

UC Irvine

UC Irvine Previously Published Works

Title

Impact of Community-Based Programs on Incarceration Outcomes Among Gay and Bisexual Stimulant-Using Homeless Adults

Permalink

<https://escholarship.org/uc/item/9zz7t6zt>

Journal

Community Mental Health Journal, 52(8)

ISSN

0010-3853

Authors

Nyamathi, Adeline M

Reback, Cathy J

Shoptaw, Steven

et al.

Publication Date

2016-11-01

DOI

10.1007/s10597-014-9792-x

Peer reviewed

Impact of Community-Based Programs on Incarceration Outcomes Among Gay and Bisexual Stimulant-Using Homeless Adults

Adeline M. Nyamathi · Cathy J. Reback ·
Steven Shoptaw · Benissa E. Salem ·
Sheldon Zhang · David Farabee · Farinaz Khalilifard

Received: 28 June 2014 / Accepted: 6 December 2014 / Published online: 1 January 2015
© Springer Science+Business Media New York 2014

Abstract This study was part of a randomized controlled trial designed to improve hepatitis knowledge and health promoting behaviors and subsequently decrease stimulant use and incarceration with 422 (G/B) homeless men between 18 and 46 years of age. Findings revealed that no significant program differences on incarceration in the 4 months following the intervention. However, younger participants ($p = .010$), and those with prior incarceration ($p = .001$) were at greater risk for incarceration at 4 months. An additional factor associated with incarceration at 4 months included living on the street for at least 1 week ($p = .049$).

Keywords Self-reported incarceration · Gay · Bisexual · Homeless adults · Nurse case management · Contingency management · Standard education

Introduction

Currently, there are over 1.5 million adults incarcerated in the United States (US) (Carson and Golinelli 2013). While data on the criminal justice involvement of gay and bisexual (G/B) men is largely limited, in one study of homeless men having sex with men (MSM), 55.5 % reported a history of lifetime jail or prison stay (Gorbach et al. 2009). Factors associated with arrest histories of G/B men have included low educational attainment, substance treatment history, cocaine use, and high sex sensation-seeking (Kurtz 2008). Black gay men were more likely to report recent arrests than their white counterparts (Lim et al. 2011). Among homeless MSM, the most frequently used drugs included marijuana (86.6 %), cocaine (41.8 %), crack (36.4 %), MDMA (35.4 %), hallucinogens (35.4 %), heroin (27.5 %), and speed (23.1 %) (Clatts et al. 2005). Other social disadvantages among this population include PTSD symptoms, lower levels of perceived social support, and not having been exposed to HIV prevention services in the past 12 months (Reisner et al. 2012), placing these individuals at risk for HIV and hepatitis B virus (HBV) and hepatitis C virus (HCV) infections. Among a subsample of G/B stimulant-using homeless adults ($N = 267$; ages 18–46), 52.4 % were found to be HBV positive, 29.2 % were HCV positive and 16.9 % were HIV positive (Nyamathi et al. 2013).

A. M. Nyamathi (✉) · B. E. Salem · F. Khalilifard
School of Nursing, University of California, Los Angeles, Room
2-250, Factor Building, Los Angeles, CA 90095-1702, USA
e-mail: anyamath@sonnet.ucla.edu

C. J. Reback
Friends Research Institute, Inc., Los Angeles, CA, USA

C. J. Reback
Integrated Substance Abuse Programs, Semel Institute for
Neuroscience and Human Behavior, University of California,
Los Angeles, Los Angeles, CA, USA

S. Shoptaw
Department of Family Medicine, David Geffen School of
Medicine, University of California, Los Angeles, CA, USA

S. Zhang
Department of Sociology, San Diego State University,
Los Angeles, CA, USA

D. Farabee
Integrated Substance Abuse Programs, University of California,
Los Angeles, Los Angeles, CA, USA

Intervention Approaches Utilized Among Drug Users at High Risk for Incarceration

Contingency management (CM) and Nurse Case Management (NCM) are tested strategies which have been successful in reducing drug use; often linked to incarceration. CM, as a form of operant behavior (Shoptaw et al. 2005), provides alternative non-drug rewards according to a schedule incompatible with drug use and in exchange for biomarkers indicating drug abstinence (Higgins et al. 2002). These rewards or “vouchers” are exchanged for biological samples (urine or breath) that indicate no recent drug use. Among out-of-treatment homeless MSM, CM has resulted in lower use of methamphetamine, stimulants, and alcohol, along with improvements in health promotion (Reback et al. 2010).

Nurse case management (NCM) utilizes nurse-delivered sessions to focus on the individual needs of the client (Cohen and Cesta 2005) and incorporate health discussions, as well as strategies to improve coping, emotional health, social support, and linkage with community resources. NCM has been successful in improving knowledge about risky behaviors, enhanced screening for HBV and HCV, and improved hepatitis vaccination rates among populations who have histories of substance abuse and dependency (Nyamathi et al. 2009, 2010, 2011, 2012). Nursing intervention also provides an effective means for reduction of drug and alcohol use among homeless youth (Nyamathi et al. 2012).

The purpose of this paper was to assess whether the NCM + CM program would more effectively reduce incarceration at 4-month follow-up evaluations with homeless stimulant-using G/B males as compared with the Standard education + CM (SE + CM) program. The 4-month period of follow-up reflected the completion of active engagement in the intervention program. Guided by the Comprehensive Health Seeking and Coping Paradigm (CHSCP) (Nyamathi 1989), a number of variables were assessed as predictors of incarceration at 4-month follow-up, with incarceration as the major outcome. Both programs were considered varying approaches to improving outcomes of this vulnerable population. We hypothesized that G/B men receiving the NCM + CM would demonstrate significantly less incarceration at 4 months as compared to those receiving the SE + CM program. These findings may lead to a better understanding of program specificity most effective in reducing incarceration.

Methods

Design

A randomized controlled trial was conducted to assess the impact of two interventions, an intensive NCM, which

included peer-delivered hepatitis education sessions versus brief standard education on decreasing stimulant use and incarceration among 451 primarily G/B homeless men, which included a small subsample of 29 transgendered women. Both programs which lasted 4 months each included a contingency management (CM) approach which is a standard component of treatment for this population. Data were collected from October 2009 to January 2013 in a community research site in Los Angeles. Both the UCLA and the Friends Research Institute Human Subjects Protection Committees approved the study.

Sample and Site

In total, 451 stimulant-using (methamphetamine, amphetamine, and cocaine) participants were enrolled in the study. After exclusion of 29 transgender women due to the very limited numbers, the sample size for this study was 422. The inclusion criteria included: (a) age 18–46; (b) self-reported being homeless; (c) G/B identity; (d) stimulant use within the last 3 months; and (e) no self-reported participation in drug treatment in the last 30 days. Among the 997 potential participants screened, 120 declined to enroll and another 426 did not meet eligibility criteria. Among the 422 enrolled, 211 were randomized equally to the NCM + CM and SE + CM programs, by means of Urn randomization (Stout et al. 1994). A total of 323 (78 %) completed the 4-month follow-up data.

Procedure

Research staff distributed flyers and posted flyers in the sites that G/B men aggregate and provided brief presentations to inform potential participants of the research study. Questions were addressed, and if interested, informed consents were discussed and obtained for both a screening questionnaire, and if eligible, the full study. Screening assessed demographic characteristics, homeless status, and substance abuse or dependence using the Diagnostic and Statistical Manual of Mental Disorders, Text Revision (DSM-IV-TR). Stimulant use at baseline was confirmed by urinalysis screening or by hair analysis if the urine screening could not detect a stimulant metabolite. Blood was then drawn for HBV assessment. Participants were then assigned to one of two programs via Urn randomization, stratifying on age (18 vs. 29 vs. 30–46), ethnicity (white vs. non-White) and HBV status (negative vs. positive). A baseline assessment was then administered by the research staff. Participants were compensated \$10 and \$20, respectively for the screening and baseline questionnaire. Among the subsample of 323 completers of the 4-month follow-up evaluation, 155 were enrolled in the NCM + CM program while 168 were enrolled in the SE + CM program. Dropout was not significantly related to program assignment.

Nurse Case Management Plus Contingency Management (NCM + CM) Program

Participants randomized to the NCM + CM program received up to eight NCM sessions and eight hepatitis health education sessions over a 16 week period. NCM was delivered over a 20 minute period by a trained nurse, one-on-one, and focused on the dangers of risky drug use behaviors in terms of HIV, HBV and HCV infections and incarceration, areas of health improvement, and the need to complete the hepatitis vaccination, if eligible. The vaccine was administered at baseline, and again at 1 and 4 months, if found HBV antibody negative.

Brief educational sessions (20–30 min in length, 4–5 per group) were also delivered by G/B community peers who were HIV certified and trained to present G/B-specific information on the dangers of combining drug use and unprotected sexual activity, and safe sex practices) over 16 weeks. Nearly two-thirds of the NCM + CM participants for the total sample (142/227 [63 %]) completed all eight NCM sessions, while 146/227 (64 %) completed all eight peer coaching sessions. All NCM + CM participants received CM described below.

Standard Education Plus Contingency Management (SE + CM) Program

Participants randomized to the SE + CM program received one 20 minute brief education session by the health educator plus CM. The brief SE education session focused on basic facts about HBV and HCV, and the importance of condom use and the HAV/HBV vaccination. Vaccine administration was similar to the description above. Almost all SE + CM participants (99 %), completed the brief education session.

Contingency Management (CM) Program

The same CM reinforcement and payout schedule was provided to participants in both the NCM + CM and SE + CM programs. Participants received a \$2.50 voucher for the first urine sample that was negative for stimulant metabolites, with an incremental increase of \$1.25 for each subsequent negative urine sample for stimulant metabolites. Three-weekly urine samples were requested for a period of 16 weeks. Stimulant-free participants received voucher points that could be redeemed for merchandise selected by the participant. Stimulant positive participants or those who did not submit a urine sample, did not receive a voucher points for that particular visit and their subsequent voucher value was reduced to the initial \$2.50 or “reset” to the original value.

Measures

Sociodemographic Information

Variables assessed at baseline included basic sociodemographic information such as age, education, G/B identity, relationship status, etc. We also assessed number of nights homeless, and prior incarceration lifetime. *Health history* was assessed by a self-reported one-item measure which ranged from excellent to poor health and dichotomized as excellent/very good/good versus fair/poor in the previous 4 months (Stewart et al. 1988). The instrument has demonstrated high convergent and discriminant validity and internal consistency (Sherbourne and Stewart 1991). The instrument has demonstrated high convergent and discriminant validity and internal consistency (Sherbourne and Stewart 1991).

HBV, HCV, and HIV Seropositivity

HBV and HCV status were assessed by hepatitis B surface antibody and hepatitis C antibody, respectively, as performed by enzyme immunoassay (EIA) with commercial kits. HIV status was assessed by a rapid HIV test, Ora-Quick ADVANCE Rapid HIV-1/2 Antibody test by OraSure.

Social support was assessed by drug involvement of supporters sought, such as “primarily drug or alcohol users,” “primarily non-users of drugs or alcohol” or “about equally divided between users and non-users.”

Depressive Symptomology

A short form (10-item) version of the Center for Epidemiologic Studies-Depression Scale (CES-D) (Radloff 1977) was used to assess depressive symptoms or depressed mood on a 4-point continuum. Scores on this CES-D range from 0 to 30, with higher scores indicating greater depressive symptomatology. Internal consistency reliability for this scale was .82 in this homeless population.

Substance Use

The Addiction Severity Index [ASI (McLellan et al. 1992)], is a standardized clinical interview that assessed the clients’ self-reported substance use at baseline, based on the last 30 days. *Injection drugs* was assessed by the Behavioral Questionnaire-Amphetamine (BQA) (Twitchell et al. 2002).

Drug Dependence

Status was determined by adding the number of positive criteria from the DSM-IV-TR Criteria for Dependence checklist (American Psychological Association 2000). Criteria endorsed were totaled and scores higher than 3 were considered to indicate drug dependence.

Urinalysis Drug Testing Results

Urine test results for the first 2 weeks of the intervention (six urine tests) were compiled to assign ongoing stimulant use status for the participant. Participants were scored as *stimulant use positive* = 1 if any of the first 6 tests were positive; *stimulant use negative* = 0 if they had at least 1 negative and no positive tests among the first 6 tests. The Phamatech QuickScreen (San Diego, CA) is a rapid, self-timed, immunoassay for the detection of drugs of abuse in urine. The cutoff concentrations for this test are as follow: methamphetamines 500 ng/ml; amphetamine 1,000 ng/ml; and cocaine 300 ng/ml.

Self-Reported Incarceration

Spent time in jail or prison was assessed over the 4-month follow-up.

Data Analysis

Program differences in baseline sociodemographic characteristics and dependence on cocaine, methamphetamine and other amphetamines, as determined from the self-report DSM-IV-TR checklist, were examined using Chi square and two sample *t* and Wilcoxon tests, depending on underlying distributions. The Chi square test for the association between program and incarceration by 4-month follow up (NCM-CM: 155, SE-CM: 168) with 4-month data proved to be not significant ($p = .114$). Multiple logistic regression analysis controlling for confounders indicated a lack of significant program impact. Intention-to-treat analysis was not performed since drop-out was unrelated to program assignment ($p = .135$).

In adjusting for ongoing stimulant use in this sample recruited subsequent to a positive stimulant test, six urinalysis tests conducted in the first 2 weeks of the study post baseline were examined. Positive test results for any of the three stimulants were coded as a positive stimulant test. Of the 323 with 4-month incarceration data, 57 (17.7 %) did not have urinalysis data in the initial 2-week period, leaving a sample of 266 for analysis of predictors of incarceration. Other than program assignment, age, race/ethnicity, injection drug use (IDU), lifetime incarceration and testing positive for stimulants, all other predictors in

the resulting model that had *p* values greater than .10 were removed one at a time by stepward backward elimination to identify a set of independent predictors of incarceration. Multicollinearity was assessed and not found to be a problem. Model goodness of fit was checked with the Hosmer–Lemeshow test (Hosmer and Lemeshow 2000). The study was powered to detect medium size differences between programs in dichotomous outcomes with at least 80 % power for $\alpha = .05$ (two-sided test) assuming 20 % attrition. At 4-month follow up, there was still over 90 % power to detect moderate program differences.

Results

Sociodemographic Characteristics

A total of 422 homeless G/B participants meeting study eligibility criteria were enrolled in the study and 323 (77 %) completed 4-month follow-up evaluation and provided incarceration data. Of these 266 participants with urinalysis data in the first 2 weeks were included for analysis of predictors of incarceration, controlling for continued use of stimulants. Dropout between baseline and 4 months was unrelated to most variables, except that African Americans and Latinos, those who reported never using injection drugs, and those who tested positive for HIV were less likely to drop out than their counterparts. No differences were noted between the baseline sample and the sample of 266 assessed to identify predictors of incarceration by 4 months, with the following exceptions. Participants of Latino and mixed race/ethnicity, those who were partnered, and those who were better educated were less likely to be lost than their counterparts. Finally, those who had either no support or support from both drug users and non-users were less likely to be lost than those who had support from users alone or non-users alone.

Participants averaged 34.4 years of age ($SD = 8.1$) and 12 years of education. The majority were primarily African American/black (35.6 %), Caucasian/white (36.5 %), or Hispanic/Latino (14.7 %). Nearly two-thirds reported living on the streets during the past week. In the last 30 days, the average time spent on the streets was 24 days ($SD = 9.0$). Less than a quarter reported receiving healthcare. Nearly two-thirds reported living on the streets during the past week. A majority (78 %) reported a prior history of incarceration.

At baseline, about half of the sample was HBV positive (49.3 %), while less than one-third were HCV positive (30.6 %); 14.8 % were HIV positive. Just over half (59.8 %) were classified as cocaine dependent and the majority (89 %) were methamphetamine-dependent. The overall positive urine findings for the first 2 weeks for

amphetamine for both conditions were 22.2 %. Overall, 34 % self-reported IDU in the past 30 days. In total, 20.9 % self-reported having drug-using friends in their support network, while close to half (45.6 %) or about a quarter (25.8 %) self-reported both drug users and non-users in their social networks. No program differences were found at baseline for sociodemographic factors, health and drug history or depressive symptomatology. No significant differences were found among these baseline variables.

In terms of incarceration findings, 34.9 % reported incarceration by 4 month follow-up post enrollment; in total, 80.3 % reported lifetime incarceration. Slightly over one-third (36.5 %) reported time spent in jail, 3.1 % in prison, and 40.5 % reported doing time in both jail and prison. At 8-month follow-up, incarceration within the prior 4 months was reported to be 41.6 %.

Bivariate associations revealed one positive association between select variables and self-reported incarceration by 4-month follow-up evaluations. In particular, G/B participants who were living on the street were more likely to have reported incarceration by the 4 month follow-up evaluation as compared to those not living on the street.

Logistic Regression for Incarceration by 4 Month Follow-Up Evaluations (N = 285)

Findings revealed no significant program or race/ethnicity effects on incarceration in the 4 months following the intervention. However, there was an inverse relationship between age and incarceration; in particular, younger participants were more likely to have been incarcerated. Also, any prior incarceration episode placed individuals at greater risk for incarceration at 4-month follow-up evaluation. Regarding homelessness, participants who had been on the street for at least 1 week were more likely to have been incarcerated by the 4-month follow-up evaluation. No relationships were found with race/ethnicity or positive urine test for stimulant use at 4 months.

Discussion

As drug use and incarceration are intertwined, our study was designed to assess if the NCM + CM program could result in reduced incarceration via its focus on reduction of drug use and the added component of nursing assessment and health promotion. This RCT is the first study to our knowledge which presents data prospectively over a 4 month period on self-reported incarceration of a high risk sample of G/B male adults who received either the NCM + CM intervention or SE + CM programs.

Findings of our study revealed no program differences in self-reported incarceration; thus, the NCM + CM

intervention program did not further improve whatever impact SE + CM had on incarceration at 4 month follow-up evaluation. Our findings are the first to reveal an association between G/B homeless men living on the street and incarceration. Baseline data revealed that average lifetime history of incarceration among this targeted population was over 80 %. These findings are consistent with other research studies which details that recent homelessness in general was more common among incarcerated populations (Greenberg and Rosenheck 2008). While incarceration does occur at times among homeless individuals living on the streets during police street sweeps, most incarceration results from petty crimes committed by homeless persons in search of food or money. As homelessness is a significant predictor for incarceration in general, it is possible that rapid housing placement among G/B homeless adults may be important in decreasing incarceration.

As this sample reflects all stimulant-users verified by urine or hair analyses, it is not surprising that over 50 % were already HBV positive, while 30 % were HCV positive. Further, 16 % were HIV positive. These associations lend support to the critical need for a comprehensive program that integrates the resources of hepatitis health education, health protection by vaccination and drug reduction services which include strategies to improve employment, housing and social stability, and on reducing incarceration. This is particularly poignant as over one-fourth reported fair or poor health. Helping to link G/B homeless adults with culturally-sensitive health providers, including mental health counselors, in clinic settings may encourage them to seek health care more frequently as needed. Further research is needed to assess the impact these services may have on decreasing substance use and dependency, along with incarceration as prevalence of disease at baseline was particularly high. While we were unable to assess change of incarceration over time due to non-comparable baseline and follow-up data on incarceration, our data highlight the importance of health promotion and harm reduction strategies in community drop-in facilities for at-risk populations.

We likewise noted younger age to be related to incarceration. This finding is consistent with a national sample of incarceration among 25–29 year olds, revealing prevalence of incarceration tripled between 1974 and 2001 among this age group (Bonczar 2003). Drug use is similarly prevalent. In another national sample, nearly 61 % of state prisoners and 57 % of federal prisoners between 25 and 34 years of age reported drug use in the month before the offense, whereas 55 % state and 48 % of federal prisoners between 35 and 44 years of age reported drug use in the month before the offense (Mumola and Karberg 2006).

Several limitations are noted; for instance, findings on incarceration and other variables are based on self-report data, the use of a convenience sample from one geographical

area, and inability to account for length of time in a prior incarceration. However, the longitudinal nature of the study design is clearly a strength and maintaining a high rate of follow-up for a transient and hard-to-reach population. The similar outcomes observed between the two study conditions suggest it would be more efficient and resourceful to offer the less expensive SE + CM condition. Nevertheless, further investigation of NCM programs that are more directly focused on incarceration-directed strategies are worthy of investigation. Moreover, it is clear that further research is needed to assess the impact of additional strategies which may be more criminal justice-focused and coupled with drug reduction programs. Such strategies may include providing wrap around services within the drug treatment programs and to obtain adequate referral for mental health and social services for those who request such assistance.

Acknowledgments This study was funded by the National Institute on Drug Abuse, Grant No. DA016147.

References

- American Psychological Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington: American Psychological Association.
- Bonczar, T. P. (2003). *Prevalence of imprisonment in the U.S. population, 1974–2001*: Office of Justice Programs Retrieved from <http://www.bjs.gov/index.cfm?ty=pbdetail&iid=836>
- Carson, E., & Golinelli, A. (2013). *Prisoners in 2012—Advance Counts*. <http://www.bjs.gov/content/pub/pdf/p12ac.pdf>
- Clatts, M. C., Goldsamt, L., Yi, H., & Gwadz, M. V. (2005). Homelessness and drug abuse among young men who have sex with men in New York city: A preliminary epidemiological trajectory. *Journal of Adolescence*, 28(2), 201–214. doi:10.1016/j.adolescence.2005.02.003.
- Cohen, E. L., & Cesta, T. G. (2005). *Nursing case management: From essentials to advanced practice applications*. St. Louis: Elsevier Mosby.
- Gorbach, P. M., Murphy, R., Weiss, R. E., Hucks-Ortiz, C., & Shoptaw, S. (2009). Bridging sexual boundaries: Men who have sex with men and women in a street-based sample in Los Angeles. *Journal of Urban Health*, 86(Suppl 1), 63–76. doi:10.1007/s11524-009-9370-7.
- Greenberg, G. A., & Rosenheck, R. A. (2008). Homelessness in the state and federal prison population. *Criminal Behavior & Mental Health*, 18(2), 88–103. doi:10.1002/cbm.685.
- Higgins, S. T., Alessi, S. M., & Dantona, R. L. (2002). Voucher-based incentives. A substance abuse treatment innovation. *Addictive Behaviors*, 27(6), 887–910.
- Hosmer, D. W., & Lemeshow, S. (2000). *Applied logistic regression*. New York: Wiley.
- Kurtz, S. P. (2008). Arrest histories of high-risk gay and bisexual men in Miami: Unexpected additional evidence for syndemic theory. *Journal of Psychoactive Drugs*, 40(4), 513–521.
- Lim, J. R., Sullivan, P. S., Salazar, L., Spaulding, A. C., & Dinunno, E. A. (2011). History of arrest and associated factors among men who have sex with men. *Journal of Urban Health*, 88(4), 677–689. doi:10.1007/s11524-011-9566-5.
- McLellan, A. T., Kushner, H., Metzger, D., Peters, R., Smith, I., Grissom, G., et al. (1992). The fifth edition of the addiction severity index. *Journal of Substance Abuse Treatment*, 9(3), 199–213.
- Mumola, C. J., & Karberg, J. C. (2006). *Drug use and dependence, state and federal prisoners, 2004*. [Washington, D.C.]: U.S. Department of Justice Retrieved from <http://purl.access.gpo.gov/GPO/LPS85621>
- Nyamathi, A. (1989). Comprehensive health seeking and coping paradigm. *Journal of Advanced Nursing*, 14(4), 281–290.
- Nyamathi, A., Branson, C., Kennedy, B., Salem, B., Khalilifard, F., Marfisee, M., et al. (2012). Impact of nursing interventions on decreasing substances among homeless youth. *American Journal on Addictions*, 21(6), 558–565.
- Nyamathi, A., Liu, Y., Marfisee, M., Shoptaw, S., Gregerson, P., Saab, S., et al. (2009). Effects of a nurse-managed program on hepatitis A and B vaccine completion among homeless adults. *Nursing Research*, 58(1), 13–22. doi:10.1097/NNR.0b013e3181902b93.
- Nyamathi, A., Nandy, K., Greengold, B., Marfisee, M., Khalilifard, F., Cohen, A., et al. (2011). Effectiveness of intervention on improvement of drug use among methadone maintained adults. *Journal of Addictive Diseases*, 30(1), 6–16. doi:10.1080/10550887.2010.531669.
- Nyamathi, A., Salem, B., Reback, C. J., Shoptaw, S., Branson, C. M., Idemudia, F. E., et al. (2013). Correlates of hepatitis B virus and HIV knowledge among gay and bisexual homeless young adults in Hollywood. *American Journal of Men's Health*, 7(1), 18–26. doi:10.1177/1557988312456068.
- Nyamathi, A., Tyler, D., Sinha, K., Marfisee, M., Cohen, A., & Greengold, B. (2010). Predictors of hepatitis knowledge improvement among methadone maintained clients enrolled in a hepatitis intervention program. *Journal of Community Health*, 35(4), 423–432. doi:10.1007/s10900-010-9266-1.
- Radloff, L. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurements*, 1, 385–401.
- Reback, C. J., Peck, J. A., Dierst-Davies, R., Nuno, M., Kamien, J. B., & Amass, L. (2010). Contingency management among homeless, out-of-treatment men who have sex with men. *Journal of Substance Abuse Treatment*, 39(3), 255–263. doi:10.1016/j.jsat.2010.06.007.
- Reisner, S., Mimiaga, M., Bland, S. E., Driscoll, M. A., Cranston, K., & Mayer, K. H. (2012). Pathways to embodiment of HIV risk: Black men who have sex with transgender partners, Boston, Massachusetts. *AIDS Education & Prevention*, 24(1), 15–26. doi:10.1521/aeap.2012.24.1.15.
- Sherbourne, C. D., & Stewart, A. L. (1991). The MOS social support survey. *Social Science and Medicine*, 32(6), 705–714.
- Shoptaw, S., Reback, C. J., Peck, J. A., Yang, X., Rotheram-Fuller, E., Larkins, S., et al. (2005). Behavioral treatment approaches for methamphetamine dependence and HIV-related sexual risk behaviors among urban gay and bisexual men. *Drug and Alcohol Dependence*, 78(2), 125–134. doi:10.1016/j.drugalcdep.2004.10.004.
- Stewart, A. L., Hays, R. D., & Ware, J. E., Jr. (1988). The MOS short-form general health survey. Reliability and validity in a patient population. *Medical Care*, 26(7), 724–735.
- Stout, R. L., Wirtz, P. W., Carbonari, J. P., & Del Boca, F. K. (1994). Ensuring balanced distribution of prognostic factors in treatment outcome research. *Journal of Studies in Alcohol (Suppl)*, 12, 70–75.
- Twitcheil, G. R., Huber, A., Reback, C. J., & Shoptaw, S. (2002). Comparison of general and detailed HIV risk assessments among methamphetamine abusers. *AIDS and Behavior*, 6, 153–162.