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An Examination of Women Ex-Offenders With Methadone Histories

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Abstract

Criminal (drug and prostitution) charges, employment levels (weekly hours), recent substance use in the past 6 months, and primary sources of income were examined among a sample ($n = 106$) of women ex-offenders who had opioid use disorders with and without methadone histories. A general linear model was tested to examine differences in relation to methadone use history. Results from a one-way MANCOVA found that those with methadone histories reported significantly higher levels of drug and prostitution charges than those without any methadone history, but no significant differences in terms of weekly hours of employment or recent substance use were observed between groups. Women ex-offenders with methadone histories reported various sources of income beyond employment, and proportionally, more of these women reported prostitution as a primary source of income. Findings suggest that methadone maintenance treatments are not sufficient in meeting the needs of women ex-offenders.

Keywords

women; ex-offenders; methadone; substance use; employment; sources of income; criminal behaviors

The use of methadone in treating persons with opioid use disorders has been practiced for more than 50 years in the United States. Methadone maintenance treatment was conceived on the premise that persons addicted to opioids such as heroin suffer from a metabolic disease (Dole & Nyswander, 1967), and such an approach was groundbreaking in that it was arguably the first medically based approach to treating heroin addiction that yielded practical results. At its inception, the aims of methadone maintenance treatment consisted of providing initial benefit to the patient. This involved the immediate stabilization of the craving process and normalizing one's metabolism (which in turn stops the need for illicit narcotics) while later gains are made through medical and social rehabilitation as the maintenance medication is slowly withdrawn (Dole, 1988).

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Although considerable research has been conducted on methadone maintenance treatment, it is important to understand the historic context of early investigations that examined its benefits beyond the outcome of abstinence (historically, an outcome that was not widely viewed as reachable or practical). Instead, measures of treatment success such as increased social acceptability and decreased criminality were observed among those receiving methadone maintenance treatment (Dole & Nyswander, 1967). More rigorous investigations found methadone maintenance treatment was related to improved employment and familial/social relationships with decreased criminal behavior in a Canadian sample (Paulus & Halliday, 1967) and increased employment and decreased criminal behavior in an U.S. sample (Gearing, 1974). Disengagement from a criminal milieu and reintegration into society by means of employment might explain why methadone maintenance programs were frequently sought by persons addicted to heroin in the early 1970s (Adler & Ball, 1972).

Early investigations supported the notion that persons receiving methadone maintenance treatment essentially become similar to drug-free peers in terms of having jobs, not using illicit narcotics, and decreasing or ceasing involvement in criminal activities (Dole, 1988). Subsequent investigations examined other factors such as retention in methadone maintenance programs and found retention was associated with decreased criminal behavior (Bell, Hall, & Byth, 1992), with better retention rates associated with decreases in criminal involvement, injecting behaviors, and drug use behaviors among those receiving methadone treatment compared with non-methadone treatment for opioid use disorders (Rosenbach & Hunot, 1995).

Some investigations have examined retention in methadone maintenance treatment among persons involved with criminal justice systems. For instance, pre-release prisoners who received methadone maintenance treatment and counseling while incarcerated had better post-release treatment retention rates at 6 months (Gordon, Kinlock, Scharwartz, & O'Grady, 2008) and were less likely to use drugs (heroin and cocaine) at 12 months (Kinlock, Gordon, Scharwartz, Fitzgerald, & O'Grady, 2009) compared with those who received counseling only or counseling plus (post-release) referral to methadone maintenance treatment. In addition, retention rates at 1 year were improved by high (80 mg) doses of methadone among a sample of HIV positive offenders released from prison (Wickersham, Zahari, Azar, Kamarulzaman, & Altice, 2013). However, little is known about outcomes other than treatment retention in terms of any drug use (beyond opioid and cocaine drug types), criminal charges, and employment among persons involved in methadone maintenance treatment who have criminal justice involvement.

In particular, there is a dearth of investigations with women offenders involved in methadone maintenance treatment, and research evidence is not consistent. On one hand, lower recidivism (return to custody) rates were observed among women inmates who received methadone maintenance treatment prior to their release from federal incarceration compared with a control group of peers who did not receive methadone (Farrell-MacDonald, MacSwain, Cheverie, Tiesmaki, & Fischer, 2014). However, violation of legal conditions of release (e.g., not reporting to authorities in a timely manner post-release), not criminal involvement per se, accounted for the majority of infractions that led to recidivism. On the other hand, Patterson, Lennings, and Davey (2000) found heroin use among women in

methadone maintenance treatment was significantly related to their involvement in prostitution and drug sales offenses and that women involved with methadone maintenance treatment might be at greater risk for drug use and crime than men.

Women offenders who have substance use disorders might resort to committing crimes, continue using substances, and be at risk for recidivism in relation to tremendous stressors, unmet needs including income (Freudenberg, Daniels, Crum, Perkins, & Richie, 2005; Grella, Stein, & Greenwell, 2005; Salina, Lesondak, Razzano, & Parenti, 2011), and those related to psychological distress (El-Bassel, Simoni, Cooper, Gilbert, & Schilling, 2001) that might not be adequately addressed in methadone programs. Furthermore, research evidence suggests that although heroin use decreases while in methadone maintenance treatment, male offenders' use of various other drugs increases over time (Johnson, MacDonald, Cheverie, Myrick, & Fischer, 2012). However, little is known about rates of substance use among women ex-offenders with methadone histories and whether these rates are comparable with women ex-offenders who never received methadone maintenance treatment.

There is a need to examine more proximal outcomes (e.g., crime, any illicit drug use, employment, sources of income) than distal outcomes (e.g., treatment retention rates) among women ex-offenders receiving methadone maintenance and to compare them with women with opioid (heroin) use disorders who never received methadone maintenance treatment. Such an approach would directly assess the initial aims of methadone maintenance treatment (Dole, 1988) and increase our understanding of opiate using women in the justice system.

The present investigation was conducted to address several research questions. For instance, do heroin addicted women with previous criminal justice involvement who report methadone histories also report greater histories of heroin and injection drug use compared with those without any methadone history? What types of income other than employment do these women generate, and are there differences in this respect between women with methadone histories versus those without any methadone history? Do such women with methadone histories report fewer charges for criminal behaviors (prostitution, drug-related) commonly associated with this sub-population compared with those without any methadone history? Are there significant differences in terms of employment between these two groups of justice-involved women, and do these groups differ in terms of recent substance use?

The present investigation examined criminal charges, employment rates, sources of income, and substance use among two groups of women ex-offenders with opioid (heroin) use disorders: those with methadone histories and those without any methadone history. We hypothesized that women ex-offenders with opioid use disorders who reported methadone histories (compared with those without any methadone history) and lifetime heroin use would be factors related to significantly higher levels of criminal (prostitution, drug) charges. We also hypothesized that women ex-offenders with methadone histories, compared with those without a methadone history, would report significantly higher levels of employment in the past 6 months. We also explored these women's primary sources of income to better understand the context of their levels of employment.

Method

Participants

Two hundred women were recruited for this study. The majority were African American (74.5%) with an average age of 39.94 years ($SD = 8.58$ years) who reported multiple ($M = 16.5$, $SD = 37.73$) lifetime convictions (generally for non-violent crimes) and were unemployed (66%) at the time of enrollment. Only 22.8% of the sample reported that their primary source of income came from legal employment; the next highest primary sources of financial support were selling drugs (17.3%) and sex work/prostitution (14.7%). Of the women who were employed, 50% ($n = 34$) reported their primary source of income over the last year was a result of illegal activities, including selling drugs and prostitution/sex work. In addition, 12.5% ($n = 17$) of those reporting employment reported that their main source of income relied on other, external relationships such as family, current or ex-boyfriend/partner, and welfare or public assistance.

Fifty-three percent ($n = 106$) of the sample reported being dependent on heroin with an average rate of 15.28 years ($SD = 9.55$ years) of lifetime use and stated it was their main drug of choice. Twelve of these participants reported being dependent on other drugs (mostly cocaine) in addition to heroin, and only 3 participants reported being dependent on other opioids in addition to heroin. Of these 106 participants, 48 reported no current or lifetime use of methadone whereas 58 reported (current and/or) a history of using methadone for an average of 2.48 ($SD = 3.47$) years, ranging from 1 month to 23 years.

Procedures

Participants recovering from substance use disorders who had involvement in the criminal justice system within the preceding 2 years were recruited from multiple sites in metropolitan Chicago and its suburbs from 2008 to 2011. Recruitment sites included Cook County Jail and multiple substance abuse treatment sites throughout Chicago, the surrounding suburbs, and Northern Illinois. Although recruitment staff actively visited these sites, research staff also posted recruitment flyers which were distributed in places that might provide some form of services to women who were formerly or currently justice-involved. Inclusion criteria consisted of having any criminal justice involvement over the past 2 years in addition to having a substance use disorder. Women who were interested in the study contacted our recruiters, and none were refused to participate. Snowball techniques were also used to recruit women referred by established participants. Most women agreed to participate in the study, with the exception of a few women ($n = 3$) who declined. The pool of all potential participants was unknown. All women in the study were enrolled using Institutional Review Board-approved informed consent procedures. Participants received transportation passes to travel for their interviews conducted at a university approved interview site and US\$40 in grocery store gift cards as incentive for their participation after completing a face-to-face interview conducted by a female interviewer.

Materials

Drug use and criminal charges—The *Addiction Severity Index–Lite* (ASI-Lite; McLellan, Cacciola, & Zanis, 1997), a briefer version of the *Addiction Severity Index* (ASI;

McLellan et al., 1992), was used to assess lifetime drug use and lifetime criminal charges rates. The ASI has good internal consistency and excellent predictive and concurrent validity (McLellan et al., 1992), and the ASI-Lite has been demonstrated as being quite comparable with the ASI with good validity and reliability (Cacciola, Alterman, McLellan, Lin, & Lynch, 2007).

We used the ASI to collect data on the lifetime rates of heroin, methadone, and other opiates use in addition to assessing route of administration (e.g., injection drug use). Participants were also asked to identify their drugs of choice and report the number of years they used each drug type to provide data regarding historic use of drug of choice. The ASI enabled us to identify participants ($n = 106$), with and without methadone use histories, whose drugs of choice were heroin ($n = 94$) or heroin and other substances ($n = 12$). The internal consistency of ASI items for alcohol and drugs used in the present study was excellent (Cronbach's $\alpha = .95$).

We used two ASI legal questions to assess participants' lifetime frequencies of being criminally charged for drug and prostitution offenses, as these were identified as the most common offenses committed by women using heroin in methadone programs (Patterson et al., 2000). The internal consistency of ASI items for lifetime rates of charged crimes in the present study was very good (Cronbach's $\alpha = .84$).

Sources of income—We asked participants to identify their major sources of income for the past 12 months and to report their average number of weekly hours spent working for the past 6 months. This provided us a contextual understanding of employment as opposed to assessing employment categorically (e.g., part-time, full-time, unemployed), consistent with a previous investigation that examined non-employment sources of income among methadone clients (Richardson, Wood, Montaner, & Kerr, 2012).

Recent substance use—We administered Miller's (1996) *Form 90* to collect a continuous record of alcohol and drug use across all drug types for the past 6 months. The Form 90 provides a retrospective time frame for assessment and has excellent test-retest reliability (Miller & Del Boca, 1994). The internal consistency for alcohol, drugs, and both alcohol and drugs items in the past 6 months was very good (Cronbach's $\alpha = .86$).

Data Analysis

MANCOVA was conducted to test for differences in criminal charges (number of drug charges, number of prostitution charges), weekly hours of employment and any substance use (both in the past 6 months), while controlling for socio-demographic characteristics (race, age), and lifetime heroin and methadone use (both in years). We treated lifetime methadone use as a covariate for our analyses to control for duration effects (as length of methadone treatment varies on a case-by-case basis) to see if they were meaningfully related to outcomes. Our MANCOVA was used to control for potential shared variance among covariates in addition to control for Type I error that might have resulted through repeated one-way ANOVA testing.

Descriptive analyses were conducted to provide socio-demographic characteristics of the sample in addition to describing rates of weekly hours of employment (in the past 6 months), primary sources of income (in the past 12 months), any alcohol or drug use (in the past 6 months), and histories of heroin and methadone use. We conducted a one-way ANCOVA, controlling for socio-demographics (age, race) and methadone use in years, to examine differences in lifetime rates of heroin use between methadone groups (methadone histories, no methadone histories). Chi-square tests were conducted to examine proportional differences among participants based on racial groupings and between methadone groups in relation to primary sources of income and history of injection drug use.

Missing data—A listwise deletion approach was used to evaluate data and calculate analyses. Participants with missing data (6.5% of all available cases) were excluded from analysis. A missing values analysis of all independent and dependent variables indicated that the data were missing completely at random (MCAR), Little's MCAR test, $\chi^2(15) = 3.92$, $p = .99$.

Results

Preliminary Analyses

There were proportionately more African American women than those from other racial groupings, $\chi^2(3, N = 200) = 284.92$, $p < .001$, in the sample. Although lifetime rates of heroin use of 1 year or more was reported by 63% of the sample, only 106 (53%) participants reported using heroin as a main drug. Of these, 58 women reported having methadone histories whereas 48 reported no history of ever using methadone. There was no significant difference in terms of the proportion of injection drug use reported by women in the methadone histories ($n = 28$) and no methadone history ($n = 19$) groups, $\chi^2(1) = .80$, $p < .37$, and our ANCOVA revealed no significant difference in the number of years using heroin between women with methadone histories ($M = 16.13$, $SD = 1.08$) and those with no methadone history ($M = 14.51$, $SD = 1.18$), $F(1, 97) = 0.916$, $p < .34$. However, parameter estimates revealed a significant and positive effect of heroin use with age, $\beta = .53$, $SE = .11$, $t = 4.73$, $p < .01$.

In terms of employment, participants reported having worked an average of 12.12 hr ($SD = 18.31$ hr) per week for the past 6 months. Eighty-six percent of women with methadone histories reported they received the majority of their income from non-employment sources in the past 12 months, compared with about 75% of the women without methadone histories. The frequencies of primary sources of income in the past 12 months are presented in Table 1. We were able to conduct non-parametric analyses (Fisher's Exact Test) among only three categories of non-employment primary sources of income (selling drugs, prostitution, other illegal activities) due to the number of cases sufficient for analyses in these categories. Proportionately more women with methadone histories reported involvement in prostitution than those without methadone histories, and differences between groups in terms of other criminal behaviors (selling drugs, other illegal activities) were not significant.

Major Analyses

Differences in levels of criminal charges, employment, and any substance use (both in past 6 months) were examined in relation to whether participants had methadone histories. A one-way MANCOVA was used to examine the effects of methadone histories (methadone histories vs. no methadone history) on levels of criminal charges (drug and prostitution), weekly hours of employment and any substance use as dependent variables, entering age, race, lifetime heroin, and methadone use (in years) as covariates.

Main Effects

Results from the MANCOVA test demonstrated a significant main effect for methadone histories, Wilks's $\lambda = .88$, $F(4, 92) = 3.23$, $p < .02$, $\eta_p^2 = .12$. Follow-up ANOVA tests revealed that women with methadone histories ($n = 54$) reported significantly higher levels of drug charges ($M = 4.55$ vs. 1.99 , $SE = 0.68$, 0.74), $F(1, 95) = 5.73$, $p < .02$, $\eta_p^2 = .06$, and prostitution charges ($M = 13.32$ vs. 0.41 , $SE = 4.05$, 4.38), $F(1, 95) = 4.69$, $p < .04$, $\eta_p^2 = .05$, than women without any methadone history ($n = 47$). However, there were no significant differences in terms of levels of weekly hours of employment ($M = 7.12$ vs. 14.33 , $SE = 2.59$, 2.80), $F(1, 95) = 3.17$, $p < .08$, $\eta_p^2 = .03$, or recent substance use ($M = 40.04$ vs. 41.43 , $SE = 9.13$, 9.88), $F(1, 95) = 0.01$, $p < .93$, $\eta_p^2 = .00$, between women with methadone histories and no methadone history. There were no significant covariate or interaction effects between covariates and the main factor. We also conducted separate univariate tests for each dependent variable, and the results were statistically similar for main effects.

Discussion

Women ex-offenders with opioid use disorders who reported methadone histories also reported significantly more criminal charges involving drug-related and prostitution offenses than those who did not report any methadone history. These findings are consistent with a previous investigation involving a clinical sample of women in methadone maintenance treatment (Patterson et al., 2000). Women offenders might engage in sex work and drug-related crimes in response to a lack of viable resources available to them (Salina et al., 2011), as research evidence suggests women in methadone maintenance programs continue to use illicit substances to cope with intimate partner violence (El-Bassel et al., 2004) and sex work (Eiroa-Orosa et al., 2010; Marchand et al., 2012). Although reductions in criminal convictions at 5 years have been observed among persons in methadone reduction and maintenance programs (Gossop, Trakada, Stewart, & Witton, 2005), little is known about differences in criminal charges/behaviors between persons with opioid use disorders engaged in methadone and non-methadone treatment programs. Findings in the present study warrant more rigorous investigations to examine why women ex-offenders with opioid use disorders who have methadone histories might be at risk for engaging in prostitution and drug offenses than their peers who do not have any methadone history.

Although differences regarding employment in terms of weekly hours were just short of statistical significance between women ex-offenders (with opioid use disorders) with/without methadone histories, both groups reported similar frequencies in terms of various

primary sources of income apart from employment. However, proportionately more women ex-offenders with methadone histories reported prostitution as their primary source of income in the past 12 months than those without a methadone history. These findings extend those from a previous investigation involving a community sample in that persons addicted to heroin who had a history of methadone maintenance treatment did not have better transitions into employment compared with those who had non-methadone treatment histories (Richardson et al., 2012). Although some research evidence suggests that a therapeutic workplace for persons receiving methadone maintenance treatment might promote outcomes such as increases in the number of days employed (Aklin et al., 2014), findings in the present study point to the need for examining primary sources of income in addition to employment levels to better understand any gains that might be observed in terms of employment among persons receiving methadone maintenance treatment (Dole, 1988; Dole & Nyswander, 1967; Gearing, 1974; McSweeney & Hough, 2006; Paulus & Halliday, 1967).

There were no significant differences between women ex-offenders with/without methadone use histories in terms of injection drug use history or lifetime rates of heroin use. These findings are somewhat inconsistent with a multi-site investigation in Ireland (Cox & Comiskey, 2007), which found men and women with substance use disorders in methadone treatment reported more injection drug use and heroin use (in the past 90 days) than those who received abstinence-based treatment. However, the present study extends this research in that our analyses were focused on women ex-offenders with opioid use disorders, and findings suggest women ex-offenders with methadone histories are not any more “hard core” than those without any methadone history in terms of historic heroin and injection drug use.

Although the significant covariate effect of age with lifetime heroin use was expected, the non-significant covariate effect of lifetime heroin use in relation to outcomes in our major analyses defied our expectations. Similarly, the lack of a statistically significant covariate effect for lifetime methadone use was unexpected in that duration of methadone use would seem significantly (and negatively) related to outcomes as previous research on methadone maintenance treatment retention would suggest. To our knowledge, our investigation is the first to examine outcomes in relation to lifetime rates of both heroin and methadone use among women ex-offenders, and more investigations are needed to clarify these mixed findings to better understand the effects of methadone maintenance treatments for justice-involved women.

Although reductions in substance use among persons with opioid use disorders have been found among those receiving methadone reduction and methadone maintenance treatments (Gossop, Marsden, Stewart, & Treacy, 2001), findings in the present study suggest that such reductions may not be any greater than those expected from other treatment modalities. The comparable rates of recent substance use in the past 6 months between women ex-offenders with opioid use disorders with/without methadone histories suggests that the benefits (i.e., absent or reduced substance use) from methadone maintenance treatments among such women with methadone histories might not have far-reaching effects or be very meaningful. Direct comparisons between treatment modalities (e.g., methadone maintenance vs. abstinence-based types) is one research implication of the present study.

Substance use among women ex-offenders with methadone histories in the present study is consistent with longitudinal investigations of methadone maintenance clients that found decreased heroin use was related to increased use of other substances at 30 years (Grella & Lovinger, 2011), whereas nearly 40% of persons involved with methadone maintenance treatments reported continued heroin use at 15 years (Jimenez-Trevino et al., 2011). Substance use among persons presently or historically involved in methadone maintenance programs seems to contradict the metabolic disease theory of opioid addiction (Dole, 1988), suggesting that such a theory on heroin addiction might be more a matter of medical ethnocentrism than evidence-based (Glaser, 1974).

Although the effects of methadone maintenance treatment among women ex-offenders might be understood by examining representative criminal charges, employment, and substance use, there are some limitations in the present study. For instance, even though self-reported years of methadone use was a proxy variable to indicate methadone maintenance histories, the present study did not control whether those with methadone histories were currently receiving methadone treatment, and it is possible that our sample of women ex-offenders with methadone histories consisted of those currently and historically involved in a maintenance program. It is also possible that some participants had multiple methadone treatments and some illicitly used methadone and were never enrolled in a methadone program. In addition, the present study did not assess for auxiliary/supplemental elements (e.g., counseling, educational, employment services, etc.) associated with previous methadone treatments, or whether participants were receiving reduction or maintenance programs which have been reported to yield different outcomes (Campbell & Best, 2007). It was not known whether participants were presently receiving (and had received previous) treatments under coercion in that their drug problem was identified by agents of the criminal justice system. Nonetheless, future investigations are needed to replicate findings from the present study by examining similar outcome measures among those enrolled in methadone maintenance programs in comparison with persons with opioid use (heroin) disorders who have never used methadone and are enrolled in other programs such as abstinence-based treatments and/or attending community-based treatments such as 12-step groups such as Narcotics Anonymous.

In addition, the present study was comprised of women ex-offenders whereas a comparative design involving men ex-offenders would help us better understand gender effects in relation to treatments and outcomes for opioid use disorders. The sample was heavily skewed toward African American women, which might limit generalizability to men and persons of other ethnicities. In addition, the present study was conducted in the United States where abstinence-based programs have a rich history. The use of self-reported data at one time-point is another limitation of the present study that limits causal inference with respect to the directionality of relationships. A repeated-measures design might have provided more information in relation to changes in treatment duration and types and would have provided greater insights into criminal behaviors (in terms of both criminal charges and primary sources of income), substance use, employment, and other sources of income in relation to methadone maintenance therapy over time. Finally, the small effect sizes in the present study have implications for future research that might find greater effects by using greater constraint with larger samples. Treatment providers should consider interventions that are

focused on targeting the needs of women ex-offenders who have opioid use disorders, particularly those with methadone histories.

Conclusion

The present study examined outcomes among women ex-offenders with opioid use disorders. Our investigation is innovative in that it examined representative criminal charges and behaviors, primary sources of income, employment, and recent substance use that have been examined only in a few studies among methadone maintenance clients mostly from clinical and community populations. In addition, our findings suggest that women ex-offenders with opioid use disorders who have methadone histories do not have better outcomes compared with peers who never experienced methadone, findings that seem contrary to the aims of methadone maintenance treatment. Ongoing assessment of relevant criminal behaviors, various sources of income (beyond employment), and substance use across all drug types have treatment implications for mental health care providers working with ex-offenders engaged in methadone maintenance treatments. Future investigations should examine the potential impact of available/lacking resources that might be related to outcomes among this population in addition to implementing comparative designs consisting of men and persons recovering from opioid use disorders who are enrolled in abstinence-based treatments to better assess the effects of methadone maintenance programs for women ex-offenders with opioid use disorders. Overall, findings in the present investigation suggest that involvement in methadone maintenance treatment may not lead to long-term benefits, particularly among women ex-offenders with opioid use disorders.

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References

- Adler F, Ball JC. Drug abuse treatment programs as a natural criminology laboratory: A Pennsylvania study. *International Journal of Offender Therapy and Comparative Criminology*. 1972; 16:13–17.
- Aklin WM, Wong CJ, Hampton J, Svikis DS, Stitzer ML, Bigelow GE, Silverman K. A therapeutic workplace for the long-term treatment of drug addiction and unemployment: Eight-year outcomes of a social business intervention. *Journal of Substance Abuse Treatment*. 2014; 47:329–338. DOI: 10.1016/j.jsat.2014.06.013 [PubMed: 25124257]
- Bell J, Hall W, Byth K. Changes in criminal activity after entering methadone maintenance. *British Journal of Addiction*. 1992; 87:251–258. [PubMed: 1313321]
- Cacciola JS, Alterman AI, McLellan AT, Lin YT, Lynch KG. Initial evidence for the reliability and validity of a “Lite” version of the Addiction Severity Index. *Drug and Alcohol Dependence*. 2007; 87:297–302. DOI: 10.1016/j.drugalcdep.2006.09.002 [PubMed: 17045423]
- Campbell A, Best D. Diminishing returns: What is the role of the methadone reduction prescription in English drug treatment services? *Journal of Substance Use*. 2007; 12:145–149. DOI: 10.1080/14659890701374687
- Cox G, Comiskey C. Characteristics of opiate users presenting for a new treatment episode: Baseline data from the national drug treatment outcome study in Ireland (ROSIE). *Drugs: Education, Prevention, and Policy*. 2007; 14:217–230. DOI: 10.1080/09687630601032977

- Dole VP. Implications of methadone maintenance for theories of narcotic addiction. *Journal of the American Medical Association*. 1988; 260:3025–3029. [PubMed: 2846900]
- Dole VP, Nyswander ME. Heroin addiction—A metabolic disease. *Archives of Internal Medicine*. 1967; 120:19–24. [PubMed: 6028693]
- Eiroa-Orosa FJ, Verthein U, Kuhn S, Lindemann C, Karow A, Haasen C, Reimer J. Implication of gender differences in heroin-assisted treatment: Results from the German randomized controlled trial. *The American Journal on Addictions*. 2010; 19:312–318. DOI: 10.1111/j.1521-0391.2010.00049.x [PubMed: 20653637]
- El-Bassel N, Gilbert L, Frye V, Wu E, Go H, Hill J, Richman BL. Physical and sexual intimate partner violence among women in methadone maintenance treatment. *Psychology of Addictive Behaviors*. 2004; 18:180–183. DOI: 10.1037/0893-164X.18.2.180 [PubMed: 15238060]
- El-Bassel N, Simoni JM, Cooper DK, Gilbert L, Schilling RF. Sex trading and psychological distress among women on methadone. *Psychology of Addictive Behaviors*. 2001; 15:177–184. DOI: 10.1037//0893-164X.15.3.177 [PubMed: 11563794]
- Farrell-MacDonald S, MacSwain M, Cheverie M, Tiesmaki M, Fischer B. Impact of methadone maintenance treatment on women offenders' post-release recidivism. *European Addiction Research*. 2014; 20:192–199. DOI: 10.1159/000357942 [PubMed: 24513717]
- Freudenberg N, Daniels J, Crum M, Perkins T, Richie BE. Coming home from jail: The social and health consequences of community reentry for women, male adolescents, and their families and communities. *American Journal of Public Health*. 2005; 95:1725–1736. DOI: 10.2105/AJPH.2004.056325 [PubMed: 16186451]
- Gearing FR. Methadone maintenance treatment five years later: Where are they now? *American Journal of Public Health*. 1974; 64:44–50. [PubMed: 4429175]
- Glaser FB. Medical ethnocentrism and the treatment of addiction. *International Journal of Offender Therapy and Comparative Criminology*. 1974; 18:13–27.
- Gordon MS, Kinlock TW, Schwartz RP, O'Grady KE. A randomized clinical trial of methadone maintenance for prisoners: Findings at 6 months post-release. *Addiction*. 2008; 103:1333–1342. DOI: 10.1111/j.1360-0443.2008.002238.x [PubMed: 18855822]
- Gossop M, Marsden J, Stewart D, Treacy S. Outcomes after methadone maintenance and methadone reduction treatments: Two-year follow-up results from the National Treatment Outcome Research Study. *Drug and Alcohol Dependence*. 2001; 62:255–264. [PubMed: 11295330]
- Gossop M, Trakada K, Stewart D, Witton J. Reductions in criminal convictions after addiction treatment: 5-year follow-up. *Drug and Alcohol Dependence*. 2005; 79:295–302. DOI: 10.1016/j.drugalcdep.2005.01.023 [PubMed: 16102373]
- Grella CE, Lovinger K. 30-year trajectories of heroin and other drug use among men and women sampled from methadone treatment in California. *Drug and Alcohol Dependence*. 2011; 118:251–258. DOI: 10.1016/j.drugalcdep.2011.04.004 [PubMed: 21549528]
- Grella CE, Stein JA, Greenwell L. Associations among childhood trauma, adolescent problem behaviors, and adverse adult outcomes in substance-abusing women offenders. *Psychology of Addictive Behaviors*. 2005; 19:43–53. DOI: 10.1037/0893-164X.19.1.43 [PubMed: 15783277]
- Jimenez-Trevino L, Saiz PA, Garcia-Portilla MP, Diaz-Mesa EM, Sanchez-Lasheras F, Buron P, Casares MJ. A 25-year follow-up of patients admitted to methadone treatment for the first time: Mortality and gender differences. *Addictive Behaviors*. 2011; 36:1184–1190. DOI: 10.1016/j.addbeh.2011.07.019 [PubMed: 21835551]
- Johnson S, MacDonald SF, Cheverie D, Myrick C, Fischer B. Prevalence and trends of non-medical opioid and other drug use histories among federal correctional inmates in methadone maintenance treatment in Canada. *Drug and Alcohol Dependence*. 2012; 124:172–176. DOI: 10.1016/j.drugalcdep.2011.12.014 [PubMed: 22265193]
- Kinlock TW, Gordon MS, Schwartz RP, Fitzgerald TT, O'Grady KE. A randomized clinical trial of methadone maintenance for prisoners: Results at 12 months postrelease. *Journal of Substance Abuse Treatment*. 2009; 37:277–285. DOI: 10.1016/j.jsat.2009.03.002 [PubMed: 19339140]
- Marchand K, Oviedo-Joekes E, Guh D, Marsh DC, Brissette S, Schechter MT. Sex work involvement among women with long-term opioid injection drug dependence who enter opioid agonist treatment. *Harm Reduction Journal*. 2012; 9 Article 8. doi: 10.1186/1477-7517-9-8

- McLellan, AT., Cacciola, JS., Zanis, D. The Addiction Severity Index-Lite Philadelphia: Center for the Studies on Addiction. Philadelphia VA: Medical Center, University of Pennsylvania; 1997.
- McLellan AT, Kushner H, Metzger D, Peters R, Smith I, Grissom G, Argeriou M. The fifth edition of the Addiction Severity Index. *Journal of Substance Abuse Treatment*. 1992; 9:199–213. [PubMed: 1334156]
- McSweeney T, Hough M. Supporting offenders with multiple needs: Lessons for the “mixed economy” model of service provision. *Criminology & Criminal Justice*. 2006; 6:107–125. DOI: 10.1177/1748895806060669
- Miller, WR. Manual for Form 90: A structured assessment interview for drinking and related behaviors. Vol. 5. Rockville, MD: National Institute of Alcohol Abuse and Alcoholism; 1996. Project MATCH Monograph Series
- Miller WR, Del Boca FK. Measurement of drinking behavior using the Form 90 family of instruments. *Journal of Studies on Alcohol*. 1994; 12(Suppl):112–118. [PubMed: 7722987]
- Patterson S, Lennings CJ, Davey J. Methadone clients, crime, and substance use. *International Journal of Offender Therapy and Comparative Criminology*. 2000; 44:667–680.
- Paulus I, Halliday R. Rehabilitation and the narcotic addict: Results of a comparative methadone withdrawal program. *Canadian Medical Association Journal*. 1967; 96:655–659. [PubMed: 6019676]
- Richardson L, Wood E, Montaner J, Kerr T. Addiction treatment-related employment barriers: The impact of methadone maintenance. *Journal of Substance Abuse Treatment*. 2012; 43:276–284. DOI: 10.1016/j.jsat.2011.12.008 [PubMed: 22301085]
- Rosenbach A, Hunot V. The introduction of a methadone prescribing programme to a drug-free treatment service: Implications for harm reduction. *Addiction*. 1995; 90:815–821. [PubMed: 7633299]
- Salina DD, Lesondak LM, Razzano LA, Parenti BM. Addressing unmet needs in incarcerated women with co-occurring disorders. *Journal of Social Service Research*. 2011; 37:365–378. DOI: 10.1080/01488376.2011.582017
- Wickersham JA, Zahari MM, Azar MM, Kamarulzaman A, Altice FL. Methadone dose at the time of release from prison significantly influences retention in treatment: Implications from a pilot study of HIV-infected prisoners transitioning to the community in Malaysia. *Drug and Alcohol Dependence*. 2013; 132:378–382. DOI: 10.1016/j.drugalcdep.2013.01.005 [PubMed: 23414931]

Table 1

Frequencies of Primary Sources of Income in the Past 12 Months Among Women Ex-Offenders With Opioid Use Disorders.

	Methadone histories (n = 58)	No methadone history (n = 48)
Job/employment	14%	25.5%
Ex-boyfriend/ex-spouse	1.8%	8.5%
Current boyfriend/sexual partner	5.3%	4.3%
Family	3.5%	14.9%
Welfare/public assistance	7%	0%
Unemployment compensation	0%	2.1%
Disability	10.5%	4.3%
Selling drugs	22.8%	19.1%
Selling or trading sex (prostitution)	21.1%	4.3% *
Other illegal activities	14%	17%

* Fisher's Exact Test, $p = .011$ (one-sided).