Published in final edited form as:
Drug Alcohol Depend. 2012 April 1; 122(1-2): 55–60. doi:10.1016/j.drugalcdep.2011.09.009.

African American Patients Seeking Treatment in the Public Sector: Characteristics of Buprenorphine v. Methadone Patients

Shannon Gwin Mitchell[a,*], **Sharon M. Kelly**[a], **Jan Gryczynski**[a], **C. Patrick Myers**[b], **Jerome H. Jaffe**[a], **Kevin E. O'Grady**[c], **Yngvild K. Olsen**[d], and **Robert P. Schwartz**[a]

[a]Friends Research Institute, Inc., 1040 Park Avenue, Suite 103, Baltimore, Maryland 21201, USA

[b]PM&A Consulting, P.O. Box 26276, Baltimore, Maryland 21210 USA

[c]University of Maryland, College Park, Department of Psychology, College Park, Maryland 20742, USA

[d]Baltimore Substance Abuse Systems, One North Charles Street, Suite 1600, Baltimore, Maryland 21201 USA

Abstract

Background—To expand its public-sector treatment capacity, Baltimore City made buprenorphine treatment accessible to low-income, largely African American residents. This study compares the characteristics of patients entering methadone treatment *v.* buprenorphine treatment to determine whether BT was attracting different types of patients.

Methods—Participants consisted of two samples of adult heroin-dependent African Americans. The first sample was newly-admitted to a health center or a mental health center providing buprenorphine (*N*=200), and the second sample was newly-admitted to one of two hospital-based methadone programs (*N*=178). The Addiction Severity Index (ASI) and the Friends Supplemental Questionnaire were administered at treatment entry and data were analyzed with logistic regression.

Results—BT participants were more likely to be female (*p*=.017) and less likely to inject (*p*=.001). Participants with only prior buprenorphine treatment experience were nearly five time more likely to enter buprenorphine than methadone treatment (*p*<.001). Those with experience with both treatments were more than twice as likely to enter BT (OR=2.7, *95% CI*=1.11–6.62; *p*=.028). In the 30 days prior to treatment entry, BT participants reported more days of medical problems (*p*=.002) and depression (*p*=.044), and were more likely to endorse a lifetime history of depression (*p*<.001).

*Corresponding author: Friends Research Institute, Inc., 1040 Park Avenue, Suite 103, Baltimore, MD 21201, USA. Tel.: +1 410 837 3977, ext. 238; Fax: +1 410 752 4218. smitchell@friendsresearch.org.

Contributors

Drs. Schwartz, Jaffe and O'Grady designed the Interim Methadone study. Drs. Mitchell, Schwartz, O'Grady, and Jaffe designed the Buprenorphine study. Drs. Mitchell and Schwartz managed the literature searches and summaries of previous related work. Mr. Myers, Dr. Kelly, and Mr. Gryczynski undertook the statistical analysis, under the direction of Dr. O'Grady. Drs. Mitchell and Schwartz wrote the first draft of the manuscript, which was revised and edited by all authors. All authors contributed to and have approved the final manuscript.

Conflict of Interest

Dr. O'Grady has consulted with Reckitt Benckiser Pharmaceuticals, Inc. Other authors report no conflicts of interest.

Conclusion—Methadone and buprenorphine treatment provided in the public sector may attract different patient subpopulations. Providing buprenorphine treatment through drug treatment programs co-located with a health and mental health center may have accounted for their higher rates of medical and psychiatric problems and appears to be useful in attracting a diverse group of patients into public-sector funded treatment.

Keywords

methadone; buprenorphine; African American patients; treatment entry

1. Introduction

Over the past 40 years, opioid-dependent individuals seeking pharmacotherapy have often been unable to obtain such treatment because of waiting lists, inadequate insurance coverage, and/or bureaucratic issues (Peterson et al., 2008; Schwartz et al., 2006). However, others did not seek care because of negative attitudes toward methadone (Stancliff et al., 2002; Rosenblum et al., 1991; Beschner and Walters, 1985; Peterson et al., 2010).

Since 1995, when France permitted physicians to prescribe buprenorphine, there has been a sharp increase in treatment coverage for its heroin-dependent population and a corresponding sharp reduction in opiate-related overdose deaths in that country (Auriacombe et al., 2004). Sublingual buprenorphine became available in the US in 2002, after it was approved by the FDA for the treatment of opioid dependence and Congress passed legislation that permitted its prescription outside the highly restrictive conditions imposed on methadone treatment (Jaffe and O'Keeffe, 2003). In its early stages of availability, there was limited public subsidy of buprenorphine for uninsured or indigent patients who could not afford to see a physician. Initial studies indicated that buprenorphine was largely being prescribed for more affluent or well-insured patients, rather than serving as an alternative treatment for marginalized minority populations who had been treated with methadone in the past (Stanton, 2006).

In response to this disparity and to increase access to buprenorphine in the publicly-funded treatment system, Baltimore City, Maryland developed a special program, termed the Baltimore Buprenorphine Initiative (BBI). Launched in 2006, the initiative facilitated the adoption of buprenorphine in drug abuse treatment programs funded through public grant dollars and took advantage of Maryland Medicaid's coverage of buprenorphine medication and primary care physician services through the Primary Adult Care (PAC) program. State and city grant funds support the use of buprenorphine for uninsured patients in formerly "drug-free" outpatient programs, a sector serving a predominantly low-income African American population. After a period of stabilization during which they obtain health insurance, primarily PAC Medicaid, patients can transfer to physicians in primary care settings to continue office-based buprenorphine treatment. Since its inception in 2006 through 2010, this system of care has treated over 3,753 patients.

In 2010, we began a randomized clinical trial to study the outcomes of buprenorphine treatment among African Americans randomly assigned to either intensive outpatient or standard outpatient treatment. Nearly contemporaneously with the above-mentioned trial, we conducted a separate clinical trial comparing standard methadone treatment to interim methadone treatment, in which patients who ordinarily would have been on a waiting list were given methadone with emergency counseling only for the first 4 months (Schwartz et al., 2011). These two studies afforded us the opportunity to examine the characteristics of opioid-dependent African Americans who sought methadone as opposed to buprenorphine treatment within a publicly-funded system.

2. Methods

2.1 Participants

This secondary analysis study was conducted with data drawn from African American participants enrolled in one of two separate randomized clinical trials conducted in Baltimore City, Maryland with opioid-dependent adults seeking opioid agonist treatment. Both parent studies were approved by the Friends Research Institute Institutional Review Board (IRB) as well as the IRBs of the participating institutions, and all participants provided informed consent. Because the focus of the present study was on the characteristics of African Americans seeking opioid agonist treatment, we excluded non-African American participants in the two parent studies (11 in the buprenorphine study and 52 in the methadone study) from this analysis.

The methadone sample consisted of African American heroin-dependent adults newly admitted to one of two methadone treatment programs (MTPs) between May 2008 and January 2010 and who had enrolled in a randomized trial comparing interim methadone (methadone treatment without counseling for 4 months) *v.* methadone treatment with standard counseling (Schwartz et al., 2011). Participants were recruited by study research assistants within a few days of their methadone program admission if they were at least 18 years old and had met criteria for admission to the MTPs as determined by clinical staff (at least one year of meeting DSM-IV criteria for opioid dependence). New admissions were excluded from study participation in the parent study if they were pregnant or had an acute medical or psychiatric disorder that required immediate treatment.

The buprenorphine sample was drawn from the first 218 opioid-dependent African American adults who enrolled in the randomized clinical trial of intensive outpatient vs. outpatient treatment with buprenorphine. The inclusion criteria for that trial was quite similar to the methadone study and required study participants to be at least 18 years of age, and to be admitted to buprenorphine treatment in one of two outpatient drug abuse treatment programs, both of which required patients to meet DSM-IV criteria for opioid dependence upon admission. Exclusion criteria were the same as those for the methadone study described above. New treatment admissions were approached by the study's research assistants and recruited into the study within 3 days of treatment entry.

2.2 Sites

The methadone study was conducted at two MTPs in Baltimore City, one located at a community hospital in the northern part of the city and the other at a university hospital in downtown Baltimore City. The buprenorphine study was conducted at two buprenorphine programs, both in downtown Baltimore City, one located at a Federally Qualified Health Center and the other in an outpatient community mental health clinic. All programs were located within five miles of one another and drew patients from throughout the city for treatment via numerous referral pathways (e.g., the city's drug treatment hotline or personal referrals). In addition to pharmacotherapy, all the programs offered group treatment sessions focusing on topics of interest to participants (e.g., disease of addiction, relapse prevention) as well as individual drug treatment counseling sessions.

2.3 Procedures

All participants were interviewed at treatment entry (baseline) by research staff and received compensation for the interviews ($15 for the methadone study and $30 for the buprenorphine study). Assessments in both studies were administered prior to random assignment by trained interviewers. Interviewers were not blinded, however, to study

medication, as all participants in their respective studies received either buprenorphine or methadone.

2.4 Measures

Assessments from both studies were conducted as face-to-face interviews with trained research assistants at treatment entry and included the Addiction Severity Index (ASI) and the Friends Research Institute's (FRI) Supplemental Questionnaire.

Addiction Severity Index (ASI): The ASI (fifth edition) assesses patient functioning through an interview covering seven key domains (drug use, alcohol use, legal, medical, psychiatric, employment, and family functioning and social relations) over the preceding 30 days and during the participant's lifetime (McLellan et al., 1985). The ASI has been successfully utilized in a variety of minority populations, including African Americans.

FRI Supplemental Questionnaire: This questionnaire contains more detailed questions about drug abuse treatment history than does the ASI, including questions about prior buprenorphine or methadone treatments.

2.5 Statistical Analysis

2.5.1 Variables—The study's dependent variable was choice of treatment – whether a participant had enrolled in methadone or buprenorphine treatment.

The explanatory variables, described below and shown in Table 1, are arranged according to major domain of interest. All items below were drawn from the ASI except for drug abuse treatment history, which was obtained from the FRI supplemental questionnaire.

Demographics: Demographic variables included age and gender, which were treated as control variables.

Drug Use/Treatment History: Drug use variables included the number of lifetime years of heroin and cocaine use by participants, whether the participant reported heroin use by injection, and whether the participant had used cocaine in 30 days prior to study enrollment. A categorical variable representing opioid pharmacotherapy treatment history was created, and included prior methadone treatment only, buprenorphine treatment only, both types of treatment, or no previous experience with buprenorphine or methadone treatment (reference category).

Legal: Legal items included the participant's lifetime number of months of incarceration, whether the participant reported being currently on probation or parole, and whether the participant engaged in income-generating criminal activity in the 30 days prior to enrollment.

Mental/Physical Health: Three variables representing health status were included: the number of days of medical problems, whether participants had experienced depression in the past 30 days, and whether the participant had ever experienced depression in their lifetime.

Employment: Employment status was assessed using the length of the participant's longest full-time job and whether the participant reported working in the 30 days prior to enrollment.

2.5.2 Statistical Methods—Initial analysis consisted of simple univariate comparisons of those entering methadone and buprenorphine treatment using χ^2 tests of independence and

independent-samples *t* tests. Due to the binary nature of the dependent variable, multivariable logistic regression was used to examine the relationships between the explanatory variables and choice of pharmacotherapy, partialling out the effects of the control variables of gender and age. A series of logistic regression models were then estimated to examine differences in patient characteristics by treatment group. All explanatory variables were used to create a preliminary model with age and gender included in the model. All subsequent models included age and gender as control variables. Explanatory variables were retained in a final model if they were significant at the .05 level in the preliminary model, or if the variable had theoretical or conceptual value. After the final model was determined, each of the variables that were dropped from the preliminary model was tested by adding them to the final model individually to determine whether confounding or interactions of other variables that had been dropped were responsible for masking significant relationships to the dependent variable.

3. Results

3.1 Participant Characteristics

Participant characteristics for the total sample of 378 (N = 178 in the methadone sample and 200 in the buprenorphine sample) are shown in Table 1. Based on bivariate comparisons, participants enrolling in buprenorphine treatment were more likely to be women (41.5% *v.* 29.2%, p = .017) than methadone participants. The mean age of the total sample was 46.1 (SD = 6.1). Although there were statistically significant differences in age between the groups (p = .009), the actual mean difference of 1.6 years was clinically unimportant.

Heroin was the primary opiate of abuse for both the buprenorphine and methadone samples, and no participants in the study were heroin-naïve. Significantly fewer of the buprenorphine patients were intravenous heroin users (21.5% *v.* 38.2%, p = .001). There were no significant differences between the treatment groups in terms of the number of lifetime years using heroin or cocaine or the number of days of cocaine use in the 30 days prior to study enrollment (all ps > .05). In terms of lifetime drug abuse treatment experience, 30.7% of the total sample reported only prior methadone but not buprenorphine treatment experience, with significantly more methadone patients than buprenorphine patients reporting only such treatment in the past (42.1% *v.* 20.5%, p < .001). Similarly, 18.3% of the total sample reported having had only buprenorphine treatment in the past, with the buprenorphine patients more likely than the methadone patients to have had prior buprenorphine treatment only (28.0% vs. 7.3%, p < .001). Finally, 13.0% of the total sample reported having experience with both treatments, with a significantly higher percentage of the buprenorphine sample than the methadone sample reporting such treatment experiences (20.0% *v.*5.1%, p < .001).

There were no significant differences between the groups in terms of their parole and probation status (41% of the total sample currently on parole or probation) or the number of months they had been incarcerated during their lifetime (mean for the total sample of 51.5 months; both ps > .05).

With regard to mental and physical health, the buprenorphine group reported a significantly higher mean number of days of medical problems in the 30 days prior to the baseline interview (4.7 *v.* 1.2, p < .001). A significantly higher percentage of the buprenorphine group reported having any days of depression in 30 days prior to treatment entry than the methadone group (25.5% *v.* 3.9%, p < .001), and buprenorphine participants were also significantly more likely to report experiencing serious depression in their lifetime (45.0% *v.* 14.0%, p < .001).

In terms of employment, there were no statistically significant differences in the length of the longest full-time job or the number of days worked in the 30 days prior to enrollment (both *p*s > .05).

3.2 Results of Logistic Regression Analyses

The findings from the analysis of the preliminary model using all of the explanatory variables are shown in Table 2, and the results of the final logistic regression analysis are shown in Table 3.

The variables retained for the final model predicting group differences were the control variables age and gender as well as the route of heroin administration, prior methadone treatment only, buprenorphine treatment only, both treatments, the number of days of medical problems in the 30 days prior to enrollment, whether the participant had any days of depression in the past 30 days, and lifetime history of depression. In the case of prior methadone treatment only (despite $p = .055$ in the preliminary model), this variable was included because it accounts for variance of the construct of prior treatment.

The final logistic regression analysis confirmed the bivariate findings regarding age, as older participants were more likely to have entered buprenorphine treatment (*OR*=1.09, *95% CI* = 1.04 – 1.14; $p < .001$) than methadone treatment, although 1.6 years age difference between the groups may not be considered important. Injection heroin users were less likely to enter buprenorphine treatment (*OR* = 0.42, *95% CI* = 0.23–0.76; $p = .004$).

Prior experience with buprenorphine treatment only and prior experience with both buprenorphine and methadone treatment were associated with entering buprenorphine treatment. Relative to those without methadone or buprenorphine treatment experience, participants with previous buprenorphine treatment only had nearly 5 times higher odds of entering buprenorphine than methadone treatment (OR = 4.54, *95% CI* = 2.11 – 9.76; $p <$ .001). Those with experience with *both* methadone and buprenorphine treatment had nearly three times higher odds of entering buprenorphine (OR = 2.7, *95% CI* = 1.11 – 6.62; $p = .028$). Those with methadone treatment experience only did not differ significantly from the opioid pharmacotherapy-naïve in choice of treatment (OR= 0.56, *95% CI* = 0.31 –1.01; $p = .055$).

Participants entering the two treatment modalities also differed on health history variables. Number of days of medical problems during the 30 days prior to enrollment (OR=1.07, *95% CI* = 1.03 – 1.12; $p = .002$), past 30-day depression (OR=2.8, *95% CI* = 1.03–7.56; $p = .044$), and lifetime history of depression (OR=4.11, *95% CI* = 2.08–8.10; $p < .001$) each had an independent positive association with entering buprenorphine treatment.

4. Discussion

This study provides a look at the characteristics of opioid-dependent African Americans who were seeking opioid pharmacotherapy in a large US city where access barriers to publicly-funded treatment for both methadone and buprenorphine had been sharply reduced by the use of interim methadone and the availability of buprenorphine in the public sector. Early descriptions of patients receiving buprenorphine treatment after it was made available in the US outside of opioid treatment programs (OTPs) found that buprenorphine patients were more likely to be white, employed, and generally more affluent (Stanton, 2006). However, these early findings may have been an artifact of buprenorphine's availability through private physicians' offices, limiting care to the insured or more affluent. As policy makers incorporated buprenorphine treatment into publicly-funded drug abuse treatment,

uninsured or underinsured patients in urban settings began to have a choice in opioid agonist treatments and the settings in which to receive such treatment.

In the present study, patients entering the buprenorphine programs as compared to the methadone programs were more likely to report medical problems and depression in the 30 days prior to treatment entry, and to have a lifetime history of depression. Since the buprenorphine programs that were studied were located in a community health center and in an outpatient mental health center, the differences between the two groups of patients may have been influenced by the location and service mix offered by the programs. Although the drug abuse counseling and buprenorphine provided in these two programs were co-located but not integrated with the other services, both medical and psychiatric care were available to patients in the buildings in which the drug treatment program was housed. It is possible that these services influenced the selection of the locus of care, rather than the fact that buprenorphine but not methadone was offered.

The regulatory flexibility afforded by buprenorphine treatment in the US which permits its delivery outside the constraints of specially-licensed OTPs increases the potential for integrated and co-located services, as well as increased treatment availability and greater convenience for patients. It also permits patients to receive agonist therapy where their other health needs can be met. Since there is some evidence that integrated drug abuse treatment and primary care improves services delivery to opioid-dependent patients with health problems (Umbricht-Schneiter et al., 1994), this can be seen as an additional benefit of a more flexible treatment delivery model. The study's findings also suggest that African American patients may be more attracted to buprenorphine than methadone because of a need for additional health and/or mental health services that are offered on site.

The majority of participants within each sample were non-intravenous heroin users, however, we found that individuals entering buprenorphine treatment were less likely to use heroin by injection compared to individuals entering methadone treatment. The reason for this difference is not entirely clear. Methadone is a full opioid agonist whereas buprenorphine is a partial opioid agonist. It is possible that individuals with a history of injection believed that they required a stronger medication and, hence, chose methadone treatment. A recent Cochrane review found that buprenorphine at medium (8–15 mg daily) and higher doses (16 mg) reduced opioid use compared to placebo but not as effectively as methadone at doses between 60 and 120 mg daily (Mattick et al., 2008).

Previous exposure to buprenorphine treatment, regardless of previous methadone treatment exposure, appeared to increase patients' propensity to seek buprenorphine treatment. It is possible that African Americans with previous buprenorphine treatment experience but no prior methadone treatment experience had positive experiences with buprenorphine in the past and chose to try it again. Alternatively, this group may have originally chosen to enter buprenorphine treatment because of negative beliefs or attitudes regarding methadone. Individuals with both prior treatment experiences were significantly more likely to enter buprenorphine treatment than methadone treatment. This suggests that patients who have relapsed and have chosen to re-enter treatment may have been reluctant to re-enter methadone treatment. Studies over the past four decades indicate that some segment of the opioid-dependent population does not want to receive methadone treatment because of stigma and negative beliefs regarding the medication (Zweben and Sorensen, 1988) and its lack of availability during incarcerations (Mitchell et al., 2009). There are some features of buprenorphine that may make it more acceptable to patients compared to methadone, including the less severe withdrawal upon discontinuation and the generally faster rate of accruing take-home medication privileges.

Several limitations of this study should be noted. While the linkage of data from two contemporaneous clinical trials represents a useful approach to the research question, it also presents some inherent challenges. Since we did not start out in these two RCTs to understand why patients chose to enter methadone or buprenorphine treatment, neither of the studies asked participants why they selected the particular program they entered. The research is based on a total of four programs (two methadone programs and two outpatient buprenorphine programs). While these programs are thought to resemble other programs of their kind within the Baltimore treatment system, the limited number of sites may adversely impact generalizability. In a related limitation, we are unable to tease apart the effects of site characteristics that could impact on choice of treatment, above and beyond the opioid medications offered. For example, it is possible that the greater health impairment of the buprenorphine group may be an artifact of individuals gravitating to sites where more medical or psychiatric services are available, although this also might have been the case in the two hospital-based MTPs. Future research should examine whether the higher levels of medical and psychiatric problems reported among our buprenorphine sample can be replicated, and if so, whether it is the medication or the treatment settings within which buprenorphine programs can be placed that attracts this specific high-need population.

Another study limitation concerns generalizability to other treatment systems and patient populations. Rates of injection drug use, as well as use of drugs other than heroin or cocaine, were quite low in both samples. The sample consisted of heroin users, and no one reported use of other opioids by the injection route (which would include injection of diverted buprenorphine). Future research may want to more specifically address the manner in which buprenorphine was previously used and how that might influence a person's selection of treatment programs. It is possible that treatment entry patterns may differ in populations with different substance use profiles.

As this work progresses, we will be able to compare the outcomes of the participants in these two RCTs. These findings will help to shed light on the outcomes of African Americans who seek methadone as compared to buprenorphine treatment. Future research should continue to identify patient, medication, and service model characteristics that impact choice of treatment among opioid-dependent individuals. This line of inquiry will be important as treatment options expand with the advent of new medications and novel formulations of existing medications (Ling et al., 2010; Comer et al., 2007).

Acknowledgments

Role of Funding Source

Funding for this study was provided by1RC1DA028407-01 and 2 R01 13636 from the National Institute on Drug Abuse, which did not play a role in study design; in the collection, analysis and interpretation of data; in the writing of the report; or in the decision to submit the paper for publication.

We thank that National Institute on Drug Abuse for funding the study, as well as the participating treatment programs for their clinical assistance: Total Health Care, Partners in Recovery, Sinai Hospital Addiction Recovery Program, and the University of Maryland Drug Treatment Center. Finally, we thank Melissa Irwin and Beth Ruppert for their assistance with manuscript preparation.

References

Auriacombe M, Fatseas M, Dubernet J, Daulouede JP, Tignol J. French field experience with buprenorphine. Am J Addict. 2004; 13(Suppl 1):S17–28. [PubMed: 15204673]

Beschner, GM.; Walters, JM. Just another habit? Heroin users' perspective on treatment. In: Hanson, B.; Beschner, G.; Walters, JM.; Bovelle, E., editors. Life With Heroin: Voices from the Inner City. Lexington Books; Lexington, Mass: 1985.

Comer SD, Sullivan MA, Hulse GK. Sustained-release naltrexone: novel treatment for opioid dependence. Expert Opin Investig Drugs. 2007; 16:1285–1294.

Jaffe JH, O'Keeffe C. From morphine clinics to buprenorphine: regulating opioid agonist treatment of addiction in the United States. Drug Alcohol Depend. 2003; 70(Suppl 2):S3–S11. [PubMed: 12738346]

Ling W, Casadonte P, Bigelow G, Kampman KM, Patkar A, Bailey GL, Rosenthal RN, Beebe KL. Buprenorphine implants for treatment of opioid dependence: a randomized controlled trial. JAMA. 2010; 304:1576–1583. [PubMed: 20940383]

Mattick RP, Kimber J, Breen C, Davoli M. Buprenorphine maintenance versus placebo or methadone maintenance for opioid dependence. Cochrane Database Syst Rev. 2008; (2):CD002207.10.1002/14651858.CD002207.pub3 [PubMed: 18425880]

McLellan AT, Luborsky L, Cacciola J, Griffith J, Evans F, Barr HL, O'Brien CP. New data from the Addiction Severity Index. Reliability and validity in three centers. J Nerv Ment Dis. 1985; 173:412–423. [PubMed: 4009158]

Mitchell SG, Kelly SM, Brown BS, Reisinger HS, Peterson JA, Ruhf A, Agar MH, Schwartz RP. Incarceration and opioid withdrawal: the experiences of methadone patients and out-of-treatment heroin users. J Psychoactive Drugs. 2009; 41:145–152. [PubMed: 19705676]

Peterson JA, Reisinger HS, Schwartz RP, Mitchell SG, Kelly SM, Brown BS, Agar MH. Targeted sampling in drug abuse research: a review and case study. Field Methods. 2008; 20:155–170.

Peterson JA, Schwartz RP, Mitchell SG, Reisinger HS, Kelly SM, O'Grady KE, Brown BS, Agar MH. Why don't out-of-treatment individuals enter methadone treatment programs? Intl J Drug Policy. 2010; 21:36–42.

Rosenblum A, Magura S, Joseph H. Ambivalence toward methadone treatment among intravenous drug users. J Psychoactive Drugs. 1991; 23:21–27. [PubMed: 1941364]

Schwartz RP, Highfield DA, Jaffe JH, Brady JV, Butler CB, Rouse CO, Callaman JM, O'Grady KE, Battjes RJ. A randomized controlled trial of interim methadone maintenance. Arch Gen Psychiatry. 2006; 63:102–109. [PubMed: 16389204]

Schwartz RP, Kelly SM, O'Grady KE, Gandhi D, Jaffe JH. Interim methadone treatment compared to standard methadone treatment: 4-Month findings. J Subst Abuse Treat. 2011; 41:21–29. [PubMed: 21353445]

Stancliff S, Myers JE, Steiner S, Drucker E. Beliefs about methadone in an inner-city methadone clinic. J Urban Health. 2002; 79:571–578. [PubMed: 12468676]

Stanton, A. Summary Report. WESTAT; Rockville, MD: 2006. The SAMHSA Evaluation of the Impact of the DATA Waiver Program.

Umbricht-Schneiter A, Ginn DH, Pabst KM, Bigelow GE. Providing medical care to methadone clinic patients: referral vs on-site care. Am J Public Health. 1994; 84:207–210. [PubMed: 8296941]

Zweben JE, Sorensen JL. Misunderstandings about methadone. J Psychoactive Drugs. 1988; 20:275–281. [PubMed: 3069986]

Table 1

Descriptive Characteristics (*N* = 378)

Characteristic	Total Sample *N* = 378	Methadone *N* = 178	Buprenorphine *N* = 200	Test of Significance	*p*
Demographics					
Age, mean (*SD*)	46.1 (6.1)	45.2 (6.2)	46.8 (6.0)	t(369)= −2.6	.009
Gender					
Male *n* (%)	243 (64.3)	126 (70.8)	117 (58.5)	χ^2 (1) = 5.7	
Female *n* (%)	135 (35.7)	52 (29.2)	83 (41.5)		.017
Drug History					
Intravenous (IV) heroin use, lifetime					
Non-IV *n* (%)	267 (70.6)	110 (61.8)	157 (78.5)	χ^2 (1)= 11.9	
IV *n* (%)	111 (29.4)	68 (38.2)	43 (21.5)		.001
Heroin use, lifetime years, mean (*SD*)	15.9 (7.6)	15.5 (7.4)	16.3 (7.7)	t(373)= −1.1	.296
Any cocaine use in past 30 days, *n* (%)					
No	176 (46.6)	79 (44.4)	97 (48.5)	χ^2 (1)= 0.5	
Yes	202 (53.4)	99 (55.6)	103 (51.5)		.485
Cocaine use, lifetime years, mean (*SD*)	7.0 (8.6)	6.1 (8.0)	7.7 (9.0)	t(376)= −1.9	.056
Prior Methadone treatment only, *n* (%)					
No	262 (69.3)	103 (57.9)	159 (79.5)	χ^2 (1)= 19.7	<.001
Yes	116 (30.7)	75 (42.1)	41 (20.5)		
Prior Buprenorphine treatment only, *n* (%)					
No	309 (81.7)	165 (92.7)	144 (72.0)	χ^2 (1)= 25.7	<.001
Yes	69 (18.3)	13 (7.3)	56 (28.0)		
Prior Meth and Bup treatment, *n* (%)					
No	329 (87.0)	169 (94.9)	160 (80.0)	χ^2 (1)= 17.3	<.001
Yes	49 (13.0)	9 (5.1)	40 (20.0)		
Legal					
Currently on probation or parole. *n* (%)					
No	223 (59.0)	105 (59.0)	118 (59.0)	χ^2 (1)= 0.0	1

Characteristic	Total Sample *N* = 378	Methadone *N* = 178	Buprenorphine *N* = 200	Test of Significance	*p*
Yes	155 (41.0)	73 (41.0)	82 (41.0)		
Months of incarceration, lifetime number, mean (*SD*)	51.5 (65.5)	53.7 (68.0)	49.6 (63.2)	t(363)= 0.6	.555
Any days of illegal acts in past 30 days, *n* (%)					
No	214 (56.6)	94 (52.8)	120 (60.0)	χ^2 (1)= 1.7	.192
Yes	164 (43.4)	84 (47.2)	80 (40.0)		
Health					
Number of days of medical problems, past 30 days, mean (*SD*)	3.1 (7.7)	1.2 (5.2)	4.7 (9.0)	t(324)= −4.6	<.001
Any days of depression, past 30 days, *n* (%)					
No	320 (84.7)	171 (96.1)	149 (74.5)	χ^2 (1)= 32.1	
Yes	58 (15.3)	7 (3.9)	51 (25.5)		<.001
Depression, lifetime, *n* (%)					
No	263 (69.6)	153 (86.0)	110 (55.0)	χ^2 (1)= 41.2	
Yes	115 (30.4)	25 (14.0)	90 (45.0)		<.001
Employment					
Length of longest full time job in months, mean (*SD*)	74.0 (65.1)	73.3 (64.5)	74.6 (65.8)	t(372)= −0.2	.846
Worked during past 30 days, *n* (%)					
No	253 (66.9)	120 (67.4)	133 (66.5)	χ^2(1)= 0.01	.937
Yes	125 (33.1)	58 (32.6)	67 (33.5)		

Table 2

Logistic Regression Coefficients Preliminary Model (N = 378)

Variable	Odds Ratio	95% CI (Lower, Upper)	Wald χ^2	*p*
Demographics				
Age	1.08	1.02, 1.14	7.8	.005
Gender	1.45	0.75, 2.79	1.2	.265
Drug History				
Intravenous heroin use lifetime, Yes/No	0.41	0.22, 0.76	7.9	.005
Heroin use, lifetime years	1.00	0.97, 1.04	0.0	.885
Any cocaine use, past 30 days, Yes/No	0.56	0.31, 1.00	3.8	.052
Cocaine use, lifetime years	1.03	0.99, 1.07	2.6	.107
Prior Meth Tx only, Yes/No	0.55	0.30, 1.00	3.7	.055
Prior Bup Tx only, Yes/No	4.81	2.27, 10.79	15.8	<.001
Prior Meth and Bup Tx, Yes/No	2.92	1.21, 7.61	5.4	.021
Legal				
Currently on Probation/Parole, Yes/No	1.15	0.69, 1.94	0.3	.592
Months of incarceration, lifetime number	1.00	1.00, 1.00	1.5	.225
Any days of illegal acts in past 30 days, Yes/No	1.02	0.60, 1.73	0.0	.956
Health				
Number of days of medical problems in past 30 days	1.07	1.03, 1.12	9.7	.002
Any days of depression in past 30 days, Yes/No	3.09	1.17, 9.05	4.8	.029
Depression, lifetime, Yes/No	3.97	2.02, 8.04	15.5	<.001
Employment				
Length of longest full-time job in months	1.00	0.99, 1.00	0.4	.543
Worked in past 30 days, Yes/No	1.41	0.81, 2.48	1.5	.223

Note. Likelihood Ratio Chi-Square of the full model = 143.7, df = 17, p <.001

Note. The dependent variable is type of treatment coded: 0 = methadone, 1 = buprenorphine

Table 3

Final Model (N = 378)

Variable	Odds Ratio	95% CI (Lower, Upper)	Wald χ^2	*p*
Age	1.09	1.04, 1.14	14.0	<.001
Gender [a]	1.12	0.64,1.94	0.2	.693
Intravenous heroin use lifetime [b]	0.42	0.23, 0.76	8.1	.004
Prior Meth Tx only [c]	0.56	0.31, 1.01	3.7	.055
Prior Bup Tx only [c]	4.54	2.11, 9.76	15.0	<.001
Prior Meth and Bup Tx [c]	2.7	1.11, 6.62	4.8	.028
Number of days of medical problems in past 30 days	1.07	1.03, 1.12	9.6	.002
Any days of depression in past 30 days [b]	2.8	1.03, 7.56	4.1	.044
Depression lifetime [b]	4.11	2.08, 8.10	16.6	<.001

Note. Likelihood Ratio Chi-Square of the full model =136.1, df = 9, p <.001

Note. The dependent variable is type of treatment coded: 0 = methadone, 1 = buprenorphine

[a] Reference category is “male”

[b] Reference category is “no”

[c] Reference category is “neither prior buprenorphine nor methadone treatment”