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Challenges in Motivating Treatment Enrollment in Community Syringe Exchange Participants

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ABSTRACT *Participants of syringe exchange programs (SEPs) exhibit high rates of substance use disorder but remain extremely ambivalent about seeking treatment. This study evaluated the effectiveness of motivational interviewing (MI) for encouraging SEP participants to enroll in substance abuse treatment. New opioid-dependent registrants to the Baltimore Needle Exchange Program (BNEP) (n=302) completed the Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV), and the Addiction Severity Index (ASI) and were randomly assigned to one of three treatment referral conditions: (1) MI, (2) job readiness (JR) (attention control), or (3) standard referral. Participants in each condition who expressed interest in treatment were referred to a treatment readiness group that provided further encouragement and referral to programs that were accepting new admissions. Participants were observed for 1 year following the intervention. The results showed that 10.9% of study participants enrolled in substance abuse treatment, although no condition effects were observed. White participants and those diagnosed with major depression were most likely to enter treatment. The results suggest that a single motivational interview is insufficient to motivate changes in treatment seeking in this population, whereas the identification of predictors of treatment enrollment is worthy of further investigation.*

KEYWORDS *Major depression, Motivational interviewing, Opioid abuse, Substance abuse treatment, Syringe exchange.*

INTRODUCTION

Syringe exchange programs (SEPs) were developed as a community-based harm reduction strategy for providing injection drug users with ready access to sterile syringes to reduce sharing of contaminated equipment and lower the risk of transmitting HIV and other blood borne infectious diseases.[1] These programs appear largely successful. Participation in SEPs is associated with reduction of high-risk drug-use behavior (e.g., needle sharing) and lower incidence of HIV seroconversion,[2–6] although some exceptions have been reported.[7,8]

Despite the generally accepted benefits of SEPs, most injection drug users in these programs report continued drug use behavior that limits the harm reduction benefits of SEPs.[9,10] A recent study[11] showed that almost all new SEP registrants in

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Baltimore had severe opioid dependence, and rates of cocaine and alcohol dependence were higher than those reported in samples of other injection drug users seeking treatment that includes methadone.[12] The public health benefits of SEPs might be improved by helping SEP participants enroll in drug abuse treatment.[13–15]

SEP participants often report considerable interest in referral to substance abuse treatment,[13] and it is not unusual for SEP staff to routinely provide information about treatment and even referrals to programs in the community.[10,13,16] However, data from the Baltimore SEP showed that only about 5% of the registrants enrolled in treatment.[17] The considerable ambivalence suggested by the high interest in receiving but low rates of seeking drug abuse treatment in SEP participants is not confined to either these people or SEP settings. Opioid-dependent patients in brief, inpatient and outpatient detoxification units and many other health care settings frequently miss scheduled intake appointments for ongoing care, despite expressing interest in receiving such referrals.[18,19]

Motivational interviewing (MI)[20] might be used to improve rates of treatment enrollment and adherence of SEP participants and other out-of-treatment drug users. MI promotes behavior change through empathic counseling and creating discrepancy between current areas of distress and desired states of functioning.[21] MI may work well with SEP participants, who often exhibit high rates of psychiatric distress and psychosocial impairment[11] as it can be used clinically to promote behavior change. That this intervention can be delivered in one session makes it optimal for use at SEPs, where participants often attend inconsistently.[10,22]

Booth and colleagues[23] used a 2×2 design to examine the effects of a series of MI sessions and free treatment (for 90 days) on the treatment enrollment of opioid and cocaine users recruited from street settings. All participants who expressed interest in treatment were scheduled an intake and transported to a clinic that provided treatment on demand. Overall, 42% of the study participants enrolled in treatment, although no effects for MI were observed. The authors reported a main effect for free treatment and identified a number of factors (e.g., treatment history, quantity of drug use) that affected enrollment. The high overall rates of treatment enrollment were encouraging, and it is possible that the effects of MI may have been challenged by an active control group that promoted risk reduction and referral to treatment on demand for all participants, which is not possible in many cities across the country.[24]

This study is the first known evaluation of the effectiveness of MI on the treatment interest and enrollment of SEP participants. New registrants to the Baltimore Needle Exchange Program (BNEP) were randomly assigned to one of three treatment referral conditions: (1) MI, (2) JR (attention control), or (3) standard referral through the BNEP. Participants who expressed interest in opioid-substitution treatment were referred to a treatment readiness group that provided encouragement and skills to access treatment and direct referral to available treatment slots. Primary dependent measures were reported interest in drug abuse treatment and rates of enrollment. Demographic, psychiatric, and problem severity variables were also evaluated as potential predictors of treatment enrollment across study conditions.

METHOD

Participants

The BNEP operates in a mobile van that travels to different sites within the city of Baltimore. New registrants to the BNEP were informed of a research study that

was evaluating methods to encourage participation in drug abuse treatment. BNEP registrants who were interested in learning more about the study were referred to an adjacent research van for information on the requirements, benefits, and risks of study participation.

Five hundred and thirty-two people provided informed written consent to participate in the study, which included permission to review their records in the BNEP and to contact any drug abuse treatment programs to which they enrolled. Study participants were administered a comprehensive assessment battery[11] during weeks one to three that included the Structured Clinical Interview for the DSM-IV (SCID-I & -II) and the Addiction Severity Index (ASI). The entire battery was usually completed within two sessions. Participants were excluded from randomization if they (1) were not opioid dependent (n=12), (2) had arranged for drug abuse treatment before the study (n=32), (3) had a current organic mental disorder (n=3), (4) were too old or young to participate in the study (n=2), or (5) failed to complete study assessments (n=144), leaving 339 participants for randomization. An additional 37 participants were excluded from study analyses because they did not return to learn what condition they were randomly assigned and could not be contacted. This left a final sample of 302 participants.

Demographic characteristics and DSM-IV lifetime psychiatric and substance use disorder variables are shown in Table 1. Over half of the sample received a non-substance use psychiatric diagnosis; cocaine and alcohol dependence disorder were also highly prevalent. Participants were paid $15.00/hr for completing study assessments, and an additional $25 for participating in the intervention phase. Recruitment lasted from November 1999 to July 2002. The study was approved by the Johns Hopkins University Institutional Review Board and the Baltimore City Health Department.

Assessments

Demographics, Treatment History, and Treatment Interest In addition to the usual demographics, participants were asked about past participation in drug abuse treatment. Participants were also asked on a 1–10 scale if they were interested in enrolling in either methadone maintenance treatment or drug-free substance abuse treatment. This scale was repeated to participants following participation in the intervention phase of the study. Participants also completed the Mini Mental Status Exam[25] to assess cognitive impairment before starting the clinical assessment battery; they were administered this assessment again at the intervention phase of the study if they appeared grossly intoxicated. Those who scored below 27 (out of 30) were rescheduled for another session later that day or the next day.

Structured Clinical Interview for DSM-IV (SCID-I and SCID-II)[26,27] The SCID-I is a semistructured interview that utilizes a decision-tree approach for making lifetime and current diagnoses of many Axis I psychiatric disorders (e.g., mood and anxiety disorders, substance use disorders). The Antisocial Personality Disorder (APD) section of the SCID-II was also administered. Assessments of Axis I disorders and APD are reliable;[28,29] the substance use disorders also exhibit good validity.[30,31] The SCID was administered by an assessment unit that completed an intensive training program that has been used in prior studies to establish and maintain excellent interrater reliability.[12]

TABLE 1. Baseline variables and outcome measures

Variables	Overall (n = 302)	MI* (n = 98)	JR* (n = 96)	SC* (n = 108)	*P* value
Baseline variables					
Demographics					
Male (%)	68	67	70	66	n.s.
African American (%)	78	88	77	80	n.s.
Age (years)	39	38	40	39	n.s.
Education (years)	11	11	11	11	n.s.
Married (%)	12	11	9	14	n.s.
Employed (%)	23	28	17	23	n.s.
Homeless (%)	9	7	10	8	n.s.
Psychiatric substance use disorders†					
Opioid dependence (%)	100	100	100	100	n.s.
Cocaine dependence (%)	79	78	84	75	n.s.
Sedative dependence‡ (%)	22	20	20	24	n.s.
Alcohol dependence (%)	69	76	71	61	n.s.
Psychiatric nonsubstance use disorders†					
Axis I disorder‡ (%)	34	32	31	38	n.s.
Mood disorder (%)	27	28	24	30	n.s.
Anxiety disorder‡ (%)	13	11	10	18	n.s.
Antisocial Personality Disorder (%)	38	37	38	40	n.s.
Axis I or Antisocial Personality Disorder (%)	56	51	53	63	n.s.
Treatment (Tx) History					
Methadone Tx (%)	30	32	32	27	n.s.
Any opioid Tx (%)	70	72	74	70	n.s.
Treatment interest§					
Drug-free Tx interest (1–10)	6.3	6.6	5.9	6.5	n.s.
Methadone Tx interest (1–10)	6.8	6.8	6.4	7.1	n.s.
Outcome measures					
Treatment interest¶					
Drug-free Tx interest (1–10)	6.0	6.2	5.8	6.1	n.s.
Methadone Tx interest (1–10)	6.8	6.6	6.3	7.4	n.s.
Treatment Readiness Group (TRG) participation					
Referred to TRG (%)	28	29	25	29	n.s.
Enrolled in TRG (%)	10	10	9	9	n.s.
Substance abuse treatment enrollment					
Enrolled in any Tx (%)	11	10	13	10	n.s.
Enrolled in methadone Tx (%)	9	8	10	9	n.s.

*JR, job readiness; MI, motivational interviewing; SC, standard care.
†DSM-IV Lifetime Rates.
‡n = 301.
§Assessed preintervention; n = 301.
¶Assessed postintervention; n = 296.

ASI[32] The ASI is a 30–45 minute semistructured clinical interview designed to assess problem severity in seven areas commonly affected by drug and alcohol dependence (alcohol use, drug use, medical, legal, employment, family/social, and psychiatric status). The composite scores exhibit excellent reliability and validity.[33–35]

Procedure

After completing study assessments in weeks 1–3, participants were referred back to the study van at week 5 to begin the intervention phase of the study. This procedure was required due to a BNEP policy to refer registrants to treatment only after 1 month of BNEP participation. Study participants were stratified on current cocaine dependence diagnosis and past methadone treatment history[36] and were randomly assigned to one of three referral interventions: (1) MI referral, (2) JR referral, or (3) standard care (SC) referral. Interventionists were trained by a licensed clinical psychologist from the University of New Mexico (trained by William Miller, Ph.D) to conduct the MI sessions. Follow-up training was provided by the first author based on guidelines developed by Miller.[37] The first author also trained interventionists to conduct the JR interview and to refrain from using empathy or other techniques clearly associated with MI. A simple checklist of verbal responding was used to maintain fidelity and adherence to the study protocol; all interviews were conducted as required by protocol.

MI Referral The purpose of this 50-minute structured intervention was to enhance problem recognition and likelihood of treatment entry and adherence.[20,21] Data from the assessment battery was used to help structure this intervention. MI was delivered in four distinct phases. The first phase helped participants explore the positive and negative aspects of continued drug use. In the second phase, the interventionist shared feedback from the study assessments and elicited participant response. The interventionist then helped patients develop discrepancy between current level of functioning and future goals. Finally, the interventionist and participant reviewed the possibility of drug abuse treatment for addressing current problems and meeting future goals, and derived solutions for accessing treatment in the community.

JR Referral Participants assigned to this condition completed a 50-minute structured interview to address job-seeking readiness. Participants were asked to review their work history and discuss jobs that they are interested in pursuing. The interventionist and participant worked together to develop a list of job leads and to complete sample applications. This condition was used as an attention-control for the time spent with participants in the MI condition, without discussing information about drug use problems or drug abuse treatment.

SC Referral Participants assigned to this condition were instructed to contact the BNEP if interested in pursuing substance abuse treatment. This is the usual referral strategy for BNEP participants.

Referral to Drug Abuse Treatment Participants in each condition who expressed any interest in drug abuse treatment were referred back to the BNEP to determine whether any treatment slots were available in the city and to return to the study van if treatment was unavailable. Drug-free treatment slots were consistently available on demand, and BNEP personnel directed participants to the nearest program. However, BNEP personnel failed to identify any available methadone-substitution treatment slots following the intervention phase. Participants who remained interested in receiving methadone returned to the study van where they were referred to a treatment readiness group that met at the Johns Hopkins Bayview Medical Center. This group provided skills and practical support for finding treatment in the

community[38] and direct referral when slots became available. Study staff contacted the BNEP to assess treatment entry over the course of study participation (1 year) and contacted treatment programs directly to verify enrollment and determine length of stay.

RESULTS

Comparison of Study Sample with Those Excluded from Study Analyses on Baseline Variables

The final study sample (n = 302) was compared to those excluded from study analyses because of failing to complete the assessments or attend the follow-up (n = 181) using the demographic (including treatment interest and treatment experience variables) and psychiatric variables shown in Table 1. Paired *t*-tests and chi-square tests were employed. Differences were observed only in race and employment. Participants included in the study sample were somewhat more likely to be African-American ($\chi^2 = 5.1$, $df = 1$, $P < .05$; M = 78.1% vs. 68.9%) and employed ($\chi^2 = 3.3$, $df = 1$, $P < .05$; M = 22.5% vs. 15.6%) than those who were excluded.

Comparison of Three Study Conditions on Baseline Variables

Analyses of variance and cross tabulations with chi-square testing were used to compare the three study conditions on demographic and psychiatric data. No condition effects were observed (Table 1).

Substance Abuse Treatment Interest

Table 1 shows interest in substance abuse treatment at baseline and postintervention. Participants expressed considerable interest in both treatment modalities at baseline using a 10-point Likert scale (drug free: M = 6.3; SD = 3.7; methadone substitution: M = 6.8; SD = 3.6). No within or between subjects effects were found for treatment interest.

Treatment Readiness Group Participation

As shown in Table 1, 28% of all participants were referred to the Treatment Readiness Group and 10% attended. No condition effects were observed. Across conditions, 90% of those who attended the Treatment Readiness Group enrolled in treatment.

Substance Abuse Treatment Enrollment

Across study conditions, 33 participants enrolled in substance abuse treatment (10.9% of the study sample); 28 of these participants enrolled in methadone treatment. Cross-tabulations with chi-square testing showed no between group differences in treatment enrollment (Table 1). Analyses of variance examined retention over the first 90 days of treatment for those who entered methadone treatment. Participants remained in treatment a mean of 70.0 days (16/28 completed 90 days); no condition effects emerged, $F(2, 23) = .49$, ns.

Predictors of Substance Abuse Treatment Enrollment

We conducted exploratory bivariate correlations between treatment enrollment (across all study conditions) and selected demographic (age, gender, race, employment),

TABLE 2. Logistic multiple regression testing the effects of race and major depression on treatment enrollment

	Enrolled in treatment				
	Yes		No		
Characteristics	n	%	n	%	Adjusted odds ratio (95% CI)
Race					
White	19	29	47	71	5.92 (2.75–12.75)
African-American	14	6	222	94	—
Major depression					
Yes	15	18	67	82	2.09 (0.96–4.55)
No	18	8	202	92	—

treatment history (history of methadone or other opiate treatment), motivational (interest in drug-free and methadone treatment), psychiatric (Axis I disorder, mood disorder, APD, cocaine dependence, sedative dependence), and problem severity (ASI composite scores) variables. Three variables were positively correlated with treatment enrollment: white race ($r = .30$, $P < .001$), Axis I disorder ($r = .13$, $P < .05$), and mood disorder ($r = .14$, $P < .05$). Trend-level effects were found for cocaine dependence ($r = -.10$, $P < .10$) and sedative dependence ($r = .10$, $P < .10$).

A logistic regression analysis was conducted using all variables found significant ($P < .05$) in the above analyses. Major depression was used instead of Axis I disorder because it was the most representative of Axis I nonsubstance use disorders. As shown in Table 2, race remained a significant independent predictor of treatment enrollment, whereas only a trend-level effect was found for major depression. The odds ratio for major depression reduced from 2.5 in the bivariate model to 2.1 when race is included, suggesting some confounding by race.

DISCUSSION

This study evaluated the effects of MI on the treatment enrollment of new registrants to an SEP. Participants across all study conditions reported considerable interest in treatment, yet only about 11% enrolled in treatment over the 1-year observation period. MI did not improve treatment interest or treatment-seeking behavior, although race and psychiatric comorbidity were associated with treatment enrollment.

High Treatment Interest but Low Treatment Enrollment

Participants expressed considerable interest in starting substance abuse treatment, supporting other studies with SEP participants.[13] Consistent with other studies,[18] methadone substitution was preferred over drug-free modalities, and in fact, 85% of those who enrolled in treatment participated in methadone maintenance. Despite this interest, only 11% of the study participants enrolled in either a methadone-substitution or drug-free treatment program, a rate that is somewhat higher than other studies of treatment enrollment among SEP participants[17] but decidedly too low to meaningfully enhance the harm reduction efforts of SEPs.

MI and Treatment-Seeking

MI has improved treatment engagement and response in other populations of substance abusers,[20,39] so it was surprising that it had little effect on this sample of drug-dependent people. It should be noted, however, that other studies with opioid-dependent people have reported limited effectiveness using this intervention. MI sessions did not affect the rate of treatment enrollment of street-recruited IV drug users,[23] while a single MI session (with follow-up phone calls) was no better than SC in reducing attrition among opioid-dependent people on a waiting list to begin methadone treatment.[40]

Injection drug users face many structural and financial barriers to treatment that may mitigate the effectiveness of a single MI session. The city of Baltimore has significantly increased availability of drug abuse treatment, yet like many other large urban cities is still unable to offer treatment on demand.[24] Financial barriers, including cost of treatment and transportation, are also relevant in this population[41] and may have limited the impact of MI. Studies that have actively addressed these potential obstacles through community outreach workers, direct treatment referrals, and/or free treatment have shown some success in improving rates of treatment enrollment in this population.[42–47]

Psychiatric Comorbidity and Other Individual Difference Predictors

Participants who enrolled in treatment were more likely to be diagnosed with major depression and to have any Axis I psychiatric disorder. It is possible that these patients may have experienced elevated levels of distress that motivated enrollment, although distress was not explicitly assessed in this study. That African-Americans were less likely to enroll in treatment supports findings from other studies[16,48] and suggests that this subgroup experiences unique barriers to treatment enrollment that are worthy of further investigation. Other individual differences (e.g., treatment experience, no cocaine dependence) that have predicted treatment enrollment in previous studies[16,42,43,48] were not associated with enrollment in this study.

Study Limitations

The primary study limitation was that the MI intervention was confined to one session, which was insufficient to motivate significant treatment-seeking in a population of largely socially disenfranchised individuals with chronic and severe opioid dependence. That many of the participants were at least mildly intoxicated or experiencing withdrawal may have further diminished the effectiveness of the intervention. Additional MI sessions may have helped participants identify and process ambivalence and develop better problem-solving strategies for accessing available treatment.[49] Increasing the intensity of psychosocial interventions is also associated with improved engagement and outcome in treatment-seeking opioid abusers.[50–52]

Another limitation is that many individuals who initially signed study consent were not retained for the randomized trial, thus compromising the representativeness of the study sample. This may be partially attributed to delayed exposure to the intervention phase because of the BNEP policy to refer registrants to treatment only after 1 month of BNEP participation. Those included versus not included in study analyses were not appreciably different in demographic or psychiatric measures, but may have been distinguished by other variables not measured at baseline. Finally, the study was implemented within a context of limited treatment availability. Every study participant who was referred to the BNEP was informed that no publicly

funded methadone-substitution treatment slots were available. It is possible that more participants would have entered treatment in all study conditions if it had been available on demand.[23,42] Nevertheless, the treatment readiness group designed for this study provided strong assistance for those who were interested in treatment; 90% of those who attended this group eventually enrolled in treatment. Future studies of treatment enrollment in out-of-treatment opioid abusers might benefit from offering this type of assistance.[38,53]

Implications and Future Directions

This study showed that despite high reported interest in treatment, SEP participants exhibited low rates of treatment enrollment that did not improve through the addition of a single MI interview. Nevertheless, the development of interventions to encourage this high-risk population to pursue treatment remains a worthwhile goal as a means of enhancing the public health benefits of SEPs. It is likely that the effectiveness of MI could be improved by increasing the number of sessions and adding behavioral contingencies, interventions that have an excellent track record for improving adherence and overall functioning in treatment-seeking opioid abusers.[50,54,55] Preliminary data from a study evaluating the effectiveness of combining multiple motivational sessions with voucher reinforcement has yielded promising results.[56]

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