Published in final edited form as:

Subst Abus. 2014 ; 35(1): 74–79. doi:10.1080/08897077.2013.804484.

I Heard About It From a Friend: Assessing Interest in Buprenorphine Treatment

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Abstract

Background—In the United States, opioid abuse and dependence continue to be a growing problem, while treatment for opioid abuse and dependence remains fairly static. Buprenorphine treatment for opioid dependence is safe and effective but underutilized. Prior research has demonstrated low awareness and use of buprenorphine among marginalized groups. This study investigates syringe exchange participants' awareness of, exposure to, and interest in buprenorphine treatment.

Methods—Syringe exchange participants were recruited from a mobile unit performing outreach to nine street-side sites in New York City. Computer-based interviews were conducted to determine: (1) opioid users' awareness of, exposure to, and interest in buprenorphine treatment; and (2) the association between awareness or exposure and interest in buprenorphine treatment. Logistic regression models were used to examine the associations between awareness, direct exposure (i.e. having taken buprenorphine), or indirect exposure (i.e. knowing someone who had taken buprenorphine) and interest in buprenorphine treatment.

Results—Of 158 opioid users, 70% were aware of, 32% had direct exposure to, and 31% had indirect exposure to buprenorphine; 12% had been prescribed buprenorphine. Of 138 opioid users who had never been prescribed buprenorphine, 57% were interested in buprenorphine treatment. In multivariate models, indirect exposure was associated with interest in buprenorphine treatment (AOR = 2.65, 95% CI: 1.22 – 5.77), but awareness and direct exposure were not.

Conclusions—Syringe exchange participants were mostly aware of buprenorphine and interested in treatment, but few had actually been prescribed buprenorphine. Because indirect exposure to buprenorphine was associated with interest in treatment, future interventions could

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Contributions:

AF: data analysis, interpretation of results, writing

PS: data collection, draft revision

NS: research conception and design, draft revision

CL: research conception and design, data collection, draft revision

JS: interpretation of results, draft revision

CC: research conception and design, interpretation of results, draft revision

capitalize on indirect exposure, such as through peer mentorship, to address underutilization of buprenorphine treatment.

INTRODUCTION

In the United States, opioid abuse and dependence continue to be a growing problem, while treatment for opioid abuse and dependence remains fairly static (1–3). In 2010, approximately 359,000 persons met criteria for heroin abuse or dependence, and more than 1.9 million met criteria for prescription opioid abuse or dependence; however, admissions to treatment facilities for opioid dependence were only 437,000 (1, 2). Since 2002, buprenorphine has offered a new option for treatment of opioid dependence, but over the last decade, uptake of buprenorphine treatment has only been gradual (4–7). Despite this underutilization, buprenorphine treatment remains safe, effective, and has the potential to narrow the gap between those receiving treatment for opioid dependence and those in need of it (5, 8).

Buprenorphine treatment has several features that may be favorable for patients: the medication may be prescribed by private doctors in an office-based setting, side effects may be more tolerable than methadone, and there is more flexibility in dosing schedule than highly regulated methadone maintenance treatment programs (9–13). However, these perspectives on buprenorphine treatment have mostly been elicited from those who already receive opioid agonist therapy, and it is likely that others who may benefit from treatment are unfamiliar with buprenorphine. Among drug users recruited from non-treatment settings in New York City from 2004–6, less than 4% were aware of buprenorphine and less than 0.2% had ever taken buprenorphine (14). More than five years later, we sought to determine whether awareness of buprenorphine among those who could benefit from treatment is now higher than previously reported.

Narrowing the treatment gap for opioid dependence will require targeting marginalized populations, because multiple barriers prevent these individuals from seeking treatment for opioid dependence. Private addiction treatment facilities have been more likely to offer buprenorphine treatment than government-funded programs (15), and office-based buprenorphine treatment has been most common among whites, prescription opioid users, and in rural settings (16–18); however, small inner-city programs initiating treatment from syringe exchange programs or targeting homeless heroin users have started to reach these populations underrepresented among buprenorphine recipients (19, 20). Syringe exchange programs, which serve a population with high rates of injection drug use, unstable housing, and HIV infection (21–23), offer the potential to target a highly marginalized opioid dependent population; however, in other studies when offered referral to methadone maintenance treatment programs, few syringe exchange participants expressed interest or followed up for treatment (24). Therefore, we sought to gauge interest in buprenorphine treatment among syringe exchange participants, and to determine whether awareness of buprenorphine or past exposure to buprenorphine is associated with interest in buprenorphine treatment.

This study investigates awareness of buprenorphine and interest in buprenorphine treatment among syringe exchange participants with history of opioid use. We hypothesized that awareness of buprenorphine, indirect exposure to buprenorphine (e.g., through a peer), and direct exposure to buprenorphine (i.e., personal experience taking buprenorphine) would all be associated with interest in buprenorphine treatment.

METHODS

This cross-sectional study was a collaboration between [institution blinded for review] and New York Harm Reduction Educators (NYHRE). The overarching goal of the study was to examine awareness of, experience with, and interest in treatment options for opioid dependence, especially buprenorphine treatment, among participants of NYHRE's syringe exchange program. The study was approved by the affiliated institutional review boards.

Setting

We recruited participants of NYHRE's syringe exchange program from a mobile unit that visits nine different street-side outreach sites each week. Outreach sites are located in neighborhoods of the Bronx and Harlem that are severely impacted by drug use and HIV/AIDS. NYHRE is the largest harm reduction agency in New York City and currently serves over 5000 clients annually. At the mobile units, NYHRE provides participants with syringe exchange; referral for medical, dental and addiction treatment; acupuncture; HIV risk reduction education and interventions; HIV case management; and mental health services. The majority of NYHRE's clients are Hispanic or black, male, 40–49 years old, and injection drug users.

Participants

Between July and August 2011, the mobile unit visited one or two of the nine street-side outreach sites daily, and all syringe exchange participants approaching the mobile unit were informed about the study by NYHRE staff. Those who were interested in the study were referred to the research staff. Eligibility criteria included: 1) at least 18 years of age, 2) fluency in English or Spanish, and 3) a history of opioid use. Following referral to the study, research staff described study goals and procedures and obtained informed consent.

Data Collection

Participants completed a 15-minute 38-question interview in a private room at the street-side mobile unit. Interviews were conducted using audio computer-assisted self-interview (ACASI) technology, which displays questions on a computer while playing an audio recording of the question. Participants entered responses directly on the computer. After completing the interview, participants were compensated with a \$4.50 transit pass.

Questionnaire development

In preparing for this study, we conducted 5 qualitative interviews with the target population to better understand the terms used to refer to buprenorphine and the common beliefs about addiction treatment that may also apply to buprenorphine treatment. We pilot tested preliminary questions with 20 opioid users, and we used cognitive interviewing techniques to assess participants' understanding of the constructs addressed by each question. We modified several questions to enhance clarity. We then conducted a small (N=20) test-retest study to evaluate the concordance of the data collected at a 3-day interval. Items were again revised into the current, final questionnaire.

Measures

There were two main independent variables: awareness of buprenorphine and exposure to buprenorphine.

Awareness—To measure awareness, we asked participants whether they had heard of buprenorphine, Suboxone, Subutex, or “the orange pill or the pill that you put under your tongue.” Participants' responses (yes/no) were used as a dichotomous variable for analyses.

Exposure—Exposure to buprenorphine was considered to be direct (i.e. the participant had taken buprenorphine) or indirect only (i.e. the participant knew someone who took buprenorphine but had not taken it themselves). To measure direct exposure, we asked whether participants had taken buprenorphine to help cut down or stop using opiates. Participants who reported any lifetime buprenorphine use on the Addiction Severity Index (ASI) were also considered to have direct exposure (25). This included participants who had been prescribed buprenorphine and those who had taken buprenorphine from non-prescribed sources. To measure indirect exposure, we asked whether participant knew someone who had used buprenorphine to help cut down or stop using opiates. Because participants' own experiences were likely stronger influences on interest than the experience of others, participants reporting both exposures were considered to have direct exposure (not indirect only exposure). These exposures (direct and indirect only) were only assessed among participants who were aware of buprenorphine, and in analyses, they were used as dichotomous (yes/no) variables.

Interest—We asked participants to indicate if they were interested in buprenorphine treatment, which was the outcome variable. We chose this outcome because interest in treatment indicates that an individual is considering problem resolution, an important step in changing addictive behaviors (26).

Covariates—Other data collected during the interviews included: demographic characteristics (age, gender, race/ethnicity, education, health insurance); current and lifetime substance use (from the ASI); experiences with different treatment options for opioid dependence, including participation in methadone maintenance treatment, buprenorphine treatment, and non-pharmacological treatment (e.g., individual and group counseling); and syringe exchange site of recruitment.

Data Analysis

First, we calculated frequencies for awareness, direct and indirect exposure, and interest among all participants. Next, we calculated separately the number of participants who had been prescribed buprenorphine and those who took buprenorphine from non-prescription sources. We excluded those who had been prescribed buprenorphine because we were most interested in buprenorphine's potential to expand access to those not in treatment. In the remaining sample, we performed unadjusted and multivariate logistic regression with interest as the dependent variable. Because of co-linearity between the variables of awareness and exposure, we used separate regression models for each main independent variable: one model with awareness, one model with direct exposure, and one model with indirect only exposure as the main independent variable. Variables that were associated ($p < 0.20$) with interest in buprenorphine treatment in bivariate logistic regression models, and were not co-linear with other variables, were included in the final multivariable logistic regression models. These were current cocaine use and history of methadone maintenance treatment. All analyses were conducted using STATA v11 (College Station, Tx).

RESULTS

Participant Characteristics

Among syringe exchange participants, 199 were referred to the study, 185 met inclusion criteria and completed the questionnaire, and 158 persons with a history of regular opioid use in their lifetime were included in the analysis. The mean age was 48.3 years, and most participants were male (69%), Hispanic (71%), had Medicaid (78%), and reported a lifetime history of heroin use (91%), which was representative of the syringe exchange program as a whole. Active substance use was common, with 80 (51%) reporting heroin use in the past 30

days, 67 (42%) with cocaine use, 95 (60%) with methadone use, and 66 (42%) with prescription opioid use. Most also reported a history of injection drug use 116 (73%) and experience with opioid addiction treatment 140 (89%) (see Table 1).

Awareness of and Exposure to Buprenorphine

Overall, 110 (70%) participants were aware of buprenorphine, 50 (32%) had direct exposure to buprenorphine (i.e. had taken buprenorphine), and 49 (31%) had indirect only exposure to buprenorphine (i.e. knew someone who took buprenorphine but had not taken it themselves). Of the 48 participants who were unaware of buprenorphine, 40 had used an opiate in the previous 30 days, including 19 who had used heroin. Nineteen participants (12%) had previously been prescribed buprenorphine and were excluded from additional analyses.

Among the 138 participants never prescribed buprenorphine, 91 (66%) were aware of buprenorphine. Of these 91, 31 (22 %) had direct exposure to buprenorphine. Forty-eight (35%) had indirect only exposure, and 12 (9%) were aware of buprenorphine but had no direct or indirect exposure to it (see Table 2).

Interest in Buprenorphine Treatment

Seventy-eight (57%) of the 138 participants who had never been prescribed buprenorphine were interested in buprenorphine treatment. In unadjusted analysis, awareness of buprenorphine was significantly associated with interest (OR = 2.08, 95% CI: 1.02–4.24). Indirect only exposure was significantly associated with interest (OR = 2.67, 95% CI: 1.27 – 5.64), but direct exposure was not (OR = 1.29, 95% CI: 0.57 – 2.92). In multivariate models adjusting for current cocaine use and history of methadone maintenance treatment, awareness of buprenorphine was no longer significantly associated with interest (AOR = 1.80, 95% CI: 0.86 – 3.77). Indirect only exposure remained significantly associated with interest after adjustment for these covariates (AOR = 2.65, 95% CI: 1.22 – 5.77).

DISCUSSION

In this cross sectional study of awareness of and interest in buprenorphine treatment among syringe exchange participants with a history of opioid use, we found that nearly 70% of participants were aware of buprenorphine, 32% had taken buprenorphine, and 12% had been prescribed buprenorphine. Most (57%) participants who had never been prescribed buprenorphine were interested in it. Having only indirect exposure to buprenorphine, that is knowing someone who took buprenorphine but not having tried buprenorphine, was strongly associated with interest in buprenorphine treatment, and remained statistically significant after adjustment for confounders. Together, these findings suggest that buprenorphine awareness has expanded in the community, but awareness alone may not foster interest in treatment; however, the strong association between indirect exposure to buprenorphine and interest may hold promise for interventions seeking to increase entrance into buprenorphine treatment.

Our study adds to the existing literature by demonstrating high levels of interest in buprenorphine treatment among a highly marginalized group of syringe exchange participants. In prior studies, up to 25% of syringe exchange participants have expressed interest in referral to methadone maintenance treatment programs (27), while in our study, participants expressed interest in buprenorphine treatment twice as often. This is promising, but it is still unknown how well interest in treatment leads to entrance into treatment, and in one study, only 5% of referrals from syringe exchange programs resulted in initiation of methadone treatment (24). Therefore, interventions that promote both interest in buprenorphine treatment and facilitate linkage to treatment are likely to be necessary.

The study also demonstrates a higher level of buprenorphine awareness than has previously been documented (70% vs. 4%) in non-treatment settings (14). The previous study was also conducted in New York City, so differences may reflect an increase in awareness over time or could reflect sample differences between syringe exchange participants and the street drug users previously studied. In contrast, awareness of buprenorphine was even higher (96%) among those seeking treatment of opioid dependence at two sites in Vermont and central Massachusetts (28), or attending a hospital-based syringe exchange program in Rhode Island (29), but those findings cannot be extrapolated to non-treatment settings. This is important because lack of awareness of buprenorphine among opioid users has been cited as a barrier to entering buprenorphine treatment (7). This lack of awareness was not common among our study participants, but we did identify an important group of opioid users (including 19 heroin users) who were unaware of buprenorphine treatment and could be targeted by outreach efforts. Additionally, syringe exchange participants who are aware of buprenorphine treatment may lack other knowledge, for example, regarding buprenorphine's effectiveness or safety, which may influence interest in and utilization of buprenorphine treatment. This area warrants additional investigation. To date, most studies have examined programmatic or health system-level barriers to buprenorphine treatment (7, 9, 30–37). Our study begins to investigate patient-level barriers to treatment (i.e. lack of awareness or lack of interest), but additional studies from the perspective of opioid users, such as perceived access to treatment, are also warranted.

Our finding that only indirect exposure to buprenorphine was associated with interest in treatment also deserves additional exploration. It is possible that knowing someone who took buprenorphine demystified the process of buprenorphine treatment or even created a positive role model for recovery, but we did not investigate this in the current study. Social networks can enhance addiction-related behavior change. For example, having more social network members in addiction treatment has been associated with entering into addiction treatment among heroin and cocaine users (38); smoking cessation behaviors appear to spread through social networks via close or distant social ties (39); and peer relationships have been used extensively in 12-step programs and therapeutic communities to enhance addiction treatment (40–43). Interventions that capitalize on social networking to encourage opioid users to enter buprenorphine treatment should be tested in prospective studies.

Our study has limitations. First, the outcome variable, interest in buprenorphine treatment has several limitations: it is an intermediate outcome and does not reflect entrance into or success with treatment; it was measured dichotomously, while interest in or motivation for seeking treatment are often considered on a continuum; and we did not assess the aspects of treatment in which participants were interested. Second, we surveyed a convenience sample of syringe exchange participants in New York City, which included a high proportion of Hispanic participants, so our findings may not be representative of all opioid users or other geographic areas. Disparities in access to addiction treatment have been demonstrated based on race or ethnicity (44), but to date, potential differences in attitudes toward buprenorphine treatment based on race or ethnicity have not been studied. Third, DSM-IV diagnostic criteria were not assessed in the study, so there is some uncertainty about whether all participants fulfilled criteria for opioid dependence; however, it is likely that most would be candidates for buprenorphine treatment. Fourth, with a small number of participants with direct exposure to buprenorphine, the lack of an association with interest in buprenorphine treatment could be from inadequate power. Finally, our cross sectional study cannot draw definitive conclusions about causation. The relationship we established between indirect exposure to buprenorphine and interest in treatment with it remains, for the present, a strong association and not yet one of causation.

Engaging opioid users in addiction treatment continues to be a challenge, and with rapidly increasing rates of opioid abuse (45, 46), the need to provide treatment options that are effective, accessible, and acceptable to patients grows more urgent. Our data shows that syringe exchange participants, a marginalized group with high need for treatment of opioid dependence, are mostly aware of buprenorphine and interested in treatment, but few had actually been prescribed buprenorphine. These findings suggest that outreach efforts that seek to increase utilization of buprenorphine treatment need to go beyond awareness campaigns, and interventions that increase exposure to individuals in treatment, such as peer mentorship, could be effective and should be evaluated. Ultimately, reducing the treatment gap relating to opioid dependence will likely require many interventions, but with high levels of interest in buprenorphine treatment among opioid users, this medication continues to hold great promise.

Acknowledgments

This study was supported by NIH R34DA031066; the Center for AIDS Research at the Albert Einstein College of Medicine and Montefiore Medical Center (NIH AI-51519); NIH R25DA023021; and NIH K23DA034541. A portion of this data was presented at the 36th Annual Meeting of the Association for Medical Education and Research in Substance Abuse in Bethesda, MD on November 1st, 2012.

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Table 1

Characteristics of syringe exchange participants with history of opioid use (n = 158)

Characteristic	N (%)
Age, mean years $\pm$ SD	48.3 $\pm$ 9.7
Male	109 (69.0)
Race/Ethnicity	
Hispanic	112 (70.9)
Non-Hispanic Black	35 (22.2)
Non-Hispanic Other	11 (6.9)
Medicaid	123 (77.9)
High school diploma or equivalency	103 (65.2)
Ever injected drugs	116 (73.4)
Current substance use ^a	
Heroin	80 (50.6)
Methadone	95 (60.1)
Other prescription opioids	66 (41.8)
Buprenorphine	18 (11.4)
Cocaine	67 (42.4)
Lifetime drug use ^b	
Heroin	143 (90.5)
Methadone	116 (73.4)
Other Prescription Opioids	77 (48.7)
Cocaine	126 (79.8)
Treatment History	
Methadone maintenance	120 (76.0)
Non-pharmacologic treatment	132 (83.5)
Buprenorphine treatment	19 (12.0)
Any opioid addiction treatment	140 (88.6)
Aware of buprenorphine	110 (69.6)
Buprenorphine Exposure	
Direct ^c	50 (31.7)
Indirect Only ^d	49 (31.0)
Interest in Buprenorphine Treatment	89 (56.3)

^a within the previous 30 days^b regular use within lifetime^c had taken buprenorphine^d knowing someone who took buprenorphine

Table 2Interest in buprenorphine treatment among syringe exchange participants with history of opioid use (N = 138)^a

Characteristic	Interested in Treatment	
	Yes (N= 78)	No (N = 60)
Aware of buprenorphine	57 (73.1)	34 (56.7) *
Direct Exposure	19 (24.4)	12 (20.0)
Indirect Only Exposure	34 (43.6)	14 (23.3) *
Age, mean years $\pm$ SD	48.2 $\pm$ 9.4	50.0 $\pm$ 9.8
Male	50 (64.1)	41 (68.3)
Race/Ethnicity		
Hispanic	54 (69.2)	42 (70.0)
Non-Hispanic Black	18 (23.1)	16 (26.7)
Non-Hispanic Other	6 (7.7)	2 (3.3)
Medicaid	61 (78.2)	47 (78.3)
Finished HS or equivalent	50 (64.1)	41 (68.3)
Ever injected drugs	58 (74.4)	39 (65.0)
Current substance use ^b		
Heroin	35 (44.9)	28 (46.7)
Methadone	55 (70.5)	35 (58.3) **
Buprenorphine	8 (10.3)	2 (3.3) **
Other Prescription		
Opioids	31 (39.7)	27 (45.0)
Cocaine	36 (46.2)	21 (35.0) **
Treatment History		
Methadone Maintenance	63 (80.8)	41 (68.3) **
Non-pharmacologic Treatment	66 (84.6)	47 (78.3)

^a 1 excluded for missing data, 19 excluded because previously prescribed buprenorphine^b within the previous 30 days*
p < 0.05**
p < 0.20