical substances to individuals or markets for non-prescribed use), non-prescribed use, or buprenorphine-involved overdose (Sansone & Sansone, 2015; Wish et al., 2012). A growing body of evidence suggests, however, that buprenorphine-involved overdose is rare (Auriacombe, Franques, & Tignol, 2001; Bretteville-Jensen, Lillehagen, Gjersing, & Andreas, 2015; Paone et al., 2015).

In New York City, the most commonly prescribed type of buprenorphine is the buprenorphine/naloxone co-formulation, branded as Suboxone®, and single-entity formulations, such as Subutex®, are rarely prescribed (Tuazon, 2015). Studies examining buprenorphine diversion have identified associations between increased diversion rates and single-entity buprenorphine tablet formulations (Johnson & Richert, 2015b; Lavonas et al., 2014), with less diversion estimated for formulations that contain naloxone (Larance et al., 2014; Lavonas et al., 2014). Where motivations for diversion have been explored, studies show that buprenorphine, primarily from individual prescriptions, may be resold to support ongoing drug use (Johnson & Richert, 2015a; Monte, Mandell, Wilford, Tennyson, & Boyer, 2009; Winstock, Lea, & Sheridan, 2009). The most common motivations for non-prescribed buprenorphine use include management of withdrawal symptoms and/or self-administration for detoxification or treatment, with few individuals using buprenorphine for its euphoric effects (Daniulaityte, Falck, & Carlson, 2012; Fox et al., 2014; Fox, Chamberlain, Sohler, Frost, & Cunningham, 2015; Genberg et al., 2013; Lofwall & Havens, 2012; Havnes, Clausen, & Middlethorpe, 2013; Richert & Johnson, 2013; Schuman-Olivier et al., 2010; Shah, Sohler, López, Fox, & Cunningham, 2013).

Prior research into non-prescribed buprenorphine use has focused primarily on heroin-using populations. Further, the majority of this work employs quantitative methods; the single study to date that has qualitatively investigated the use of non-prescribed buprenorphine among a population with a history of non-medical opioid analgesic

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use found that the medication was used primarily to self-medicate symptoms of withdrawal (Daniulaityte et al., 2012). Additionally, much of the extant research into buprenorphine diversion has occurred in Australia or Central and Northern Europe, regions with drug policies and substance use treatment systems different from those in the United States. Accordingly, the experiences of buprenorphine patients and the mechanics of buprenorphine diversion are likely to differ (Carriero et al., 2006).

This study aims to describe qualitatively non-prescribed buprenorphine use and diversion among a cohort of persons with histories of non-medical opioid analgesic use in New York City. As access to buprenorphine treatment expands to new populations of opioid users, whose routes into use are likely to be through OAs instead of heroin (Harocopos, Allen, & Paone, 2016; Mateu-Gelabert, Guarino, Jessell, & Teper, 2015), a comprehensive understanding of its non-prescribed uses and reasons for diversion are critical to optimize use and prevent unintended adverse health and social consequences among these new patient populations, as well as to improve the medication's political and legal acceptability and, more broadly, to reduce stigma toward buprenorphine and other opioid agonist therapies (OATs).

2. Materials and methods

Between August 2013 and January 2015, we conducted in-depth interviews with 93 persons aged 18 years and older with histories of non-medical opioid analgesic use in New York City. Participants were residents of NYC and recruited through a variety of methods, including community-based harm reduction and outpatient drug treatment programs, snowball recruitment from existing participants, and venue-based street recruitment. Participants were purposefully selected (Patton, 2001) to reflect demographic trends in non-medical opioid analgesic use and associated harms (Paone, Tuazon, Bradley O'Brien, & Nolan, 2014; Paulozzi et al., 2011). This analysis includes a sub-sample of participants ($n = 42$) who reported non-medical OA use in the previous 12 months and non-prescribed buprenorphine use and/or diversion of buprenorphine. Of these 42, 22 were recruited through chain referral, 16 were identified through community-based services, and four were recruited through street intercept.

Prior to each interview, participants underwent a verbal consent procedure, including a detailed review of the study protocol, the risks and benefits of participation, and the right to terminate involvement at any time. The interview guide was semi-structured, with broad categories including: history of illicit drug use and prescribed medication; initiation and trajectory of non-medical OA use; involvement in the illicit OA market; and experiences with drug treatment. Questions were open-ended and participants were encouraged to elaborate on their experiences. Interviews were conducted individually in semi-private or private locations of the participants' choosing, including: participants' homes, coffee shops, interviewers' cars, public parks, and community-based services. The interviews, which ranged from 31 to 190 minutes in duration, were audio-recorded and fully transcribed for analysis. No identifying information was documented. All study methods and procedures were approved by the New York City Department of Health and Mental Hygiene (DOHMH) Institutional Review Board. A Federal Certificate of Confidentiality was obtained to protect participants from identification via audio recordings. Participants received an honorarium of \$30 for their time.

Interview transcripts were analyzed using Dedoose data analysis software. Utilizing a thematic approach to analysis (Guest, MacQueen, & Namey, 2011), the two authors initially read the transcripts to identify patterns and relationships. Analysis was iterative and data-driven; the authors produced a list of preliminary codes through line-by-line coding, then grouped these into categories to form an initial hierarchy of themes. Emergent categories pertaining to this analysis included: history of prescribed buprenorphine, social aspects of drug use, market dynamics, uses of non-prescribed buprenorphine, and opinions of buprenorphine. Categories were then refined and sub-themes identified and classified to produce a coherent thematic landscape. Discrepancies

between the codes assigned by the two authors were resolved through consensus. Throughout this process, analytic memos were used to record codes and to "think through" the data (Guest et al., 2011). The data presented below represent participants' methods of experiences with buprenorphine diversion and non-prescribed use. All names reported in the text are pseudonyms.

3. Results

3.1. Participant characteristics

Participants ($n = 42$) ranged in age from 18 to 49 years (median = 27). Twenty-nine identified as male and 13 as female. Thirty-five identified as non-Hispanic White; six as Hispanic or Latino; and one as non-Hispanic Black/African American. Thirty-eight identified as heterosexual; three as bisexual; one as homosexual. At the time of interview, six had not completed high school; 18 had completed high school or had passed the tests of general educational development (GED); and 18 had completed or were enrolled in some form of further education (i.e., trade school, college, or graduate school). The majority reported stable housing: nine lived in their own home; 21 lived in a family home; and three lived in a friend's home. Of those who were unstably housed: six lived in a shelter; one lived in transitional housing; and two were street homeless. Fourteen reported current full- or part-time employment; five were active students; 17 were unemployed; and six received unemployment or disability benefits.

All participants reported non-medical opioid analgesic use within the previous 12 months. Thirty-eight participants also reported prior heroin use; however, for a majority of these ($n = 30$) self-reported physical dependence to opioid analgesics preceded heroin initiation. A majority of participants ($n = 30$) reported previous injection drug use, and 15 reported experience of opioid-involved overdose. Additionally, half ($n = 21$) had been prescribed buprenorphine at some point during their drug use trajectory.

3.2. Motivations for non-prescribed buprenorphine use

Many participants described using non-prescribed buprenorphine to control or moderate withdrawal symptoms. Buprenorphine (typically Suboxone®) served an important function in these participants' lives, allowing them to abate symptoms of withdrawal in situations when they were unable to access their preferred opioid, often because of a lack of funds or the ebbs and flows of the illicit opioid analgesic or heroin market. In these situations, buprenorphine was used as a backup measure and participants reported keeping an emergency supply on hand for sporadic use.

"This is how you work Suboxone®. You know you're getting sick. At four in the morning, you're going to start feeling sick, and maybe I'll just have one bag. One bag isn't going to carry me through the day, so at four in the morning, I get up, I pop a Suboxone®."

[(Kelly, age 49)]

As well as managing withdrawal symptoms, some participants reported fully detoxifying from all opioids through a self-managed buprenorphine taper. These events were described as catalyzing, or attempting to catalyze, periods of abstinence from opioid analgesics or heroin. Most participants who self-detoxified reported doing so with the aid of a more experienced peer, who connected her or him with a supply of buprenorphine and instructions for how to use it

"The first time I ever tried Suboxone®, it was actually a friend's... I was like, I really, truly, genuinely wanted to stop, so I would trade my [opioid analgesic] pills for Suboxone®, and he taught me how to do it. I had—instead of the eight milligrams, he gave me like a whole bunch of the two milligrams, the little ones. And I basically detoxed myself off of the opiates with Suboxone®."

[(Lisa, age 29)]

"I got Suboxone® from my friend. I bought it... I used that for probably like a month and a half. I bought two bottles and there were like 20 in each. .. He told me to take it so I'd stop throwing up. I never really like felt like a high from it, some people say that you do. But yeah, it definitely helped."

[(Brittany, age 23)]

Notably, although participants described peer instruction regarding use for alleviating withdrawal or self-detoxification, there was no discussion of peers promoting buprenorphine use for euphoric effect. Further, some participants reported receiving active encouragement from members of their social network to use non-prescribed buprenorphine as a long-term alternative to continued street opioid use or formalized treatment. This endorsement was in sharp contrast to the stigma encountered by some participants around buprenorphine use documented later in this article.

"Everybody who was doing pills is resorting to dope now, because it's easier to get, it's cheaper to get, and it's stronger than a pill. One of my friends was taking Suboxone® and he just said, 'Listen, you're either going to get high, or you're going to take Suboxone®, or you're going to go away [to rehab] again.' I didn't want to go away again."

[(Nick, age 28)]

Some participants noted interchangeability between the non-prescribed use of buprenorphine for self-detoxification and for management of withdrawal symptoms, describing periods of movement between one and the other. Although participants were not systematically asked about their choice of self-detoxification or self-maintenance in place of a medically-supervised detoxification or office-based buprenorphine treatment, some commented that lack of access to a prescribing doctor and/or the expense of the medication itself—buprenorphine prescriptions are not covered by all U.S. insurance plans and treatment can cost up to \$500 per month without insurance coverage (Westat & Avisia Group, 2006)—made non-prescribed use the most practical option. For other participants, buprenorphine enabled them to organize their drug use around work and family schedules, allowing them to manage their drug use without an incidental opioid high. Danny's tightly controlled and measured non-prescribed use exemplifies the medication's potential to mediate the effects of physical opioid dependence.

"I usually start taking the subs on Sunday because on Sunday's usually family time, dinner time, I'm hanging out with my family, so I don't like going into the bathroom and freaking getting high, so yeah. And plus I have to go to bed early on Sunday. If I'm high, I'm staying up until four o'clock in the morning, going to work on 24 hours of no sleep, which I can't do that."

[(Danny, age 21)]

While most participants ingested buprenorphine as indicated (i.e., sublingually or orally), a few participants described experimenting with other routes of administration. Five participants reported injection and one reported intranasal use. For most of these participants, administering buprenorphine in this way was a one-time event that occurred when their drug of choice was unavailable. The outcomes of these experiences ranged from negative to neutral, and only one participant, who ingested buprenorphine intranasally, described achieving a "high." Notably, no participants reported misusing buprenorphine as their primary drug, and none transitioned from other opioids to buprenorphine as a drug of choice.

3.3. Buprenorphine misinformation and stigma

A number of participants reported misinformation about buprenorphine, which they recounted as facts, during their descriptions of non-prescribed use. Participants' beliefs about buprenorphine

included that it is "stronger" than other opioid analgesics or heroin; that this "strength" consequently makes buprenorphine "more difficult" to taper from than methadone or other opioids; and that buprenorphine use precludes the concurrent use of other opioids.

"I felt like I was safe. I felt like if I take Suboxone®, I can't mix the two, [buprenorphine and other opioid analgesics] and I'll be okay. I won't be high. I won't look high. I won't look like I was using. It was more of a safe thing. As long as I have Suboxone®, I know I can't go out and take a pill and I won't have the urge to take a pill."

[(Nick, age 28)]

The inaccurate belief that opioid use following buprenorphine ingestion would have an adverse effect helped Nick to control his cravings and avoid using other opioid analgesics, to which he identified dependence. In other cases, however, a lack of knowledge about buprenorphine induction and physiology was detrimental. Some participants who obtained buprenorphine without medical supervision did not have sufficient information to effectively initiate its use and, as a result, experienced serious withdrawal symptoms. Further, several participants reported that even after waiting until they were experiencing discernable withdrawal symptoms before taking Suboxone®, the drug triggered what they believed to be an allergic reaction. These negative induction experiences were often frightening and deterred future attempts at buprenorphine treatment.

"I got sick from [buprenorphine]. I don't know what the hell was wrong. I break out in hives. I start throwing up. It's like the weirdest thing. I do all these opioids, I don't break out, but I take a Suboxone®, I'm fucking breaking out into hives, and I'm fucking sick, throwing up."

[(Phillip, age 25)]

Misinformation about buprenorphine also fueled the stigma associated with opioid agonist therapy (OAT). Participants described experiencing stigma not only within abstinence-based settings, but also among their peer networks. These negative viewpoints discouraged some participants from engaging in OAT beyond a short-term medically supervised taper. This stigma served to erase the distinction between OAT and problematic drug use.

"When I first got out of rehab, I took a sub and I felt horrible. I felt so guilty. I was like, 'Fuck, why'd I do that. I don't need it.' But now I feel that I have to [take buprenorphine] because if I don't do it, I feel like I'm gonna do dope. I have to, and I know if I take a sub, I can't do dope... If this is what I gotta do, that's what I gotta do. Fuck them if they, if they think, 'Oh, you're cheating.' Then I'm cheating. I'm not sticking no needle in my arm."

[(Joey, age 33)]

"That's how a lot of drug users see [buprenorphine], like, 'Oh, you're addicted to subs and this and that.' And I'm like, 'I'm gonna be off them in a few months!' I was addicted to shooting heroin and they're like, 'Oh, it's the same thing.'... I wish more people would have a positive outlook. A lot of rehabs and a lot of places will knock Suboxone®, like, 'Oh you know, it's so bad. People are getting high off them. You're trading one drug for another.' But that's not what it's for. It's to get you off, and then the sooner you can get off Suboxone® and now you're drug free."

[(Sonia, age 18)]

3.4. Buprenorphine diversion

Of the 21 participants who had at some point received a prescription for buprenorphine, many reported that they had sold or bartered their prescribed medication. This was mostly done on an ad hoc basis with

participants keeping a proportion for their own use and selling the remainder to members of their social networks who sought to alleviate withdrawal symptoms. Some, however, reported having regular customers who would buy the majority of their medication, and for these participants, selling their buprenorphine prescription often helped fund the purchase of other preferred opioids.

“I had a couple of people that would buy a lot of Suboxone® from me, so that was like a lot of money every month... It was just word of mouth I guess, like my friends knew that I had it and they knew someone that wanted it so then I met people that would steadily buy it every time I got it... They were using it themselves... [One girl] wanted to get a doctor, but she couldn't find one, so she just bought from people. And the guy, he was using, but he needed Suboxone® for work cause to have a good job, and you know, he couldn't be high, so he needed it for that.”

[(Becky, age 29)]

For the majority of participants who sold or traded their buprenorphine sporadically, the impetus to sell their prescription often followed a resumption of street opioid use. Participants then kept their remaining buprenorphine for security against the possibility of future opioid withdrawal. Thus, even though buprenorphine was not a drug of choice for its psychoactive effects, it was valued as a safety net for those occasions when other opioids were unavailable.

“I didn't want to sell them, no, but if somebody needed some and they say, ‘I'll give you three back,’ you know, here. I did that, but you know, usually—like I said, at one point there wasn't a problem [obtaining opioid analgesics], and now it seems like on the pill end of things, they're getting—it gets difficult at times.”

[(Martin, age 45)]

“I bought [buprenorphine] from some guy who really doesn't want to sell it because... he's afraid [of withdrawal]. But eventually... it cost \$5. You know, he probably needs the money because he's getting \$8.50 an hour. I got one [dose of buprenorphine] but I won't bother him no more. I know he's not a dealer.”

[(Damien, age 44)]

Participants reported that the street price for buprenorphine ranged from \$5 to \$10 for an eight milligram dose. Few individuals described selling buprenorphine as a consistent source of income. That is, just as participants did not describe daily non-medical buprenorphine use, the majority did not describe daily buprenorphine sales or diversion.

4. Discussion

This study describes non-prescribed buprenorphine use and diversion among a sample of persons with histories of non-medical opioid analgesic use. The majority of participants described using non-prescribed buprenorphine as a means of mitigating withdrawal symptoms, controlling ongoing drug use, or initiating a self-detoxification plan. Few participants reported buprenorphine use for its psychoactive effects. Our findings are consistent with previous studies, conducted primarily among heroin users, which indicate that individuals do not tend to use buprenorphine for its euphoric effects (Havnes et al., 2013; Richert & Johnson, 2015; Schuman-Olivier et al., 2010).

Among some participants, non-prescribed buprenorphine use resulted from a desire for treatment and an inability to locate a prescribing physician. This finding is also consistent with prior research that has identified that a limited availability of buprenorphine providers may contribute to diversion and non-prescribed use (Lofwall & Havens, 2012; Schulte et al., 2015). At present in the United States, only licensed physicians are eligible to obtain the certification needed for buprenorphine prescribing for the treatment of opioid use disorders.

Furthermore, federal law limits prescribing to 30 patients during the first year of certification and to 100 patients during subsequent years. In addition to limitations on qualified physicians, many parts of the U.S. have no active buprenorphine prescribers, leaving patients in these locations with limited or no buprenorphine access (Stein et al., 2015).

Although the legislation is pending in the U.S. Senate, the Recovery Enhancement for Addiction Treatment (TREAT) Act proposes to eliminate the patient limit for physicians after the first year of provision and allow nurse practitioners and physician assistants to prescribe buprenorphine (Recovery Enhancement for Addiction Treatment Act, 2014), expanded access may not equate to expanded uptake due to stigma of OAT within communities of users.

While the dominant paradigm within addiction treatment in the U.S. is abstinence, OAT as a clinical tool is, in many settings, rejected on principle. Despite scientific evidence for the efficacy of buprenorphine treatment, some treatment programs continue to discourage or bar patients from accessing OAT, espousing the belief that OAT is neither a legitimate modality, nor consistent with “recovery.” The notion that OAT is in some sense “cheating” was expressed by some participants, including those who were currently being prescribed buprenorphine.

Indeed, the cultural impact of abstinence-based drug treatment extends beyond the recovery community and limited research has shown that popular media may broadly perpetuate stigma toward OAT (Roose, Fuentes, & Cheema, 2012). Additionally, previous studies have described stigma among physicians regarding how they treat persons who use substances (Notley, Holland, Maskrey, Nagar, & Kouimtsidis, 2014; Schwartz et al., 2008; Tanner, Bordon, Conroy, & Best, 2011). Thus, before OAT expansion and uptake efforts are realized, groundwork in education and advocacy is necessary across several domains, including: a fundamental shift in the cultural underpinnings of traditional drug treatment, education targeting both persons who use drugs and medical providers, and a response to and shift in popular media discourse.

Participants described medically inaccurate beliefs about buprenorphine transmitted through peer networks of non-prescribed use, which sometimes resulted in adverse outcomes (see Johanson, Arfken, di Menza, & Schuster, 2012). Coupling increased OAT access through medical channels with more robust provider education is likely to improve patient knowledge and subsequent treatment outcomes. For example, one study identified that, among physicians prescribing buprenorphine, continuing medical education (CME) on OAT was effective in improving provider knowledge and practice behaviors (Lofwall, Wunsch, Nuzzo, & Walsh, 2011); robust provider education and adherence to established best practices may consequently aid in improved retention and treatment outcomes among patients.

Although diversion from prescribed buprenorphine did occur among participants, the majority who sold or traded their medication did so in an informal capacity. Notably, participants' descriptions of acquiring non-prescribed buprenorphine did not tend to center on organized networks of distribution. The mostly ad hoc nature of buprenorphine diversion in this sample is consistent with its primary non-medical use as a backup to avoid withdrawal symptoms or manage ongoing drug use. Thus, the medication seemingly was imbued with a different character from other opioid analgesics in that its use was to alleviate withdrawal symptoms rather than to achieve euphoric effect, a cultural value that may be reflected in its low street price. Alternately, the relatively low cost of diverted buprenorphine compared to other diverted opioid analgesics may be associated with the robust illicit heroin market in New York City and/or the wider availability of buprenorphine in NYC relative to much of the United States.

Even when participants had renewed street drug use, they were often keen to retain an emergency supply of buprenorphine in anticipation of future withdrawal symptoms. This indicates that participants were aware of buprenorphine's effectiveness in treating symptoms of opioid dependence, despite some misinformation around other aspects

of the medication. At least one study has shown that a history of non-prescribed buprenorphine use can predict better retention in treatment (Monico et al., 2015), thus street exposure to buprenorphine among some populations paradoxically may serve to improve longer term outcomes.

This study has several limitations. The present sample was not selected using probabilistic methods, and findings are not generalizable. However, methodological research has demonstrated that where context is similar, findings may be transferable (Guba, 1981). Further, all members of the present sample self-reported physical opioid dependence; thus, our findings may not reflect non-prescribed buprenorphine use among non-opioid dependent populations. Additionally, interviews relied on retrospective accounts of non-prescribed buprenorphine use, diversion, and access and may therefore be subject to recall bias and/or social desirability. However, prior research has shown that persons who use drugs are generally able to report on their substance use history with a high degree of accuracy (Darke, 1998), although the increased restrictions in access unique to buprenorphine may have influenced participants' responses.

The findings presented here expand understanding of non-prescribed buprenorphine use among persons with a history of non-medical opioid analgesic use in the United States. Reasons for non-prescribed use in our study include the abatement of withdrawal symptoms, management of ongoing drug use, and initiation of self-detoxification. Misinformation about and stigma toward OAT circulating within social networks and medical and drug treatment settings may contribute to adverse outcomes associated with non-prescribed use and self-induction. As the number of patients treated with buprenorphine continues to grow in the U.S. and more resources are allocated to prescriber training and education, future research could investigate non-prescribed use among non-opioid dependent populations to monitor whether diversion among different user groups occurs for different purposes.

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