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ARTICLE

Impact of an intervention for recently released homeless offenders on self-reported re-arrest at 6 and 12 months

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ABSTRACT

A randomized controlled trial was conducted with 600 paroled men, homeless prior to incarceration, to assess varying levels of peer-coach and nurse-partnered interventions on re-arrest at 6 and 12 months. Findings revealed that positive predictors of re-arrest at 12 months included having received social support from drug users and non-drug users, as well as having used marijuana at least once a week prior to their most recent incarceration. In terms of protective factors, those who participated in a substance abuse program contract within a residential drug treatment program or spent 90 days or greater in a residential drug treatment program were less likely to have been re-arrested within 12 months.

Introduction

In California, as of 2014, there were 135,960 persons in custody and 42,218 persons on parole;[1] 48.6% of these committed offenses were drug-related.[2] According to the California Department of Corrections and Rehabilitation (CDCR; 2013), nearly half (47.5%) of inmates released into the community returned to prison within 6 months. Further, within 12 months, the rate increased to about three-quarters (74.1%).[3]

Upon release, ex-offenders who are reintegrating back into society are often met with a host of challenges, including poor physical health,[4] including managing infections, such as human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV),[5–7] mental health problems,[8] as well as a lack of education and job skills.[9] Further, those with a history of incarceration are also more likely to have a history of psychiatric hospitalizations, drug use, and multiple sexual partners, than those who do not have such a history.[10] Among those who used a drug at the time of the offense, the most frequently cited included marijuana, followed by cocaine/crack and stimulants. These may be contributory factors that lead to

homelessness, failed rehabilitative efforts, continued drug use, and re-arrest.

Policymakers, social workers, and service providers have long struggled to resolve how best to improve outcomes for those exiting correctional institutions.[11] In an effort to address these issues, three levels of intensity in peer-coach and nurse-partnered intervention programs were studied in a randomized controlled trial (RCT), specifically: (1) peer-coach and nurse case managed (PC-NCM) program; (2) peer coach (PC) program with brief nurse counseling; and (3) a usual care (UC) program with brief PC and brief nurse counseling. The purpose of this study was to assess the effectiveness of these three programs in reducing re-arrest among recently released homeless ex-offenders at a 6- and 12-month follow-up, taking into account significant model-guided factors.

Impact of nurse-delivered intervention among homeless, drug-addicted, and vulnerable populations

For over a decade, the first author and colleagues have investigated the effect of nurse case management

(NCM) programs and have found them to be successful among vulnerable populations. These programs have focused on reducing drug use among methadone-maintained adults,[12] reducing substance use among homeless youth,[13] improving HBV and HIV knowledge,[14] and enhancing compliance with the HBV vaccine series[6] among men exiting jails and prisons. A focus on nurses educating ex-offenders about hepatitis and promoting the HBV vaccine is considered critical due to the risk of hepatitis with drug use and unprotected sexual activity. Case management has also been shown to be effective in reducing drug use and improving health access among opioid dependent drug users.[15] Further, collaborative NCM programs have focused on improving the health of HIV/ acquired immune deficiency syndrome (AIDS) clients with psychiatric illness and those enrolled in substance abuse programs (SAPs).[16]

In a prospective two-group intervention focused on increasing hepatitis vaccination and reducing risky behaviors among 156 homeless youth, a hepatitis health promotion (HHP) program, delivered by the first author and her team of nurses, was focused on promoting the basics of hepatitis and HIV prevention, training in behavioral self-management, and overcoming barriers to substance use. This program was compared with an art messaging (AM) program, delivered by artists who used artistic forms of communication to focus on the dangers of initiating drug use, and challenges of living on the streets.[17] Findings revealed that participants assigned to the HHP program had higher 6 month scores in HIV and HBV knowledge as compared with the AM group.[17] Moreover, the HHP group outperformed the AM group in reducing methamphetamine, cocaine, and hallucinogens.[13]

Use of peer support as an effective intervention strategy among ex-offenders

A paucity of studies have focused on the combined role of peer support interventions with vulnerable populations. In two recent studies, lay Latin American community members that served as health advisors, called "promotoras," were successful in alleviating symptoms of depression among women affected by migration[18] and in another study, improving mother–child interactions among immigrant Hispanic mothers.[19] Veterans, another population that faces challenges with community reintegration, desired peer consumer providers to act as role models and assist in navigating the Veterans Affairs health care system.[20]

In a meta-analytic review comparing peer support interventions to UC, peer support was found to be significantly more effective in reducing depressive symptoms among postpartum women, mothers of school-aged children, menopausal women, HIV-positive men, stage II cancer patients, and elderly psychiatric patients.[21] Finally, a separate review of peer support interventions for consumers of mental health services found that in the majority of studies, peer support interventions lowered re-hospitalization rates, and in the rest, produced no change in re-hospitalization rates when compared to UC.[22]

In the present study's context, a PC is a paraprofessional who has served time in prison and has successfully transitioned into the community, completing drug treatment for at least 1 year, and has maintained sobriety. The PC serves as a positive role model and a resource for other parolees in order to support positive change over time. Among recently released homeless men on parole, few researchers have examined the role of PCs and nurses in reducing drug use and risky behaviors.

In 2008, the Department of Labor launched Ready4Work (R4W) in 11 U.S. cities, a 3-year pilot program designed to meet needs of formerly incarcerated individuals. R4W worked with businesses, communities, and a criminal justice partnership to help ex-offenders successfully transition.[23] The program provided congregational mentors and case managers, with the focus on job training and placement. Findings revealed that of 97 ex-offenders who received case management, 63% were mentored, and 57% were placed into jobs. At 6-month follow-up, re-incarceration was half of the comparison state criminal justice averages.[23] Yet, these studies do not provide information about a most vulnerable population who were all drug-using prior to incarceration and homeless.

Model development

The variables and outcomes assessed in this study have been guided by the Comprehensive Health Seeking and Coping Paradigm (CHSCP),[24] which was adapted from the Lazarus and Folkman Coping model[25] and the Schlotfeldt Health Seeking and Coping Paradigm.[26] This model has been utilized in prior studies that focused on understanding reduction of substances among homeless

youth,[13] methadone-using adults,[27] and HIV and hepatitis knowledge among homeless adults.[17] The CHSCP's integration of a nursing-focused health seeking model with a psychological basis of coping has served to focus on antecedent, mediating, and outcome factors that guide the researchers in the focus of the intervention as well as the selection of instruments administered, and later selected for model testing. These factors include sociodemographic factors, situational, personal, social, and coping factors that will impact outcomes of recently released ex-offenders. This study focused on assessing the impact of these programs on re-arrest at 6- and 12-month follow-up, taking into account significant sociodemographic factors, situational, personal, and social factors and coping responses in a backward selected regression model. Thus, in this article, the CHSCP helps to guide, but may not define, the final model.

More specifically, sociodemographic factors included age, education, race/ethnicity, marital status, health, and history of psychiatric and drug use problems. Situational factors included being homeless[28] and severity of criminal history (level of custody and contract type). Similar personal factors (e.g., history of childhood physical and sexual abuse, gang involvement, and history of having committed a violent crime) were also considered. Social factors included having social support. Finally, coping strategies, in the problem-focused versus emotion-focused coping were also considered here. For many homeless ex-offenders, these variables represent challenges which deter successful reintegration back into their communities.

Methods

Design

A RCT was conducted which assigned 600 recently released ex-offenders from jails and prisons to a: (1) PC-NCM program; (2) PC program with brief nurse counseling; or (3) UC program, which included a brief health education session by a PC and brief nurse counseling. Data were collected from February 2010 to January 2013. This study was approved by the University Human Subject Protection committee.

Sample and site

Male ex-offenders were eligible if they met the following inclusion criteria: (1) had a history of drug use prior to their last incarceration; (2) were 18–60 years of age; (3) resided in a participating residential drug treatment (RDT) program; and (4) were considered to be homeless upon discharge from incarceration. These participants were released from jails and prisons where they have served time for a committed offense. A homeless individual was defined as one who does not have a fixed, regular, and adequate nighttime residence.[29] Exclusion criteria included not speaking English, and being judged to be cognitively impaired by the research staff. The participants were released from southern California jails and prisons and were accepted as residents of a RDT program in Los Angeles. The potentially eligible sample from which the 669 participants were recruited totaled approximately 1,000. A total of 69 parolees were screened out due to failure to meet eligibility criteria. In total, 89.7% of those who agreed to participate and passed the first screen were enrolled; see Figure 1.

Procedure

The study was announced to residents of the participating RDT by means of posted flyers; in addition, brief informational sessions were conducted by research staff. Among residents who expressed interest in the study, the research staff met one-on-one with the resident in a private room at the facility and explained the study in detail and answered questions. If interest continued, the research staff obtained informed consent to conduct a brief screening and then administered a 2-minute screener assessing eligibility criteria. Among those eligible, a second informed consent was signed, blood drawn for HBV serostatus, and subsequently, a baseline questionnaire and a detailed locator guide was administered to each individual.

Upon completion of the baseline questionnaire, URN randomization[30] facilitated randomization of participants based upon four factors: (1) age (18–29 and 30 and over); (2) level of custody in prison (1–2 versus 3–4); (3) HBV serostatus (HBV seronegative or seropositive); and (4) substance use prior to prison (low versus moderate/high severity based upon the Texas Christian University [TCU] screener).[31] Subsequently thereafter, the ex-offender was seen by a program-specific research nurse who conducted post-test counseling regarding the blood and urine test results, and informed the participant which group they were randomly assigned. All respondents who had completed the baseline questionnaire received $20.
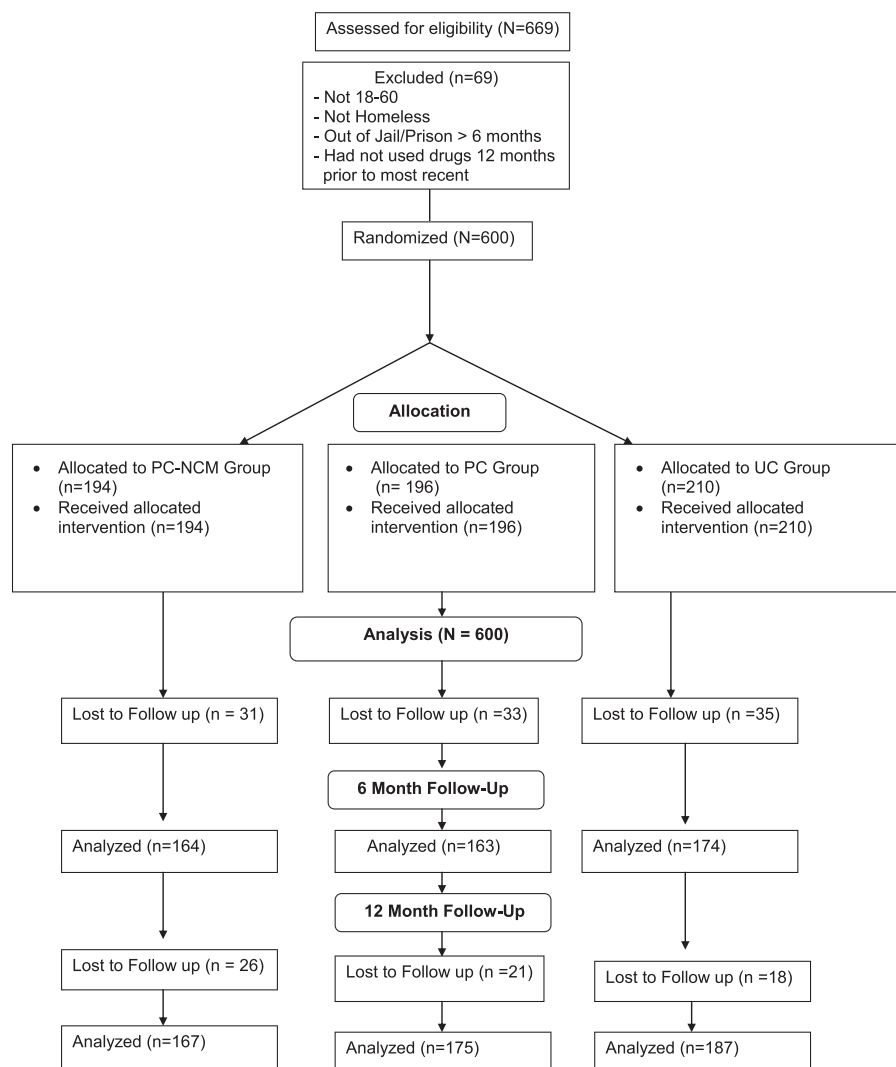
Figure 1. Consort diagram.

Selection and training of peer coaches

Working closely with a community-based RDT site, potential PCs were referred to the principal investigator. Of those who were interviewed, four PCs were selected based on being a role model, having social skills, and having an interest in helping recent parolees to successfully reintegrate back into the community. The assigned PC worked with up to 15 parolees at any given time.

Over a one-month period, the PCs were trained in understanding the needs and challenges faced by parolees discharged to the community; gaining information about the resources that are available in the community; and normalizing parolee experiences, setting realistic expectations, and helping the parolee to problem-solve with day-to-day events and build on strengths. The training consisted of mock role plays of coaching sessions, with learning how to manage problematic/challenging participants and situations.

Program intervention

There were three program arms in this study with varied intensity: (1) a PC-NCM program; (2) a PC program; and (3) a UC program. An intervention manual guided the delivery of the programs which are summarized below. Each program was delivered over 8 weeks.

On a weekly basis, the PC-NCM participant spent up to 45 minutes in 6 individual sessions over an 8-week program; for those who left the facility, they each interacted by phone. The main focus of these sessions, delivered by the PC, included building

effective coping skills, personal assertiveness, and self-management, skill-building, and building personal empowerment. Discussions also centered on strategies to assist in seeking support and assistance from community agencies as parolees prepared for completion of the drug treatment program. Group sessions consisting of 6 to eight participants were also conducted generally by the PC and focused on therapeutic non-violent communication (NVC).[32]

One dedicated nurse was trained by an expert in NCM, hepatitis infection, and transmission, and barriers which impede Hepatitis A virus (HAV) and Hepatitis B virus (HBV) vaccination among vulnerable populations. Over the 8-week period, this program-specific nurse also offered eight culturally competent one-on-one NCM sessions for about 20 minutes per session for the PC-NCM participant which focused on health promotion, completion of drug treatment, vaccination compliance, and reduction of risky drug and sexual behaviors. Several sessions were also dedicated to avoidance of health-risk behaviors, and increasing access to medical and psychiatric treatment. The nurse also assisted the participants in identifying potential barriers to appointment keeping, and asked them to identify personal risk triggers that might hinder vaccine series completion, and successful hepatitis and HIV risk reduction.

PC program

Participants assigned to the PC program received weekly PC interaction similar to the PC component of the PC-NCM program. However, while NCM was not included, a program-specific nurse provided one brief 20 minute education session on hepatitis and HIV risk reduction and encouraged the HAV/HBV vaccination.

UC

Program participants assigned to the UC program received the brief 20 minute encouragement by a nurse to complete the three series HAV/HBV vaccine. In addition, they received a brief 20-minute session by a PC trained in basic health promotion.

Services at the RDT site

At the RDT site, all participants were enrolled in and received recovery and rehabilitation services traditionally delivered for RDT residents, and delivered by trained RDT staff. This highly structured curriculum was offered 24-hours per day, 7-days per week and included substance abuse services, assistance with independent living skills, job skills assistance, literacy, individual, group (small and large) and family counseling, and coordinated discharge planning. All coordination for services took place through the efforts of the RDT community-based staff and the parole office.

Instruments

Sociodemographic information

Sociodemographic data were collected by a structured questionnaire assessing age, education, race/ethnicity, marital status, history of homelessness, fair or poor physical health, self-reported history of mental health problems, history of hospitalization for substance use problems, and history of arrest, child abuse, violence, recruitment from jail/prison, attended juvenile hall, or currently in a gang.

Drug and alcohol use behaviors

Substance use

A modified version of the TCU Drug History form[33] was used to measure drug, alcohol, and tobacco use behaviors 6 months preceding the latest imprisonment. Through this form, information regarding the frequency of use of alcohol, tobacco, and seven other drugs was collected. This form also reviewed the use of these drugs individually or in combination by injection and/or orally during the 6-month period before the last incarceration, as well as to extract information about lifetime drug and alcohol use.[34] The problem drinking measure was based on having a score of 2 or more on the CAGE screener.[35]

Contract type

This variable measured participants' most recent experience with CDCR's treatment programs while in prison. These programs included in-custody drug treatment program (ICDTP), residential multi-service center (RMSC), or parolee Substance Abuse Program (SAP). All programs, offered within the RDT setting, provide drug and alcohol treatment, housing, literacy training, job preparation/placement, anger management classes, life skills, and individual and group counseling.

IDCTP

The IDCTP contract focuses on parolees who have committed violations as a result of drug or alcohol use, have substance-related dependency, and/or have a need for a period of confinement and treatment to get their substance abuse under control.[36] Length of time in the RDT with this contract is 150 days generally.

RMSC

The RMSC program offers a variety of services to parolees which include drug counseling, literacy training, job preparation/placement, anger management classes, as well as individual and group counseling.[36] It is also offered to parolees who have committed violations as a result of drug or alcohol use, and have substance-related dependency. The length of time in the RDT is 180 days generally.

SAP

The SAP program is an evidence-based program that promotes positive social behavior and prepares inmates for release by developing the knowledge and skills necessary to avoid substance use relapse and successfully integrate back into the community, thereby reducing recidivism. The SAP program provides comprehensive substance abuse services including assessments, treatment planning, and placement into community-based RDT programs. Length of time in the program is generally 150 days.

Coping

The Carver Brief Cope instrument[37] was used to measure 6 dimensions, with two items for each; planning, instrumental support, religious, disengagement, denial and self-blame. Item responses ranged from 1 (I do not do this at all) to 4 (I do this a lot). Coping subscales were dichotomized at their medians for analysis. In previous research, the Cronbach's alpha for this scale was .74.[38]

General health

This variable was assessed by a single item which asked participants to rate their overall health on a 5-point scale. Responses included poor, fair, good, very good, and excellent. This 1-item question has been utilized by others.[39] General health was dichotomized as fair/poor versus good/very good/excellent.

Time in RDT

This variable was assessed by the total time participants resided at the RDT study site after discharge from jail/prison to RDT placement. The RDT site was dichotomized at the median of 90 days for analysis.

Social support

Social support was measured by the Medical Outcomes Study (MOS) Social Support Survey.[40] This 18-item scale includes 4 subscales: emotional support (8 items, reliability in this sample .95), tangible support (3 items, reliability .88), positive support (3 items, reliability .89), and affective support (3 items, reliability .90). Items had a 5-point Likert scale response options ranging from 1: "none of the time" to 5: "all of the time." Responses were summed for subscale formation with higher scores indicating more support. Respondents were also asked how many close friends they had outside of prison which was dichotomized at the upper quartile of 6 for analysis. Respondents were asked if they had primary support from users or non-users as a primary source of social support at baseline.

Re-arrest

At 6- and 12-month follow-up, participants were asked if they had been re-arrested at any time in the prior 6 months. This was a dichotomous outcome measure, with any arrest, in either observation periods coded as "1" or "yes," and none as "0" or "no."

Data analysis

Sample characteristics, and RDT and incarceration profiles were described with frequencies and percents, means, and standard deviations, or medians (see Table 1). Depending on the underlying distribution, associations with re-arrest, the majority of variables depicted in Table 2 were assessed with Chi-square tests, *t*-tests, or analysis of variance (ANOVA). The variables that were related to re-arrest at the .10 level were then used as predictors in a multiple logistic regression model for re-arrest. For the model, predictors that were not significant at the .10 level were successively removed starting with the predictor with the highest *p*-value. The final model were assessed for multicollinearity; the Chi-square statistic for the Hosmer-Lemeshow test was 4.469 and the *p*-value was .813, indicating a good fit of the model to the data. As data collection regarding attendance at other drug

treatment programs was not assessed, the authors were unable to assess interaction effects on re-arrest between involvement in other RDT programs and the effect of the experimental treatment. A 6-month follow-up was completed on 83.5% (501/600) of the sample, and with 88.1% (529/600) of the sample at 12-months follow-up.

Results

Sociodemographic characteristics

The sample of 600 parolees reported a mean age of 40 (SD = 10.4) and 11.5 years of education as described in Table 1. The men were predominantly African American (46%) or Hispanic (33%) and nearly two-thirds were never married; yet, 62% reported having children. In terms of health, close to one-third perceived themselves to be in fair or poor health.

In terms of childhood history, physical abuse as a child was experienced by over one-third (35%) of the sample, while sexual abuse was experienced by about 16%. Over half (57%) were removed from home and placed in juvenile hall or another type of group home. About half (53%) of the sample spent less than 3 months in treatment, while 23 and 24% spent 90–179 days and 180 days, respectively, in treatment. The participants were released from jails (55%) and prisons (45%), respectively.

Table 1. Sample characteristics by program (n = 600).

	Program								
	PC-NCM Program (n = 194)		PC Program (n = 196)		UC Program (n = 210)		Overall (n = 600)		
Measure	Mean	SD	Mean	SD	Mean	SD	Mean	SD	p-Value
Age	39.69	10.0	40.89	10.7	39.51	10.5	40.02	10.4	.356
Education	11.4	1.6	11.5	1.7	11.48	1.5	11.46	1.6	.796
	N	%	N	%	N	%	N	%	
Race/ethnicity									.251
African American	81.0	41.75	105.0	53.03	92.0	44.23	278.0	46.33	
Hispanic	69.0	35.57	57.0	26.79	69.0	33.17	195.0	32.5	
Caucasian	30.0	15.46	29.0	14.65	31.0	14.9	90.0	15.0	
Other	14.0	7.22	7.0	3.54	16.0	7.69	37.0	6.17	
Marital status									.172
Never married	127.0	65.46	133.0	67.17	134.0	64.73	394.0	65.78	
Married	14.0	7.22	23.0	11.62	15.0	7.25	52.0	8.68	
Separated/widowed/divorced	53.0	27.31	42.0	21.22	58.0	28.02	153.0	25.55	
Any children	124.0	64.25	114.0	57.87	134.0	64.42	372.0	62.21	.308
	N	%	N	%	N	%	N	%	
Currently in a gang	44.0	22.68	36.0	18.27	45.0	21.63	125.0	20.87	.532
Violent crime[a]	129.0	66.49	147.0	74.24	143.0	68.75	419.0	69.83	.227
Lived on street[b]	50.0	25.77	48.0	24.49	42.0	20	140.0	23.33	.351
Fair/poor health[c]	61.0	31.44	64.0	32.32	77.0	37.02	202.0	33.67	.441
Physical abuse as child	66.0	34.02	78.0	39.39	67.0	32.21	211.0	35.17	.292
Sexual abuse as child	28.0	14.43	35.0	17.68	31.0	14.9	94.0	15.67	.631
Removed from home	115.0	59.28	123.0	62.12	107.0	51.44	345.0	57.5	.078
Time in RDT									.835
1–89 days	108.0	55.67	106.0	53.54	105.0	50.48	319.0	53.17	
90–179 days	44.0	22.68	43.0	21.72	51.0	24.52	138.0	23	
180+ days	42.0	21.65	49.0	24.75	52.0	25	143.0	23.83	
Contract									.47
ICDTP-9	52.0	26.8	53.0	26.77	70.0	33.65	175.0	29.17	
RMSC	119.0	61.34	120.0	60.61	112.0	53.85	351.0	58.5	
SAP	22.0	11.34	23.0	11.62	26.0	12.5	71.0	11.83	
Over 20 prior arrests	163.0	84.02	170.0	85.86	174.0	83.65	507.0	84.5	.808
High use of planning Coping	101.0	52.06	101.0	51.01	90.0	43.27	292.0	48.67	
	N	%	N	%	N	%	N	%	
Criminal facility									.641
Recruited from prison	92.0	47.42	88.0	44.44	89.0	42.79	269.0	44.83	
Recruited from jail	102.0	52.58	110.0	55.56	119.0	57.21	331.0	55.17	
Attended juvenile hall[d]	97.0	50.0	105.0	53.03	92.0	44.23	294.0	49	.196
Support from Drug/alcohol users	38.0	21.84	43.0	22.87	46.0	23.35	127.0	22.72	.94
Used cocaine, ever	107.0	55.73	122.0	61.93	126.0	60.87	355.0	59.56	.411
Frequently uses marijuana	93.0	47.94	112.0	56.57	107.0	51.44	312.0	52	.227

[a]Self-reported conviction of a violent crime in lifetime.
[b]Primary residence in the 6 months before recent incarceration.
[c]Versus good/very good/excellent health.
[d]Put in juvenile hall or other group care facility in childhood primarily because of trouble with the law.

Primary support from drug users was reported by one in five participants as was current gang affiliation. Close to 70% reported having committed a violent crime in their lifetime. About 60% reported a history of lifetime cocaine use while slightly over half (52%) continue to use marijuana frequently. No program differences were found in any of the variables listed.

Associations between baseline measures and re-arrest

A number of baseline variables were found to be related to re-arrest and are shown in Table 2. These included being of younger age, type of contract a participant had with the RDT, and longer length of time in an RDT facility. Homeless men being released from jail versus prison and having been arrested over 20 times were likewise associated with re-arrest.

In terms of childhood experiences, homeless men on parole who were removed from their homes at an early age and those who spent time in juvenile hall were more likely to have been re-arrested compared to those not experiencing these events. Moreover, those who reported current gang activity and frequent use of marijuana were more likely to have been re-incarcerated. Having ever used cocaine was not associated with re-arrest while having had children was weakly associated with re-arrest.

Re-arrest

Data revealed that among the 501 participants followed at 6-month follow-up, 182 (36.3%) reported re-arrest. At the 12-month follow-up, among a sample of 529 participants, 271 (51.1%) reported re-arrest within the last 6 months. When the combined outcome variable "re-arrest" was assessed, reflecting any arrest in either the 6-month and/or the 12-month follow-up period, the percentage of re-arrest was 62%. The number of times of re-arrest was also assessed at the 6-month follow-up, 25.5% reported one re-arrest, while 6.4 and 2.2% reported two and three times, respectively. At the 12-month follow-up, the reported times were 32.9, 11.2, and 3%, respectively.

Multivariate findings

Re-arrest at follow up was coded as "yes" if the participant self-reported incarceration at either 6 or 12 months; it was coded as "no" if they did not report re-incarceration at both periods (Table 3). We did not find program differences among the three interventions in self-reported re-arrest at either 6 or 12 months. Logistic regression analysis for re-arrest at the follow-up found that having received social support from drug/alcohol users, as well as having used marijuana

Table 2. Associations between baseline measures and re-arrest at 6- and/or 12-month follow-up (n = 534).

Measure	Yes		No		p-Value
	Mean	SD	Mean	SD	
Age	38.94	10.3	41.55	10.3	.005
Education	11.36	1.7	11.64	1.5	.085
	N	%	N	%	
Race/ethnicity					.71
African American	151.0	59.45	103.0	40.55	
Caucasian	48.0	62.34	29.0	37.66	
Mexican American	95.0	63.33	55.0	36.67	
Other	20.0	64.52	11.0	35.48	
Program					.876
PC-NCM	111.0	63.43	64.0	36.57	
PC group	107.0	60.80	69.0	39.20	
UC group	113.0	61.75	70.0	38.25	
Contract					.001
ICDTP-9	114.0	75.00	38.0	25.00	
RMSC	190.0	60.32	125.0	39.68	
SAP	26.0	40.00	39.0	60.00	
Time in RDT					.001
1–89 days	225.0	80.36	55.0	19.64	
90–179 days	75.0	61.98	46.0	38.02	
180+ days	31.0	23.31	102.0	76.69	
Discharged from:					.001
Prison	130.0	54.39	109	45.61	
Jail	201.0	68.14	94.0	31.86	
Have children					.049
Yes	216.0	65.26	115.0	34.74	
No	114.	56.72	87.0	43.28	
Sexual abuse as a child					.456
Yes	46.0	58.23	33.0	41.77	
No	285.0	62.64	170.0	37.36	
Removed from parent(s)					.001
Yes	212.0	68.39	98.0	31.61	
No	119.0	53.13	105.0	46.88	
Juvenile hall					.003
Yes	179.0	68.32	83.0	31.68	
No	152.0	55.88	120.0	44.12	
Violent crime					.502
Yes	229.0	61.07	146.0	38.93	
No	102.0	64.15	57.0	35.85	
	N	%	N	%	
Over 20 prior arrests					.011
Yes	189.0	67.02	93	32.98	
No	142.0	56.35	110	43.65	
Current gang activity					.002
Yes	83.0	74.77	248.0	58.77	
No	28.0	25.23	174.0	41.23	
Ever binge drink					.421
Yes	167.0	63.98	163.0	60.59	
No	94.0	36.02	106.0	39.41	
Current frequent use of marijuana					.003
Yes	187.0	68.25	87.0	31.75	
No	144.0	55.38	116.0	44.62	
Ever use cocaine					.027
Yes	184.0	58.41	146.0	67.91	
No	131.0	41.59	69.0	32.09	
Ever use methamphetamine					.543
Yes	174.0	63.50	156.0	60.94	
No	100.0	36.50	100.0	39.06	

Table 3. Logistic regression for rearrest within one year ($n = 509$).

Measure	Estimate	Standard Error	Odds Ratio	95%Wald CI	p-Value
PC-NCM Program	.0073	.16	.95	(.56, 1.63)	.96
PC Program	−.063	.16	.89	(.52, 1.51)	.69
Contract[a]					
Substance Abuse Program (SAP)	−.53	.23	.49	(.25, .98)	.02
ICDTP	.36	.19	1.20	(.71, 2.03)	.059
Residential Drug Treatment (RDT)[b]					
90–179 Days	.18	.17	.39	(.23, .67)	.29
180 + Days	−1.28	.18	.092	(.052, .16)	<.0001
Any Children	.44	.23	1.55	(.98, 2.44)	.059
Gang Member[c]	.55	.29	1.74	(.98, 3.09)	.059
Support from Drug/Alcohol Users[d]	.85	.30	2.34	(1.31, 4.19)	.0041
At least 20 prior arrests[e]	.41	.23	1.50	(.97, 2.34)	.071
High use of planning coping[f]	−.54	.23	.58	(.37, .91)	.017
Used cocaine, ever	−.64	.23	.53	(.33, .83)	.0056
Used marijuana at least once a week[g]	.55	.23	1.73	(1.11, 2.70)	.016
Any drug treatment program[h]	.58	.31	1.79	(.98, 3.29)	.06

[a]Contract type
[b]Days in residential drug treatment (RDT).
[c]Belonged to a gang at baseline.
[d]Primary source of social support at baseline.
[e]Self-reported arrests prior to baseline.
[f] Scored in the upper median on planning coping.
[g]In the 6-month period before the study incarceration.
[h]Participated in any drug treatment program.

at least once a week prior to the last incarceration positively predicted re-arrest.

Having a SAP contract was found to be protective against re-arrest. Time in treatment was also found to be an important factor; specifically, spending 6 months or more was found to be strongly protective. These significant effects are in relation to the excluded category of IDCTP. Moreover, those who reported having utilized a problem-focused planning type of coping, and ever reported having used cocaine in their lifetime were likewise less likely to have been re-arrested at either 6 or 12 months. While no program effects were evident, these factors explained 73% variance in re-arrest at either the 6 or 12-month follow-up.

While interactions between the programs, type of contract, and RDT time broken into tertiles were searched for, no significant interactions were found. Further, no interactions between programs with drug, alcohol, binge drinking, and tobacco use prior to incarceration were found to be significant.

Discussion

In the State of California, nearly half (47.5%) of inmates released into the community returned to prison within 6 months. Further, within 12 months, the rate increased to about three-quarters (74.1%).[3] The current findings suggest that 36.3% of participants reported re-arrest at the 6-month follow-up, while at 12 months, 51.1% reported re-arrest within the previous 6 months. No program differences were found among the three interventions in self-reported re-arrest at either 6 or 12 months; thus, the more intense levels of PC-NCM and PC did not further improve this key outcome.

As one of the most vulnerable populations, homeless ex-offenders are at significant risk for re-arrest; in addition, those with a history of incarceration are more likely to have a history of psychiatric hospitalizations, drug use, multiple sexual partners, and HIV infection than those who do not have such a history.[10] In light of the challenges which this population faces, the primary aim of this study was to assess the impact of three levels of peer-, coach-, and nurse-partnered intervention: PC-NCM versus PC with brief nurse counseling versus UC with brief PC and nurse counseling on re-arrest.

Prior studies of the investigators with homeless drug users have shown improvements in hepatitis A and B vaccination uptake,[6] along with decreasing substances[13] as a result of NCM. One possible explanation for this lack of significance in re-arrests was that ex-offenders were more interested in focusing on health issues with the nurses and referrals in the community. The focus on deterring re-arrest may not have been of primary nature among the participants as healthcare in prison was very limited.

However, when compared to the 2013 State of California re-arrest rate, the lower re-arrest rate experienced by this sample may have resulted from the addition of having focused brief nursing and PC interaction added to a fully operational RDT program. As stated, as ex-offenders may have significant health needs,[41] incorporating a nurse to assist in the management and referral of parolees and probationers to treatment is critical. Training PCs[28] or promotoras[18, 19] to deliver health information has shown benefits in other studies. A number of factors were found to be associated with re-arrest. Ex-offenders who used marijuana at least once a week prior to their last incarceration had a higher likelihood for re-arrest within 1 year. For many, marijuana use on a weekly basis may be perceived to be harmless; however, these findings suggest that awareness and education related to the long-term effects of marijuana use need to be addressed in RDT facilities.

Not surprising, the current findings also suggest that there was a significant association between those who relied on other drug and alcohol users for social support were more likely to be re-arrested within 1 year. A strong focus on many RDT programs is the need for ex-offenders to leave behind the old friends and former hang-out places, as the temptation to go back to using drugs and drinking becomes a reality. In fact, avoidance of drug using peers and places was found to be the strongest factors in predicting drug abstinence.[42]

A strong focus on the dangers of having friends who continue to be involved in drug and alcohol use, including marijuana use, is of critical importance, particularly from peer supporters who may have similar experiences. Strategies to replace substance using friends with positive role models, and engagement in active coping strategies is seen as a significant need to prevent re-arrest among populations who have many unmet physical, social, psychological, and environmental needs.

A number of protective factors were also found to reduce the likelihood of re-arrest. One significant factor was teaching recently released offenders the art of planning as a positive coping style. As opposed to falling back with the old friends who may be using drugs and alcohol or continuing with gang relationships (revealed a trend for predicting re-arrest), positive problem-focused coping, such as thoughtful planning of their personal life goals and ways to achieve these goals are protective of re-arrest. Previous studies have utilized non-violent empathetic communication as a positive coping style among ex-offenders and found it to be effective in addressing problematic coping.[43] While at RDT sites, it is important to encourage the use of planning coping tools which would effectively help in guarding against further drug use, dependence and reduce recidivism.

Furthermore, ex-offenders who attained either a minimum of 3 months or benefitted from being on a SAP contract (included an in-prison treatment component) were significantly less likely to be re-arrested within 1 year. While it is plausible that more days in a RDT facility mean less street time (or at-risk time), hence reduced possibility for re-arrest, residents of RDT programs commonly leave facilities prior to completion of the designated program.

Likewise, a protective association was found between ever using cocaine and re-arrest within 1 year. Among state prisoners, 11.8% had used cocaine/crack at the time of the offense.[44] While no causal inferences can be made, this finding may point to the need for further research studies assessing the relationship between type of drug used and drug treatment focus.

It is important to acknowledge limitations of the present study; first, this study is limited to homeless men on parole in a large, urban city who were residing in one RDT program. Generalization to a larger geographic area outside of Los Angeles is untested and cannot be presumed. It should also be noted that the favorable association between time in treatment and outcomes is correlational, and may be an artifact of self-selection rather than a program effect. Further, self-report data are prone to misclassification and bias. The researchers attempted to overcome this limitation by emphasizing confidentiality across the entire program. Finally, research is needed to add a control group who receive treatment as usual without any PC or nurse interaction. Further, there is a need to assess and include interaction analyses with participation in other RDT programs or other facilities.

A greater understanding of community-informed care for this population which aims to provide a positive social support system and positive coping strategies are worthy of future investigation. Furthermore, greater understanding of the impact of long-term marijuana use may provide some insights to the impact marijuana use had with re-arrest.

References

1. California Department of Corrections and Rehabilitation. Weekly Report of Population as of Midnight. Sacramento, CA, 2014.

2. Federal Bureau of Prisons. Quick Facts about the Bureau of Prisons. Washington, DC: U.S. Department of Justice, 2015.

3. California Department of Corrections and Rehabilitation. Parolee Information Handbook. Sacramento, CA: California Department of Correction and Rehabilitation, 2013.

4. Fickenscher A, Lapidus J, Silk-Walker P, Becker T. Women behind bars: health needs of inmates in a county jail. Public Health Rep 2001; 116:191–6.

5. Nyamathi A, Reback CJ, Salem BE, et al. Correlates of self-reported incarceration among homeless gay and bisexual stimulant-using young adults. West J Nurs Res 2015; 37 (6): 799–811.

6. Nyamathi AM, Marlow E, Branson C, Marfisee M, Nandy K. Hepatitis A/B vaccine completion among homeless adults with history of incarceration. J Forensic Nurs 2012; 8:13–22.

7. Robillard AG, Gallito-Zaparaniuk P, Arriola KJ, Kennedy S, Hammett T, Braithwaite RL. Partners and processes in HIV services for inmates and ex-offenders. Facilitating collaboration and service delivery. Eval Rev 2003; 27:535–62.

8. Staton M, Leukefeld C, Webster JM. Substance use, health, and mental health: problems and service utilization among incarcerated women. Int J Offender Ther Comp Criminol 2003; 47:224–39.

9. Bahr SJ, Harris L, Fisher JK, Harker Armstrong A. Successful reentry: what differentiates successful and unsuccessful parolees? Int J Offender Ther Comp Criminol 2010; 54:667–92.

10. Kushel MB, Hahn JA, Evans JL, Bangsberg DR, Moss AR. Revolving doors: imprisonment among the homeless and marginally housed population. Am J Public Health 2005; 95:1747–52.

11. Petersilia J. When prisoners come home—parole and prisoner reentry. New York: Oxford, University, 2003; 360–374.

12. Nyamathi AM, Nandy K, Greengold B, et al. Effectiveness of intervention on improvement of drug use among methadone maintained adults. J Addict Dis 2011; 30:6–16.

13. Nyamathi A, Branson C, Kennedy B, et al. Impact of nursing interventions on decreasing substances among homeless youth. Am J Addict 2012; 21:558–65.

14. Nyamathi A, Salem B, Reback CJ, et al. Correlates of hepatitis B virus and HIV knowledge among gay and bisexual homeless young adults in Hollywood. Am J Mens Health 2013; 7:18–26.

15. Shanahan CW, Beers D, Alford DP, Brigandi E, Samet JH. A transitional opioid program to engage hospitalized drug users. J Gen Intern Med 2010; 25:803–8.

16. Morgan BD, Rossi AP. Difficult-to-manage HIV/AIDS clients with psychiatric illness and substance abuse problems: a collaborative practice with psychiatric advanced practice nurses. J Assoc Nurses AIDS Care 2007; 18:77–84.

17. Nyamathi A, Kennedy B, Branson C, et al. Impact of nursing intervention on improving HIV, hepatitis knowledge and mental health among homeless young adults. Com Ment Health J 2013; 49:178–84.

18. Edelblute HB, Clark S, Mann L, McKenney KM, Bischof JJ, Kistler C. Promotoras across the border: a pilot study addressing depression in Mexican women impacted by migration. J Immigr Minor Health 2014; 16:492–500.

19. Williamson AA, Knox L, Guerra NG, Williams KR. A pilot randomized trial of community-based parent training for immigrant Latina mothers. Am J Community Psychol 2014; 53:47–59.

20. Chinman M, Young AS, Hassell J, Davidson L. Toward the implementation of mental health consumer provider services. J Behav Health Serv Res 2006; 33:176–95.

21. Pfeiffer PN, Heisler M, Piette JD, Rogers MA, Valenstein M. Efficacy of peer support interventions for depression: a meta-analysis. Gen Hosp Psych 2011; 33:29–36.

22. Repper J, Carter T. A review of the literature on peer support in mental health services. J Ment Health 2011; 20:392–411.

23. Center for Faith-Based Community Initiatives. Ready4-reentry: prisoner reentry toolkit for faith-based and community organizations. In: Labor USDo Ed., United States Department of Labor Center for Faith-Based and Community Initiatives, Washington, DC, 2008; 1–72.

24. Nyamathi A. Comprehensive health seeking and coping paradigm. J Adv Nurs 1989; 14:281–90.

25. Lazarus R, Folkman S. Stress, appraisal, and coping. New York: Springer, 1984; 117–180.

26. Schlotfeldt R. Nursing in the future. Nursing Outlook 1981; 29:295–301.

27. Nyamathi A, Nandy K, Greengold B, et al. Effectiveness of intervention on improvement of drug use among methadone maintained adults. J Addict Dis 2011; 30:6–16.

28. Nyamathi A, Leake B, Albarran C, et al. Correlates of depressive symptoms among homeless men on parole. Issues Ment Health Nurs 2011; 32:501–11.

29. National Health Care for the Homeless Council. What is the official definition of homelessness? In: National Health Care for the Homeless Council, Inc., Services USDoHH Ed. Nashville, TN, 2014.

30. Stout RL, Wirtz PW, Carbonari JP, Del Boca FK. Ensuring balanced distribution of prognostic factors in treatment outcome research. J Stud Alcohol Suppl 1994; 12:70–5.

31. Knight K, Simpson DD, Hiller ML. Screening and referral for substance-abuse treatment in the criminal justice system. New York: Springer, 2002; 1–76.

32. Rosenberg M. Nonviolent communication: a language of life. Encintas, CA: PuddleDance Press, 2003; 1–220.

33. Simpson D, Chatham L. TCU/DATAR forms manual. Fort Worth, TX: Texas Institute of Behavioral Research, Texas Christian University, 1995.

34. Anglin MD, Longshore D, Turner S, McBride D, Inciardi JA, Prendergast ML. Studies of the functioning and effectiveness of treatment alternatives to street crime (TASC) programs. Los Angeles, CA: UCLA Drug Abuse Research Center, 1996; 4–13.

35. Ewing JA. Detecting alcoholism. The CAGE questionnaire. JAMA 1984; 252:1905–7.

36. California Mental Health Directors Association. California Department of Corrections and Rehabilitation Division of adult parole operations program descriptions. Sacramento, CA, 2008.

37. Carver CS. You want to measure coping but your protocol's too long: consider the brief COPE. Int J Behav Med 1997; 4:92–100.

38. Stein JA, Dixon EL, Nyamathi AM. Effects of psychosocial and situational variables on substance abuse among homeless adults. Psychol Addict Behav 2008; 22:410–6.

39. Stewart AL, Hays RD, Ware Jr. JE. The MOS short-form general health survey. Reliability and validity in a patient population. Med Care 1988; 26:724–35.

40. Sherbourne CD, Stewart AL. The MOS social support survey. Soc Sci Med 1991; 32:705–14.

41. Salem BE, Nyamathi A, Idemundia F, Slaughter R, Ames M. At a crossroads: reentry challenges and healthcare needs among homeless female ex-offenders. J Forensic Nurs 2013; 9:14–22.

42. Farabee D, McCann M, Brecht ML, et al. An analysis of relapse prevention factors and their ability to predict sustained abstinence following treatment completion. Am J Addict 2013; 22:206–11.

43. Marlow E, Nyamathi A, Grajeda WT, Bailey N, Weber A, Younger J. Nonviolent communication training and empathy in male parolees. J Correct Health Care 2012; 18:8–19.

44. Mumola CJ, Karberg JC. Drug use and dependence, state and federal prisoners, 2004. In United States Department of Justice, Office of Justice Programs: Statistics BoJ Ed. [Washington, D.C.]: U.S. Department of Justice, 2006; 1–12.