

Integrated Recovery Management Model for Ex-Offenders With Co-Occurring Mental Health and Substance Use Disorders and High Rates of HIV Risk Behaviors

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Abstract:

This paper provides outcomes from an evaluation of a federally funded program combining HIV prevention services with an integrated mental health and substance abuse treatment program to a population of primarily African American ex-offenders living with, or at high risk for contracting HIV in Memphis, Tennessee. During the 5-year evaluation, data were collected from 426 individuals during baseline and 6-month follow-up interviews. A subset of participants (n = 341) completed both interviews. Results suggest that the program was successful in reducing substance use and mental health symptoms but had mixed effects on HIV risk behaviors. These findings are important for refining efforts to use an integrated services approach to decrease (a) the effects of substance use and mental health disorders, (b) the disproportionate impact of criminal justice system involvement, and (c) the HIV infection rate in African American ex-offenders in treatment.

Keywords: African Americans | ex-offenders | HIV | prevention | substance use

Article:

There are more than two million incarcerated individuals in the United States, the majority of whom will return to the community (Bureau of Justice Statistics, 2010). There are clear links between incarceration and HIV risk, and an estimated 80% of incarcerated individuals have serious substance abuse problems (Centers for Disease Control and Prevention [CDC], 2001). There is also a growing awareness that prisoners may be at the highest point of HIV risk during the early stages of the community re-entry process and may have relatively low motivation for engaging with services (Inciardi et al., 2007). While these issues are important to all re-entry populations, there appear to be health and service disparities that primarily affect African American substance users who are subject to a unique set of individual and environmental factors that affect health outcomes, specifically substance use, incarceration, and HIV (Akers, Muhammad, & Corbie-Smith, 2011; Albarracin & Durantini, 2010; Giger, 2010; Williams, Wyatt, & Wingood, 2010).

While contributing 13% of the U.S. population, African Americans represent more than one third of all cumulative AIDS cases and 49% of all new AIDS cases in the United States (CDC, 2009). In addition, African American males are 6 times more likely than White males to be incarcerated, and African American females are 3.7 times more likely to be incarcerated than white females (Sabol, West, & Cooper, 2009). Importantly, between 45% and 64% of prisoners suffer from mental illness (James & Glaze, 2006), more than one third (34.5%) reported a substance use issue, and lifetime substance use disorder prevalence rates were reported for the majority (53.9%; Peters, Greenbaum, Edens, Carter, & Ortiz, 1998). Compounding this issue, the U.S. Department of Justice (James & Glaze, 2006) reported that 74% of state prisoners with mental health problems also had substance abuse or dependence problems. Based on the literature above, it is clear that well-established correlations between substance use, mental illness, and higher HIV rates for individuals who have been incarcerated exist. Despite this knowledge, there are limited integrated program models tailored to meet the unique and complex needs of ex-offenders returning to the community. Awareness of the HIV and incarceration racial disparities is not new, yet there remains a significant need for service models to provide a full continuum of mental health, substance use, and HIV services that are integrated within one program and provided by a team of providers. Furthermore, these services should include tailored interventions that are culturally appropriate and address the needs of recently incarcerated African American ex-offenders with substance use and mental health disorders.

Despite the disproportionate number of African Americans needing services, traditional approaches may be problematic given unfavorable perceptions by African Americans of traditional services and distrust of social service providers (Cochran & Mays, 1993; Jones, 2004; Longshore, Hsieh, & Anglin, 1993; O'Connell & Langley, 1997; Wright, 1998, pp. 49-62). Traditional intervention and treatment approaches to substance abuse and mental illness (Holden & Xanthos, 2009) and sexually transmitted diseases (STDs) and HIV (Cochran & Mays, 1993; Jones, 2004; O'Connell & Langley, 1997) continue to be fragmented for African Americans in general, and individuals involved in the criminal justice system in particular. Lack

of access to services for this population is due to myriad reasons, including health literacy, insurance status, financial and access barriers, help-seeking behaviors, and the inequality and limited availability of culturally competent community-based services (Holden & Xanthos, 2009; Wright, 1998, pp. 49-62).

Individuals with co-occurring mental health and substance use disorders present both service providers and correctional systems with service delivery challenges (Kubiak, 2004). There is a long tradition of a bifurcated health care delivery system in the United States. Service recipients must navigate through a fragmented, complicated, and often-contradictory treatment system, which separates physical health care from behavioral health care and further separates mental health services from substance abuse treatment services. However, an increasing number of evidence-based interventions and programs have demonstrated the efficacy of an integrated treatment approach that combines methods and skills derived from both psychiatric and addiction treatment practices to treat co-occurring disorders across multiple populations (Cocozza et al., 2005; Morrissey et al., 2005; Mueser, Noordsy, Drake, & Fox, 2003). What has been learned from this research is that a focused, organized, and “model response” simplifying the process through which services are accessed can be achieved by combining and integrating services. Because traditional middle-class Euro-American intervention and treatment models do not address the needs facing many African Americans (McNair & Prather, 2004), an integrated approach was developed for this project, further integrating HIV prevention with specific cultural tailoring designed to meet the unique needs of a population made up of primarily African Americans with co-occurring mental health and substance use disorders involved in the criminal justice system and struggling with community re-entry issues.

The primary aim of this study was to evaluate a culturally focused integrated continuum-of-care program that sought to also integrate an HIV prevention intervention modeled specifically for ex-offenders with co-occurring substance use and mental illness disorders. Our specific question was, would this model lead to improvements in (a) substance use outcomes, (b) mental health outcomes, (c) HIV risk behaviors, and (d) psychosocial outcomes, (i.e., criminal justice involvement, housing, employment, finances, and perceived quality of life)?

Setting

The program was developed and carried out by Foundations Recovery Network, which has been instrumental in developing an integrated treatment model for individuals living with co-occurring mental health and substance use disorders. The curriculum and protocols utilized in this program were manualized and published by Foundations to ensure fidelity to the model across various integrated mental health and substance abuse treatment programs (Foundations Recovery Network, 2005). In 2000, The Substance Abuse and Mental Health Services Administration (SAMHSA) designated the Foundations treatment program as an “exemplary program model” (Center for Substance Abuse Treatment [CSAT], 2005, p. 181-182) for integrated treatment of co-occurring disorders. Our project was funded by SAMHSA’s CSAT as

part of the Targeted Capacity Expansion Program for Substance Abuse Treatment and HIV/AIDS Services from 2003 until 2008.

Shelby County, home of Memphis, Tennessee, where the project was conducted, has a population of more than 900,000 people (U.S. Census Bureau, 2008). In the city of Memphis, 61% of the population is African American and more than 21% of the city's population falls below the poverty line, including more than 40% of African American households. African Americans make up a slight majority of the population but account for nearly all new HIV infections: 89% of all newly diagnosed HIV cases among men and 96% among women (Tennessee Department of Health, 2009). The service delivery system in Memphis demonstrates the fragmentation and barrier structures discussed earlier in this article. As the project was being implemented, these service delivery issues were further exacerbated by significant cuts in Tennessee's managed Medicaid program that drastically reduced service coverage and reimbursement for addictions treatment, creating additional significant barriers for newly released offenders in the community (Tennessee Department of Health, 2004).

Service Delivery Model

The primary goal of our project was to provide a coordinated continuum of substance abuse treatment, mental health services, and HIV risk-reduction interventions, using an integrated model of service delivery. The treatment model for the project integrated best practice approaches and evidence-based practices for treating co-occurring substance abuse and mental health disorders through the application of the principles of integrated care outlined by Drake and Burnette (2001), amended to include concepts developed by the CDC (1999), along with materials from SAMHSA Treatment Improvement Protocol Series #37, *Substance Abuse Treatment for Persons with HIV/AIDS* (CSAT, 2000).

The treatment delivery staff included two Masters-level therapists, an intake worker, a nurse (an RN with expertise in HIV and substance abuse), and a psychiatrist; additionally, participants had access to case management staff and residential and housing services. The staff had experience with and were responsible for delivering both substance abuse and mental health treatment. The staff were culturally diverse and reflective of the population served, including individuals in substance abuse recovery. Throughout the project, staff were routinely trained in applying integrated service techniques, including motivational interviewing, readiness to change, and interventions specific to individuals with co-occurring disorders. In keeping with the focus on motivational interviewing-based interventions, treatment goals were consumer driven and focused on behavioral risk reduction, with abstinence, for some, being a long-range goal. Responses to relapses with substance use, mental health treatment adherence, and risk reduction were non-punitive, and assertive re-engagement efforts were routinely made by staff to increase participant retention. Social support intervention included family education and participant engagement in 12-Step Recovery Meetings. Cognitive behavioral therapy and motivational interviewing techniques were applied in all group, family, and individual counseling.

Intensive outpatient group therapy was the primary treatment method. Group sessions were held 5 days a week, Monday through Friday, and varied over the course of the project in duration from 2 to 3 hours. The curriculum ran in continuous 8-week cycles. Therefore, regardless of which week in the cycle a participant started attending group, after 8 weeks the participant would have studied all of the topics. The curriculum included topics such as dual diagnosis and the Dual Recovery Anonymous 12 steps, stages of change, errors in thinking, family and relationships, relapse education and prevention, stress and anger management, and issues pertinent to the ex-offender such as building a therapeutic alliance and life-management skills. In addition, a nurse practitioner spoke each week about mental health medications, HIV, sexually transmitted diseases, or medical problems associated with substance abuse. The nurse practitioner was also charged with facilitating the HIV groups and integrating information into other health-oriented psychosocial interventions. Individual and family therapy sessions occurred on an as-needed basis. Typically, two groups ran concurrently, with one counselor leading each group. However, when the census was low or too few participants attended on any day, the groups were combined and the counselors co-facilitated. Approximately 90% of participants routinely used transportation offered through the program.

The Foundation collaborated with a local HIV agency to provide a variety of psychoeducational trainings. Monthly trainings included topics on HIV, disease transmission, safe sex, and needle and injection safety. After each presentation, the agency offered free and confidential HIV testing to participants and provided follow-up notification and services for clients. Unfortunately, many clients declined to be tested each month, despite assurances of complete and total confidentiality. The stigma associated with HIV was a considerable barrier throughout the project. During initial implementation, program staff found that mentioning the word HIV when describing the program created a barrier to engaging high-risk individuals who could benefit from service and did not consider themselves to be at risk. Some staff commonly referred to this project/program as the HIV Grant. The use of this title started to spill over into communications with clients. Anecdotally, when clients were asked if they wanted to participate in the program, they would adamantly declare that they did not have HIV and stated that they did not want to participate in the program and did not perceive themselves to be at risk. Those refusing were not necessarily at any higher risk than any other clients. Once program administrators were made aware of the impact that the term HIV had on enrollment rates, staff members were urged to stop using the term HIV Grant, and the initial barrier was removed. This experience also made very clear, to both staff and administrators, the level of stigma associated with HIV within the target population.

Method

Design

Our study design used a single group design that investigated changes over the course of program participation with measures of program outcome indicators collected at program intake,

program exit, and 6 months post-intake (Cook & Campbell, 1979). To investigate possible change in outcomes over time, a series of paired-sample *t*-tests were conducted to determine statistically significant differences between the baseline and 6-month measures. During the 5 years of the project, a total of 426 individuals completed the initial intake process, became active clients in the program, and completed a baseline measure; 341 participants, 80% of all participants in the project and 85.8% of those eligible for follow-up within the 5-year project period, completed a follow-up evaluation interview at 6 months post intake.

Procedures

After an individual made contact with the program through outreach efforts, he/she was introduced to a staff member who explained the purpose of the study and the programs available through the study. Individuals agreeing to participate were asked to complete questionnaires and surveys at baseline, program completion, and at the 6-month follow-up. Participants were given an incentive of \$20 for completing each of the two follow-up interviews. Participants were assured that they could choose to not participate in the research interviews and still receive services. All consenting participants were interviewed in a private separate room in order to maintain confidentiality.

To assist in locating individuals for the follow-up interviews, participants provided multiple contacts, including telephone numbers and addresses for themselves, family members, friends, probation or parole officers, and caseworkers. Attempts were made to contact participants directly to schedule follow-up interviews before contacting others. With the assistance of Shelby County Corrections, the research staff were allowed access to interview clients who were incarcerated at the time of the follow-up interviews. Review board approval for research with human subjects was obtained through a community-based institutional review board hosted by Dual Diagnosis Management.

Measures

The Government Performance Results Act Instrument (GPRA) was used to measure substance use, HIV risk behaviors, and psychosocial functioning. The instrument was developed by SAMHSA/CSAT to assess the impact of drug treatment and prevention programs in response to Public Law 103-62 (Darby & Kinnevay, 2010). The GPRA was based on items from the Addiction Severity Index (McLellan, Luborsky, Woody, & O'Brien, 1980), items from the National Institute on Drug Abuse (NIDA) Cooperative Study Risk Behavior Assessment (NIDA, 1991, p. 625), with items from the Treatment Services Review-5 (McLellan, Alterman, Cacciola, Metzger, & O'Brien, 1992). The instruments that serve as the basis of the GPRA have high levels of reliability and validity, and have been used extensively with the target population (McLellan et al., 1980; NIDA, 1991, p. 625).

To provide a more reliable assessment of psychological functioning, the Brief Symptom Inventory (BSI), a 53-item questionnaire that was designed to measure psychological symptom

patterns (Derogatis & Spencer, 1982), was used to supplement the GPRA measures. While the GPRA items provided data on the number of days individuals experienced symptoms, the BSI provided data on the severity of these symptoms. The BSI is scored on a 5-point Likert-type scale, from 0 (*not at all*) to 4 (*extremely*). It produces a global severity index and an assessment for nine dimensions of psychological symptoms: anxiety, depression, hostility, obsessive-compulsive, paranoid ideation, phobic anxiety, psychoticism, somatization, and interpersonal sensitivity. Internal consistency coefficients utilizing a Cronbach's alpha for the entire scale was .973 and subscales ranged from .753 to .890.

Subjective quality of life was measured using subscales from the California Quality of Life Survey (California Department of Mental Health, 1999). The instrument provides a single measure of overall life satisfaction and subjective ratings for seven life areas based on two to four items for each category. For each item, the respondent indicated level of satisfaction using a 7-point Likert-type scale (1 = *Terrible* to 7 = *Delighted*), with the average of the subscale items calculated to determine the corresponding domain score. For this sample, a Cronbach's alpha score of .939 was found for the 24 subjective items.

In the third year of the project, participants began completing the District of Columbia Trauma Collaboration Study Violence and Trauma Screening Questionnaire for Human Service Agencies (District of Columbia Trauma Collaboration Study, 1999) at baseline. The instrument asks a series of questions regarding experiences with eight possible traumatic events: *At any time in your life has anyone ...?*, *Has this happened to you in the past 12 months?*, and, for six of the events, *How old were you when this first happened?* Participants responded *yes* or *no*, and/or gave the age of the first occurrence.

Data Analysis

Factor analysis and internal consistency reliability analyses were conducted to examine the psychometric properties of the measures used in the study. Descriptive statistics were used to characterize the study sample in terms of demographics and other key measures. These analyses yielded a baseline description of the study sample from which changes over time could be assessed. Analyses of changes from baseline to follow-up were assessed using independent samples *t*-test techniques. The research design for this portion of the study was a simple pre-test, post-test design with baseline and 6-month follow-up measures. The important analytic questions regarding the effectiveness of the program involved the measurement of the significance of the observed changes from baseline to 6 months.

Results

Sample

All 426 individuals served by the project had been released from a criminal justice facility within 2 years prior to the onset of treatment and were diagnosed with a co-occurring substance use and

psychiatric disorder. Additionally, participants were either infected with HIV or fell within high-risk exposure categories identified by a history of recent incarceration.

Demographic and other descriptive data are provided in Table 1. Participants who completed the trauma-screening instrument ($n = 202$) reported high rates of lifetime traumatic experiences. Of note, 59.9% of participants reported witnessing someone being seriously injured or killed in an unnatural event such as a shooting, stabbing, or auto accident; 33.8% reported being raped; 42.6% reported being touched sexually against their will; 33.7% had witnessed a sexual assault against a significant person in their life; 80.4% had been slapped or pushed; 74.9% had been punched or choked; and 64.9% had been threatened with a weapon.

Table 1. Demographics of Participants ($n = 426$)

Demographic	Categories	n (SD or %)
Age (in years)		34.5 (SD = 10.3)
Gender	Male	269 (63.1%)
Employment status	Employed full time	61 (14.3%)
	Employed part time	35 (8.2%)
	Not employed	330 (77.4%)
Race	African American	246 (57.7%)
	Caucasian	162 (38.0%)
	Other/unknown	18 (4.2%)
Education (in years)		11.8 (SD = 2.2)
Housing status	In own home	116 (27.2%)
	Someone else's home	152 (35.7%)
	Halfway house, treatment center	89 (20.8%)
	Jail, hospital, nursing home	42 (9.9%)
	Homeless/shelter	27 (6.3%)

Service Use

Based on an analysis of the GPRA services' received data, the average length of stay in the project was 78 days or 11.1 weeks. Fifty-two percent of the participants successfully graduated from the program. Those participants not graduating from the program were discharged primarily due to nonparticipation (51%). Participants were also discharged for leaving against staff advice without satisfactory progress (11%), leaving against staff advice with satisfactory progress (6%), or violation of rules (4%). Thirteen percent of those not graduating from the program were referred to another program or other services, with satisfactory progress.

Substance Use Behaviors

Self-reported substance use data can be seen in Table 2. At follow-up, there were decreases in all substance use categories and statistically significant decreases in the use of marijuana ($t = 5.05, p \leq .0001$), methamphetamine ($t = 2.36, p \leq .0001$), and cocaine ($t = 3.55, p \leq .0001$).

Other illegal drug use categories decreased to no use at follow-up, but did not rise to the level of statistical significance due to a relatively small number of individuals reporting use at baseline of Dilaudid ($n = 4$), heroin, ($n = 3$), and OxyContin ($n = 3$). Alcohol use decreased, but not at a statistically significant level ($t = 1.84, p \leq .066$).

Table 2. Number of Days Using Within the Previous 30 Days ($n = 341$)

Substance	Baseline Mean Days (SD)	6 Months Mean Days (SD)	% Decrease
Alcohol	2.8 (6.4)	1.9 (5.7)	47%
Marijuana	2.8 (7.2)	0.6 (2.9)	79% ^a
Alcohol to intoxication	2.5 (6.2)	1.6 (5.3)	36%
Cocaine	1.7 (4.7)	0.6 (2.9)	65% ^a
Heroin	0.2 (1.8)	0.0 (0.0)	100%
Dilaudid	0.2 (2.1)	0.0 (0.0)	100%
Methamphetamine	0.16 (1.3)	0.003 (0.1)	98% ^a
OxyContin	0.03 (0.2)	0.01 (0.3)	67%

^a Baseline and 6 months statistically significant difference at $p \leq .05$.

Psychological Functioning

Mental health status appeared to have improved across the board (Table 3). The mean number of days of experiencing specific mental health symptoms, as measured by the GPRA, decreased significantly from baseline to 6 months in all areas measured, with the exception of suicide attempts. This may have been a function of the relatively low number of individuals who reported this symptom ($n = 15$). While the GPRA items provided data on the number of days individuals experienced symptoms, the BSI provided data on the severity of these symptoms. Based on the BSI, there was a statistically significant improvement from baseline to 6 months for all nine dimensions.

Table 3. Psychological Functioning in the Previous 30 Days

	Baseline Mean Days (SD)	6 Months Mean Days (SD)
Psychological symptoms ($n = 341$)		
Serious depression ^a	8.9 (11.3)	6.1 (9.9)
Serious anxiety ^a	9.6 (11.8)	6.6 (10.0)
Hallucinations ^a	2.7 (7.8)	1.6 (6.0)
Trouble understanding, concentrating, or remembering ^a	10.2 (12.3)	6.8 (10.9)
Trouble controlling violent behaviors ^a	1.9 (6.1)	1.0 (4.1)
Suicide attempts	0.13 (1.5)	0.02 (0.2)
Prescribed psychiatric medications ^a	10.1 (13.5)	7.5 (12.5)
Psychological symptoms measured with BSI ($n = 261$)		
Somatization ^a	0.85 (0.88)	0.69 (0.82)

Obsessive-compulsive ^a	1.33 (1.08)	1.01 (1.06)
Interpersonal sensitivity ^a	1.12 (1.10)	0.85 (1.11)
Depression ^a	1.11 (1.05)	0.86 (1.25)
Anxiety ^a	1.08 (1.09)	0.77 (0.9)
Phobic anxiety ^a	0.82 (0.92)	0.61 (0.99)
Paranoid ideation ^a	1.31 (1.03)	0.95 (0.97)
Psychoticism ^a	1.11 (1.01)	0.76 (0.90)
Hostility ^a	0.83 (0.90)	0.60 (0.80)

Note: BSI = Brief Symptom Inventory. ^a Baseline and 6 months statistically significant difference at $p \leq .05$.

HIV/STD Risk Behaviors

Injection risk behaviors

Injection drug-use-related HIV risk did decrease ($t = 1.89, p \leq .058$); however, the overall proportion of injection drug users was very low (Table 4). Ten individuals reported injecting in the 30 days prior to the interview at baseline and only 2 of these 10 individuals reported injecting within the same timeframe at the 6-month interview. Five individuals reported some sharing of injection equipment at baseline, and this was reduced to zero at 6-month follow-up.

Table 4. HIV/STD Risk Behaviors Within the Previous 30 Days ($n = 341$)

Risk Factor	Baseline	6 Months
Number of sex acts, mean (SD)	8.24 (12.3)	11.07 (22.3)
Number of times engaged in sex without a condom		
Total, mean (SD)	5.10 (9.4)	7.29 (20.8)
Percentage of contacts unprotected	61.8%	65.8%
Unprotected with someone with HIV, mean (SD)	1.43 (10.6)	0.10 (0.8)
Unprotected with an injection drug user, mean (SD)	0.03 (0.2)	0.11 (1.1)
Unprotected with someone who was high, mean (SD)	1.52 (5.4)	0.71 (3.0)

Note: STD = sexually transmitted disease.

Sexual risk behaviors

Approximately half of respondents at both baseline (47.9%) and follow-up (47.6%) reported being sexually active in the previous 30 days (Table 4). Although there were decreases in the number of sexual partners who fell into high-risk categories, these changes were not statistically significant: unprotected sex with individuals suspected of having HIV infection ($t = 1.15, p \leq .249$), unprotected sex with an injection drug user ($t = -.028, p \leq .977$), and unprotected sex with individuals who were high ($t = 1.15, p \leq .247$). There was also an increase in sexual activity and the number and proportion of unprotected sex acts reported.

Self-Sufficiency and Functioning

Employment status and financial support

Employment rates throughout the project were low. At baseline, only 20.9% of respondents were employed (7.5% employed full-time), at follow-up this improved significantly, as 38.3% were employed (12.7% full-time). Importantly, the amount of money gained from employment rose at a statistically significant rate from \$231 to \$549 per week ($t = 4.22, p \leq .0001$).

Housing stability

The percentage of individuals who were permanently housed increased from 82.2% to 86.9%, with the remainder being homeless or residing in an institution. In terms of self-sufficiency, the largest rise was in individuals who lived in their own house or apartment, which increased from 30.1% to 41.7%.

Criminal justice involvement

Improvements with legal issues can be seen in Table 4. These are important findings given the high rates of expected recidivism in the population (Table 5).

Table 5. Self-Sufficiency and Criminal Justice Involvement in the Previous 30 Days ($n = 341$)

	Baseline	6 Months
Financial self-sufficiency		
Average amount of money made through employment ^a	\$231	\$549
Average amount of money made from illegal sources	\$27	\$9
Criminal justice involvement		
Average number of arrests, mean (SD)	.14 (0.6)	.10 (0.4)
Average number of drug related arrests ^a , mean (SD)	.19 (0.4)	.03 (0.1)
Average number of nights in jail, mean (SD)	2.7 (6.9)	2.6 (7.6)
Average number of crimes committed ^a , mean (SD)	3.2 (7.2)	1.5 (5.2)
Number of individuals awaiting trial ^a	70	40
Number of individuals on parole/probation ^a	114	106

^a Baseline and 6 months statistically significant difference at $p \leq .05$.

Quality of life

Subjective quality of life, measured as life satisfaction (Table 6), improved in all areas. Statistically significant differences were found in the comparison of means for overall life satisfaction and five of the seven life areas.

Table 6. Life Satisfaction ($n = 261$)

Category	Baseline Mean (SD)	6 Months Mean (SD)
Safety	4.7 (1.5)	4.9 (1.4)
Leisure activities ^a	4.4 (1.4)	4.8 (1.4)
Social relations ^a	4.5 (1.3)	4.7 (1.3)

Family relations ^a	4.3 (1.7)	4.7 (1.6)
Health ^a	4.3 (1.5)	4.6 (1.4)
Living situation	4.3 (1.6)	4.4 (1.6)
Finances ^a	2.8 (1.7)	3.4 (1.7)
General life satisfaction ^a	4.1 (1.6)	4.7 (1.6)

^a Baseline and 6 months statistically significant difference at $p \leq .05$.

Discussion

The findings from the evaluation can be used to improve substance abuse and mental health treatment for individuals with co-occurring disorders. The results suggest that individuals who participated in the described services showed significant improvements in substance abuse and mental health symptoms and self-sufficiency, with very limited rates of any new criminal justice involvement. While these results further our understanding of these issues with respect to previous literature, more study is clearly required. Additional research should be conducted with a study with a more rigorous experimental design.

The success of this integrated approach, which combined substance abuse, mental health, and HIV prevention services for individuals involved in the criminal justice system, is an important finding. Similarly, our study provides data that are suggestive of the need for individuals to be motivated to connect with these services, and demonstrates the possible effectiveness of services appropriately provided for a population of individuals with co-occurring disorders.

The ability of the interventions to reduce HIV risk behaviors was less clear. Participants were clearly able to reduce substance use-related HIV risk behaviors, yet positive changes in high-risk sexual behaviors were not documented. There are several possible explanations for the lack of changes in these behaviors. Without a control group, it is impossible to know what may have occurred without the intervention. It is quite possible that for a re-entry population, the level of high-risk sexual behavior may have increased at a steeper rate. It is clear that there were numerous other factors that may have significantly increased HIV risk and that were not controlled for in the analyses, including the lack of stable housing, which is closely related to HIV risk (German & Latkin, 2011; Weir, Bard, O'Brien, Casciato, & Stark, 2007).

Participants in the program were not randomly sampled, thus, the generalizability of these findings is limited, as there was no control group, and the results from our study are applicable only to the individuals who participated in the research interviews. Studies based on this type of sampling run the risk of sampling bias, as individuals who were in the sample may not have accurately represented the pool of potential service recipients. For example, in our study, the number of participants who provided baseline and 6-month data ($n = 341$) represented 80% of the total number of all service recipients. The lack of a counter factorial further weakened the generalizability of these results. We used a nonexperimental design without a comparison or control group. Additionally, the number of participants in the evaluation at both baseline and the 6-month period of time ($n = 341$) did not represent the total population of service recipients, and

the remaining individuals may have differed in their outcomes from the sample in unknown ways. While the sample did represent the majority of all eligible participants, it is important that the results of this study are viewed with this limitation in mind.

Despite these limitations, the results are important. With a few exceptions, all of the outcome measures indicated significant improvements for the individuals involved in the project. The results can be used to further develop and/or enhance services to groups of similar individuals in other areas. The project demonstrated that a continuum of intensive outreach and substance abuse and mental health treatment services may be effective for the target population (i.e., formerly incarcerated substance users with mental health disorders who have histories of chronic drug use and multiple related psychosocial problems), especially because this population has been historically described as difficult to reach and/or nonadherent to traditional services.

Key Considerations

- Patients who are, or who have recently been, incarcerated have a high risk of mental health disorders, substance-use related disorders, and are 5 to 8 times more likely to have HIV compared to the general population.
- Integrated programs for addressing mental health and substance-use-related disorders have demonstrated efficacy.
- The integration of HIV-related counseling may have increased benefit in this population.

Disclosures

The authors report no real or perceived vested interests that relate to this article that could be construed as a conflict of interest.

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