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Awareness of, experience with, and attitudes towards buprenorphine among opioid users visiting a New York City syringe exchange program

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Abstract

Objective—To examine awareness of, experience with, and attitudes towards buprenorphine, in order to begin to understand why opioid users may not access buprenorphine treatment. We also explored factors associated with attitudes towards buprenorphine.

Design—Cross-sectional study.

Setting—A community-based organization's syringe exchange program in mobile units at nine street-side outreach sites in New York City.

Participants—186 adult opioid users visiting a syringe exchange program.

Main Outcome Measures—Awareness of, experiences with, and attitudes toward buprenorphine.

Results—Most (68.5%) participants were aware of buprenorphine, 27.8% had taken buprenorphine, and 58.6% knew someone who had taken buprenorphine. Of the 98 who had taken or knew someone who had taken buprenorphine, 85.7% endorsed positive attitudinal statements about its effectiveness, and up to 31.6% endorsed statements about its limited access. Participants' attitudes about the need for formal buprenorphine treatment were mixed. Current heroin users were more likely than non-users to have heard of buprenorphine (76.0% vs. 61.5%, $p<0.05$), have taken buprenorphine (46.8% vs. 9.6%, $p<0.01$), endorse buprenorphine's effectiveness (96.3% vs. 72.7%, $p<0.01$), and believe that illicit and prescribed buprenorphine have similar benefits (35.2% vs. 13.6%, $p<0.02$).

Conclusions—Most opioid users visiting a syringe exchange program had positive attitudes about buprenorphine's effectiveness, and few believed that buprenorphine was difficult to access. Attitudes about the benefits of illicit versus prescribed buprenorphine use were inconsistent. Understanding awareness of, experience with, and attitudes towards buprenorphine is important, as these factors are likely to influence opioid users' decisions about engaging in buprenorphine treatment.

Keywords

buprenorphine; opioid agonist treatment; community-based organization; attitudes; opioids; heroin

Background

In the U.S., opioid abuse and dependence continue to be a growing problem; however, treatment rates for opioid abuse and dependence remain fairly static^{1–5}. Therefore, there is a growing unmet need for treatment of opioid dependence, particularly with opioid agonist medication. While methadone has been the mainstay of treatment for opioid dependence for decades, buprenorphine, a partial opioid agonist that can be prescribed outside of drug treatment settings, presents an alternative with the potential to address this unmet need for treatment.

Providing opioid-dependent individuals with accessible options for opioid agonist treatment is critical for many reasons. Opioid agonist treatment reduces risks of acquiring infectious diseases (HIV and viral hepatitis), using illicit drugs, criminal justice problems, unemployment, and mortality^{6–12}. Despite this, few studies have examined why individuals with opioid addiction do not access opioid agonist treatment, and specifically buprenorphine treatment. To date, most studies that have examined the slow uptake in buprenorphine treatment have focused on physicians' barriers to providing buprenorphine treatment^{13–18}. However, as more physicians make buprenorphine treatment available to their patients^{19–21}, it is important to understand the factors that prevent individuals with opioid dependence from accessing treatment. This information can guide the development of interventions and policies to improve access to buprenorphine treatment, and ultimately improve individual and public health outcomes.

Because attitudes toward treatment are associated with treatment outcomes²², we examined awareness of buprenorphine, experience with buprenorphine, and attitudes towards buprenorphine among opioid users accessing a syringe exchange program in New York City (NYC) to begin to understand why opioid users may not access buprenorphine treatment. In addition, we explored factors associated with awareness, experience, and attitudes toward buprenorphine.

Methods

This cross-sectional study was a collaboration among Albert Einstein College of Medicine, Montefiore Medical Center, and New York Harm Reduction Educators (NYHRE). The study was approved by the Albert Einstein College of Medicine's institutional review board.

Setting

The study took place in one of NYHRE's two mobile units, which together traveled to a total of nine street-side outreach sites in neighborhoods of the Bronx and Harlem that are severely impacted by drug use and HIV/AIDS^{23,24}. NYHRE, the largest harm reduction agency in NYC, has been providing services since 1990 and is currently serving over 5000 clients annually. Street-side services provided by NYHRE include syringe exchange; referral for medical, dental and drug treatment; acupuncture; HIV risk reduction education and interventions; HIV case management; and mental health services. The majority of NYHRE clients are Hispanic or black, male, 40–49 years old, and injection drug users. NYHRE staff are representative of the community they serve in terms of socio-demographic characteristics and personal experiences with substance use.

Participants

Between June and August 2011, individuals who approached the NYHRE mobile units for services were referred to the study by NYHRE staff. Eligibility criteria included: 1) at least 18 years of age, 2) fluent in English or Spanish, and 3) at least one year of regular lifetime use of opioids (per the Addiction Severity Index [ASI])²⁵. Once referred to research staff, participants were informed about the study and informed consent was obtained.

Data Collection

Participants completed a 15-minute 38-question survey in the NYHRE street-side mobile unit. Interviews were conducted using audio computer-assisted self-interview (ACASI) technology in which questions were displayed on a computer screen while an audio recording of the question was played. Participants entered responses directly on the computer, which may result in more accurate reporting of sensitive behavior than other survey methods²⁶. Participants were compensated with a transit pass (worth \$4.50) after completing the interview.

Measures

Information collected from the survey included: demographic characteristics (age, gender, race/ethnicity, education, health insurance); current substance use, defined as use within the previous 30 days; lifetime substance use, defined as regular use at least one year during lifetime (from the Addiction Severity Index²⁵); and awareness of, experiences with, and attitudes toward types of opioid addiction treatment. Questions about awareness, experiences, and attitudes towards opioid addiction treatment included questions about buprenorphine treatment, methadone maintenance treatment, and non-pharmacological treatment (e.g., individual and group counseling). Awareness was measured by asking if participants had ever heard of buprenorphine. Experience was measured by asking participants if they had ever taken buprenorphine (prescribed or obtained illicitly) or if they knew someone who had taken buprenorphine to cut down or stop using opiates. Attitudes were measured by asking participants whether several attitudinal statements fit what they had experienced or been told about buprenorphine. Only those participants who had ever taken buprenorphine or who had known others who had taken buprenorphine were asked about their attitudes towards buprenorphine.

The latter portion of the questionnaire that measured awareness, experience, and attitudes was developed by the research team in a prior study. Qualitative interviews with the target population were conducted to understand issues that were relevant to attitudes about drug users and addiction treatment. Once questions were preliminarily developed, they were then pilot tested with 20 opioid users. Cognitive interviewing techniques were used to ensure participants understood and responded to the constructs addressed by each question. Questions were modified, and a small (N=20) test-retest study was conducted to evaluate the 3-day reliability of the data collected. Items were again revised into the current, final questionnaire.

Analysis

The main goal of our analysis was to describe awareness of, experience with, and attitudes towards buprenorphine. We examined attitudes related to three general themes: perceived effectiveness of buprenorphine, perceived access to buprenorphine, and need for formal buprenorphine treatment. Using chi-square tests, we also explored factors associated with awareness of, experience with, and attitudes towards buprenorphine. Factors explored in these analyses included: age, gender, race/ethnicity, education, history of injection drug use, history of methadone treatment, and current heroin, prescription opioid, methadone, or cocaine use. All analyses were conducted using STATA v11.

Results

Of the 196 people who approached the NYHRE mobile unit, 186 (94.9%) agreed to participate in the study. Of these, 24 (12.9%) reported no regular lifetime use of opioids, and were therefore excluded. Of the final sample of 162 participants, the mean age was 48.3 years, and the majority were male (69.8%), Hispanic (71.0%), and had a high school education (65.4%) (see Table 1). A substantial proportion of participants reported current use of methadone (58.6%), heroin (48.7%), prescription opioids (43.8%), or cocaine (42.0%). Additionally, most reported they had ever injected drugs (71.0%) or had ever been in a methadone treatment

While over two-thirds (68.5%) of participants were aware of buprenorphine, personal experience was limited. Only approximately one-quarter (27.8%) had ever taken buprenorphine themselves and even fewer (16.7%) were taking buprenorphine at the time of the interview. More than half of participants (58.6%) knew someone else who had taken buprenorphine.

In terms of attitudes, of those who had taken buprenorphine or knew someone else who had taken buprenorphine (n=98), the majority (85.7%) endorsed positive attitudinal statements about the effectiveness of buprenorphine (defined as helping to decrease drug use), and less than one-third endorsed negative attitudinal statements about limited access to buprenorphine (see Table 2). Data were conflicting regarding participants' endorsement of statements about attitudes regarding illicit use of buprenorphine: 40.8% endorsed a statement that people who use illicit buprenorphine will continue to use drugs, but 25.5% endorsed a statement suggesting that illicit and legal buprenorphine have similar benefits.

In our exploratory analyses of demographic and clinical characteristics that were associated with awareness, experience and attitudes toward buprenorphine, we found that current heroin users were more likely than non-users to have been aware of buprenorphine (76.0% vs. 61.5%, $p<0.05$) and to have had personal experience taking buprenorphine (46.8% vs. 9.6%, $p<0.01$). In addition, current heroin users were more likely to endorse a positive attitude statement about the effectiveness of buprenorphine in reducing drug use (96.3% vs. 72.7%, $p<0.01$). However current heroin users were also more likely to endorse an attitude statement suggesting that illicit buprenorphine use and formal buprenorphine treatment have similar benefits (35.2% vs. 13.6%, $p<0.02$).

There were no significant differences in patterns of awareness of, experience with or attitudes toward buprenorphine by age, gender, race or ethnicity, education, history of injection drug use, history of methadone treatment, prescription opioid, methadone or cocaine use.

Discussion

Among opioid users recruited from a syringe exchange program in NYC, two-thirds were aware of buprenorphine and over one-quarter had taken buprenorphine during his or her lifetime. Most participants had positive attitudes about buprenorphine's effectiveness, and surprisingly few participants believed that buprenorphine was difficult to access. Attitudes about the need for obtaining buprenorphine through the treatment system versus using illicit buprenorphine were inconsistent. In exploratory analyses, current heroin users were more likely than non-users to be aware of and have taken buprenorphine and endorse buprenorphine's effectiveness, but were also more likely to believe that illicit buprenorphine use and formal buprenorphine treatment have similar benefits.

Although we examined attitudes towards buprenorphine among individuals recruited from community settings, our findings are consistent with the few prior studies that examined attitudes toward buprenorphine among individuals recruited from and receiving treatment in drug treatment programs. For example, one study that examined attitudes among individuals who were mostly enrolled in methadone programs found generally positive attitudes about buprenorphine, with more positive attitudes towards buprenorphine than methadone²⁷. Other studies report that the majority of patients treated with buprenorphine believed that buprenorphine was an effective aid to behavioral change²⁷ and were satisfied with the effects of buprenorphine²⁸. We found only one study that reported neutral or slightly negative attitudes towards buprenorphine²⁹. Because the latter study was conducted from 2002–2003 (prior to and immediately following approval of buprenorphine by the Food and Drug Administration), these neutral or negative attitudes are likely to substantially differ from today's attitudes given the gradual increase in buprenorphine treatment and experience over the last decade.

Our study is unique and adds to the existing literature because to our knowledge, our study is among the first to specifically examine attitudes towards buprenorphine among drug users recruited directly from the community (from a syringe exchange program) and not from drug treatment programs. Although buprenorphine treatment in NYC remains relatively

limited (personal communication, Daliah Heller, NYC Department of Mental Health and Hygiene, 2012), few participants in our study believed that buprenorphine was difficult to obtain or expensive. However, when inquiring about accessibility of buprenorphine, our survey did not distinguish between buprenorphine prescribed by a physician and buprenorphine obtained illicitly. Use of illicit buprenorphine in the U.S. has increased recently^{30–33}. Some studies report therapeutic reasons for use of illicit buprenorphine, such as self-medication while awaiting entry into drug treatment and avoidance of withdrawal symptoms^{33,34}. In addition, participants in one study reported finding illicit buprenorphine to be a cost effective method for heroin detoxification³⁴. Thus, it is possible that our findings reflect participants' perception of availability and cost of buprenorphine obtained illicitly.

Staff who provide syringe exchange services within our partnering community-based organization typically provide education about opioid addiction treatment options to drug users in the surrounding community. It is possible that this education may have contributed to the widespread knowledge and positive attitudes towards buprenorphine in our study population. In addition it is possible that syringe exchange program staff can also reduce barriers to accessing buprenorphine by providing referrals to physicians. Therefore, our findings may reflect the role that the syringe exchange staff plays in providing education and referrals to treatment. Further research is warranted to determine whether engaging with community-based organizations influences drug users' attitudes toward opioid addiction treatment or plays a role in improving access to buprenorphine treatment.

As of 2003, U.S. buprenorphine treatment programs tended to attract prescription opioid users rather than heroin users^{35,36}; the latter composed nearly 90% of our sample. Despite this, our exploratory findings suggest that current heroin users were more likely than non-heroin users to be aware of and have experience with buprenorphine. In addition, current heroin users had more positive attitudes about buprenorphine's effectiveness. Given the disparities between those who need treatment for opioid dependence and those who receive treatment with buprenorphine^{35,36}, these findings are encouraging in that current heroin users appear to be amenable to buprenorphine treatment.

A significant proportion of participants endorsed a statement that people who use illicit buprenorphine will continue to use drugs, suggesting that the need for formal treatment (e.g., office-based opioid treatment in which buprenorphine is prescribed by a physician) is acknowledged by many in our study population. However, a quarter of participants endorsed a statement that prescribed buprenorphine and illicit buprenorphine have similar benefits, with current heroin users more likely to endorse this idea than non-heroin users. These findings present conflicting and inconsistent attitudes about the perception of and need for formal buprenorphine treatment in this population. We are not aware of other studies that have examined these types of attitudes among heroin users or other opiate users. While studies have shown improvements in many outcomes following treatment with prescribed buprenorphine (e.g., reductions in illicit drug use, improvements in HIV viral load, and reductions in high-risk behaviors^{37–40}), we are not aware of studies that have examined outcomes associated with illicit buprenorphine use. Our findings suggest that opioid users need more education about the true benefits of formal buprenorphine treatment and how it

can be accessed. Moving forward, it is important to further explore and address heroin users' attitudes regarding the need for formal treatment, in terms of treatment expectations and the use of illicit versus prescribed buprenorphine.

Our study has limitations. Our sample was a convenience sample of drug users visiting a syringe exchange program in NYC; thus, our findings may not be generalizable to other populations or communities. Because we developed our questionnaire in 2009, when illicit buprenorphine use was thought to be quite minimal, we did not distinguish between prescribed buprenorphine and illicit buprenorphine use. In addition, we asked participants about "benefits" of buprenorphine, which was not pre-defined, and we did not distinguish between buprenorphine used for maintenance therapy versus detoxification. These limitations in our questionnaire make our findings somewhat challenging to interpret. In addition, all data are from self-report and not verified by medical records. Although we do not have clinical diagnoses of opioid dependence among study participants, it is likely that many of the participants would be appropriate candidates for opioid agonist treatment given the majority are injection drug users and have prior histories of methadone treatment.

In summary, the majority of drug users accessing syringe exchange services from a community-based organization in NYC had knowledge of and positive attitudes regarding the effectiveness of buprenorphine treatment. It is possible that when they provide education, staff of syringe exchange programs may influence drug users' knowledge and attitudes. Few believed that buprenorphine was difficult to access, and attitudes were inconsistent regarding the need for formal buprenorphine treatment versus illicit buprenorphine use. Compared with non-heroin users, current heroin users were more likely to be aware of and have experience with buprenorphine, have positive attitudes about buprenorphine's effectiveness, and believe that illicit buprenorphine use and formal buprenorphine treatment have similar benefits. Understanding awareness of, experience with, and attitudes towards buprenorphine is important, as these factors are likely to influence opioid users' decisions about engaging in buprenorphine treatment.

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Table 1

Characteristics of 162 participants visiting a syringe exchange program in New York City.

Characteristic	Total n (%)
Sociodemographic characteristic	
Age, mean years $\pm$ SD	48.3 $\pm$ 9.7
Male	113 (69.75)
Race/Ethnicity	
Hispanic	115 (71.0)
Non-Hispanic Black	36 (22.2)
Non-Hispanic Other	11 (6.8)
Have medicaid	125 (77.2)
High school diploma or equivalency	106 (65.4)
Drug use	
Current drug use (within past 30 days)	
Heroin	79 (48.8)
Methadone	95 (58.6)
Buprenorphine	19 (11.7)
Other prescription opioids	71 (43.8)
Cocaine	68 (42.0)
Sedatives	37 (22.8)
Amphetamines	11 (6.8)
Regular lifetime drug use (> 1 year)	
Heroin	142 (87.7)
Methadone	120 (74.1)
Buprenorphine	27 (16.7)
Other Prescription Opioids	93 (57.4)
Cocaine	128 (79.0)
Sedatives	52 (32.1)
Amphetamines	36 (22.2)
Ever injected drugs	115 (71.0)
Ever treated in a methadone program	119 (73.5)
Buprenorphine awareness and experience	
Has ever heard of buprenorphine	111 (68.5)
Has ever taken buprenorphine	45 (27.8)
Knows of someone who has taken buprenorphine	95 (58.6)

Table 2

Attitudes about buprenorphine among 98 participants visiting a syringe exchange program in New York City

Endorsed statement	Total n (%)
Effectiveness of buprenorphine	
Buprenorphine helps to decrease drug use.	84 (85.7)
Access to buprenorphine	
Buprenorphine is expensive.	23 (23.5)
Buprenorphine is difficult to obtain.	31 (31.6)
Need for formal buprenorphine treatment	
People who use illicit buprenorphine will continue using drugs.	40 (40.8)
People who use illicit buprenorphine have the same benefits as those who get buprenorphine treatment by a physician.	25 (25.5)