Published in final edited form as:

J Health Care Poor Underserved. 2016 ; 27(2A): 149–162. doi:10.1353/hpu.2016.0054.

History of Sex Exchange in Women with a History of Incarceration

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Abstract

Sex exchange among incarcerated women is not well-described in the literature. Sex exchange can lead to numerous adverse health outcomes, especially when combined with individual factors (e.g., depression and homelessness) and larger systemic inequalities. The purpose of this study was to explore factors associated with having a history of sex exchange among a sample of incarcerated women. Of 257 women surveyed in this study, 68 women (26.5%) reported a history of sex exchange. In multivariate logistic regression analysis, physical abuse history ($p=.05$, OR 2.20), history of two or more sexually transmitted infections ($p=.01$, OR 2.90), injection drug use

($p=.04$, OR 2.46) and crack-cocaine use ($p<.01$, OR 3.42) were associated with prior sex exchange. This is one of only two studies to examine factors associated with prior sex exchange among incarcerated women. Our study has important implications for corrections providers to provide more comprehensive care, directly addressing the unique needs of this population.

Keywords

Women; young; sex exchange; transactional sex; injection drug use; crack; cocaine; incarceration; depression; abuse history; HIV; sexually transmitted diseases; hepatitis C

Women with histories of incarceration who engage in sex exchange (i.e., the exchange of sex for money, drugs or other resources) throughout their lifetimes may be among the most underserved women in society. The position of these women in society may put them at higher than average risk of trauma and acquisition and transmission of infectious diseases such as HIV, hepatitis C (HCV), and sexually transmitted infections (STIs). However, the prevalence of prior sex exchange among incarcerated women has not been well described in the existing literature. Past research suggests that sex exchange in women is associated with drug use,^{1–7} and it is well-known that women with substance use disorders are frequently incarcerated.^{4,8–12} Incarceration and drug use may also predispose women to sex exchange. While not all women with a history of incarceration have previously exchanged sex or have had substance use disorders, and not all women who have exchanged sex or who have had substance use disorders have a history of criminal justice involvement, there is considerable overlap in these populations.¹³ Regardless of directionality, the presence of sex exchange serves as a marker of particularly high risk of structural vulnerability¹⁴ in this population; previous research has shown that many women engage in sex exchange while in the community.^{2,3,15–21} The illegal nature of drug use and the high prevalence of prior sex exchange among women with a history of incarceration suggest the criminal justice system as an ideal site for research and possible interventions for such women. Providers have the opportunity to interact with these women during incarceration at a time point in their lives where their basic needs are met, with less distraction and less access to drugs. For some women, incarceration may be a turning point in the trajectory of their lives.¹³ To date, no study has described factors associated with a lifetime history of sex exchange among women who are currently incarcerated.

Sex exchange can lead to numerous adverse health outcomes over a woman's lifetime due to cumulative risk, either by virtue of associated injection drug use practices or due to the high-risk sexual encounters associated with such practices (e.g., large number of sexual partners^{22–25}). Sexually transmitted infections (STIs),^{4,6,16,26} HIV,^{4,16,26–28} and HCV^{7,16,27} are more common in people who have been involved in sex exchange. Additionally there is significant overlap between the drug, social, and sexual networks of women who inject drugs, placing these women at multiplied risk of bloodborne infectious diseases.^{8,27}

The nature of exchange sex is debated. While some scholars feel that exchange sex is coercive, either directly or by virtue of structural inequalities that have ultimately led women to the practice (such as poverty, unemployment, racism, unstable neighborhood environments, and lack of educational opportunities^{29–31}) others argue the practice can be

voluntary and even empowering.^{13,32} Related to these different perspectives, terminology varies, with some using the term “commercial sex work” as opposed to “sex exchange” or “transactional sex;” in this study we use “sex exchange” because we feel this term is most encompassing, capturing women who have ever, throughout their lifetimes, used sex as a means of exchange for money or drugs. While the exact prevalence of sex exchange among incarcerated women is unknown, a study of women incarcerated in New York City jails suggested that 6.5% of incarcerated women (n=700 of the 10,828 women included in the study) were engaged in commercial sex work prior to their current incarceration;²⁶ however, in this study women were identified using prostitution charges alone, which are likely to miss a large proportion of the population who exchange sex. Women engaged in sex exchange may not be arrested for this behavior; therefore, arrest records may be insufficient to assess the prevalence of sex exchange among incarcerated women. National estimates of the prevalence of sex exchange among certain impoverished, inner-city communities of women with substance use disorders in major metropolitan areas vary from 3.6% to 41%.^{2,3,7,20,28,33}

Existing literature in this field highlights the complex, presumably bidirectional associations between both individual factors and sex exchange, including not only incarceration,²⁶ but also unstable housing,^{2–4,26,27,33,34} history of physical and sexual abuse,^{4,18,35} lower educational status,^{19,27,35} depression,^{4,18,19} and being African American.^{6,20} The broader structural context in which sex exchange occurs is also important.^{13,34} To date, however, no study has yet evaluated the variable of lifetime history of sex exchange among incarcerated women as a clinical marker for social and structural vulnerability within the community. In this paper we explore key variables associated with a history of sex exchange among incarcerated women in order to define key personal and structural associations that might inform clinical and social interventions for these women.

Methods

Participants were recruited at the Rhode Island Department of Corrections (RI DOC) women’s division between March 2009 and July 2011. According to recruitment criteria for a larger parent study designed to evaluate unplanned pregnancy among previously incarcerated women of child-bearing age (18 to 35), women entering jail in this age group were approached for recruitment. A research assistant recruited potential participants from a daily list of all women newly committed to the jail and identified herself as a non-RI DOC staff member. All women were informed that participation was voluntary and would not affect the conditions of their incarceration. Women were given a brief description of the study and then, if the woman was willing, spoken consent was obtained to screen for eligibility. Individuals who were eligible and interested in participating underwent the informed consent process in which the study was explained, questions were answered, and written consent was obtained. No remuneration was provided to any subject for participation in the study.

Inclusion and exclusion criteria

Inclusion criteria for the parent study were women: 1) aged 18–35 years old; 2) sexually active with men (defined as having vaginal-penile intercourse at least monthly in the last three non-institutionalized months); 3) with an expected post-release place of residence located within 15 miles of the research site; 4) willing to comply with study protocols, including attending all follow-up appointments and being able to provide at least one contact who might locate them; and 5) fluent in English. Exclusion criteria were: 1) inability to give informed consent; 2) pregnancy or trying to become pregnant within the next year; 3) history of hysterectomy, bilateral oophorectomy, or tubal sterilization; 4) women in a monogamous relationship for more than one year with a partner who has had a vasectomy; 5) housed in a segregated unit during their incarceration.

Defining variables

One question was used to assess self-reported lifetime sex exchange for money or drugs, while sex for other resources was excluded from the analysis: *Have you had sex [vaginal intercourse] so you could get drugs or money?* History of STI, race/ethnicity, education status, history of physical abuse, and employment status within the year preceding incarceration were variables captured via self-report. Depression severity was evaluated using the CES-D³⁶, where a score of 0–9 indicated no depression, 10–14 mild depression, 15–30 moderate depression, and over 30 severe depression. Housing stability was captured using a single question regarding participants' previous living situation in the year before incarceration; if they endorsed any of the following living situations they were categorized as having unstable housing: having lived with friends, in a shelter, on the streets, or in a treatment center as a primary residence within the past year. Detailed information was also obtained regarding women's history of drug use including: 1) drug type (heroin, pain killers, crack-cocaine, cocaine, methamphetamines, benzodiazepines, barbituates, alcohol, or tobacco), 2) route of drug use (oral, nasal, smoked, non-injection (skin-popping), or injection routes), and 3) estimated length of drug use in years.

Statistical analysis

Descriptive statistics (mean and standard deviations, frequencies and percents) were generated for all variables. Sex exchange group differences were determined using analysis of variance for continuous variables. For continuous variables that violated ANOVA assumptions, a non-parametric equivalent was used to determine differences in the sex exchange groups. Differences in categorical variables by sex exchange group were examined using chi-squared analysis. Those variables significant in univariate analyses ($p \leq .05$) were then evaluated using multivariate logistic regression analysis controlling for all other variables in the model. All analyses were performed using IBM SPSS v20.0 (IBM Corp., Armonk, NY).

Results

In total 887 women were approached and 97% were screened for eligibility from March 2009 to July 2011. Over half were not eligible for the study ($n=443$, 56.1%) based on exclusion criteria. Of the 346 women who were eligible for participation in the study

(43.8%), 66 declined participation (19.1%), and 23 were released prior to enrollment (n=23, 6.6%). A total of 257 (74.3%) women were enrolled in the study at baseline.

The majority of the participants in our sample were White (63.8%), had less than a high school education (42.8%), and had a mean (SD) age of 25.8 (4.6) years (Table 1). Sixty-eight (26.5%) women in our sample reported a history of ever having engaged in sex exchange.

Women reporting prior sex exchange were significantly older than those without a history of sex exchange (27.8 years vs. 25.1 years, $p<.001$) (Table 2). Fifty percent of women who reported a history of sex exchange had a job for at least one year preceding incarceration compared to 71.4% of those not reporting sex exchange ($p=.001$), though the type of work was not specified (Table 2). For women reporting a history of sex exchange, 47.6% reported an unstable living situation in the past year compared with 27.6% of those never engaged in sex exchange (Table 2). Race/ethnicity was not significantly different between those women who reported a prior history of sex exchange and those who did not.

Two-hundred twenty-seven of the 257 women interviewed reported a history of ever using drugs. Sixty-six of the 68 women in the sex exchange group (97.1%) reported ever using drugs, a significant difference between the sex exchange group and those having never exchanged sex (n=161, 85.6%) ($p<.001$) (Table 3). Drug use patterns varied significantly between the women reporting prior sex exchange and those not, with significant differences in injection drug use (50.7% and 16.0% respectively, $p<.001$), smoked non-tetrahydrocannabinol (non-THC) drug use (76.1% vs. 27.6%, $p<.001$), inhaled drug use (77.6% vs. 45.9%, $p<.001$), and crack-cocaine use (71.6% vs. 23.8%, $p<.001$) (Table 1). Women who had exchanged sex in the past had significantly longer reported length of drug use (12.4 years vs. 6.4 years, $p<.001$) (Table 3), and were significantly more likely to be moderate-to-severely depressed by CES-D (82.3% vs. 61.7%, $p<.05$), to have a history of physical abuse (68.2% vs. 36.4%, $p<.001$), and to report a history of STI (75% vs. 44.3%, $p<.001$) (Table 3).

In multiple variable logistic regression, age ($p=.03$, OR 1.10, CI 1.01–1.20), history of physical abuse ($p= 0.05$, OR 2.20, CI 1.02–4.77), history of two or more STIs ($p=.01$, OR 2.90, CI 1.30–6.49), having 10 or more lifetime sexual partners ($p<.01$, OR 8.27, CI 2.26–30.22), having held a job for one or more years prior to incarceration ($p<.01$, OR 0.29, CI 0.13–0.66), having ever injected drugs ($p=.04$, OR 2.46, OR 1.06–5.72), and having ever smoked non-THC drugs ($p<.01$, OR 3.42, CI 1.50–7.82) were all independently associated with prior history of sex exchange for drugs or money among incarcerated women after we controlled for all other significant variables (Table 4).

Discussion

Despite the illegal nature of both drug use and sex exchange, this is one of the only studies to specifically evaluate the association between lifetime history of sex exchange and demographics, health, drug use patterns, and partnership type among incarcerated women. Women with a history of incarceration are often hard to reach, and are at particularly high

risk for the negative downstream consequences of historical sex exchange. Our study has shown that lifetime exchange sex is common among incarcerated women (26.5% of our parent study sample), and furthermore that this particular practice is clearly a marker for overall health risk and psychologic comorbidities in such women. Understanding the causes and conditions associated with historical sex exchange is critical for medical providers to fully address the health of these women and to reduce health risk. By asking their female patients involved in the criminal justice system about sex exchange, providers can help to identify women who are more likely to have depression, prior trauma (and its consequences), substance use disorders, infectious diseases, and other medical comorbidities. Knowledge of prior sex exchange also opens a door for providers to compassionately engage female patients with a history of criminal justice involvement in honest discussion about ways for these women to protect themselves and their partners from bloodborne and sexually transmitted pathogens. Furthermore, knowledge of prior sex exchange might trigger providers to practice more compassionate, trauma-informed care by simultaneously addressing both the physical and psychological needs of these women.

Past research has shown that in some U.S. communities during particular periods, injection drug use drives risk of sex exchange,^{2,17} while in other communities (such as in Baltimore and New York City) during particular periods, crack-cocaine use is a more prominent risk factor for sex exchange.^{3,5,7,33} In our study, both injection drug use and crack-cocaine use were significantly associated with a history of sex exchange, and women who reported a prior history of sex exchange were also significantly older than those who were not. These findings suggest that incarcerated women may represent a proportion of women at great risk in society, as many of these women have been exposed to a culmination of particularly poor life circumstances. Such women might have more severe substance use disorders and longer histories of use rendering sex exchange and subsequent incarceration more likely. These women may have no other viable method of supporting themselves and/or acquiring drugs.

In our analysis, women who reported a history of sex exchange had almost threefold greater odds of reporting a history of two or more STIs and greater than eight-fold odds of having had over 10 lifetime partners. These numbers deserve careful attention. While it may not be surprising that women involved in sex exchange have greater risk for STIs and more partners, the implications for these findings for personal and public health are important. In prior literature, the nature of some forms of sex exchange (e.g., sex without a condom) renders those involved and their sexual partners vulnerable to HIV, HCV, and STI acquisition.^{1,4,7,16,26,28} Prior work by Wagner and colleagues has outlined distinct differences between men and women who use injection drugs; women tend to have a much less distinct divide between social, sexual and drug networks.²⁷ For example, women who inject drugs more commonly become involved in injection drug use through a male partner^{8,27,37–39} and frequently have a steady male partner who also injects drugs.¹⁶ Furthermore, women who inject drugs are less likely than their male counterparts to use condoms at their last sexual episode,¹⁶ and are more likely to have sex while intoxicated.^{6,31,40} The risk of HIV, HCV, and STI acquisition, therefore, may be cumulative between the various high-risk networks that women are involved in,²⁷ particularly if the nature of sex exchange arises out of desperate circumstances. Routine HIV, HCV, and STI

screening at entry into jail or prison may be an effective way to diagnose and treat these high-risk women, thereby also interrupting transmission.

The psychological well-being of incarcerated women with a history of sex exchange also requires special attention due to the elevated rates of trauma and depression in this population. Knowledge of both can be used to enhance the provision of high-quality, trauma-informed care for incarcerated women. In our study, the odds of incarcerated women who had ever engaged in sex exchange reporting a history of physical abuse was over twice that of incarcerated women with no prior history of sex exchange. Similarly, both severe depression and a history of physical trauma were significantly associated with prior sex exchange in these women. Prior literature suggests that depression and suicide are far more common among persons who inject drugs,²⁸ and also among those engaged in sex exchange.^{4,41} Providers may have multiple opportunities to address these psychological issues among incarcerated women, if they are aware of them, both during incarceration and also after release. While the temporality and direction of the associations between sex exchange, depression, and physical abuse are unknown, these associations are nonetheless important considerations to the provision of care for incarcerated women.

In our study, incarcerated women who exchanged sex were slightly older and had used drugs significantly longer than their counterparts, although the difference in median age was only three years. It is difficult to make any general conclusions about this variable based on our data. While older age has been associated with sex exchange in past studies,^{4,42} others have shown no correlation between age and sex exchange,^{2,30} and still others have shown that *younger* age was an independent risk factor for sex exchange in their female study population.^{15,26,43}

Interestingly, educational status and race/ethnicity were not significantly associated with sex exchange in our study population, which is in direct contrast to previous studies.^{6,19,20,27} The majority of our study population was White (66%), which may account for the lack of significance in this variable. Educational status was relatively evenly distributed throughout the spectrum (less than high school 42.8%, high school 16%, and beyond high school 41.2%), which might explain the lack of significance here, and interestingly was not a key variable in this study. Regardless, 48.5% of women engaged in sex exchange reported having less than a high school education, which is still a rather sobering figure and lends credence to ongoing efforts within correctional facilities to improve education among incarcerated individuals through Adult Basic Education (ABE) programs and job skills training programs.

Limitations

Our study has several limitations. The observational cross-sectional design to this study renders our data subject to issues common to self-reported data, including recall bias and social desirability bias. The nature of sex exchange was not further delineated in this study (except for knowledge that all women reported that sex was exchanged for drugs or money), so we are not able to comment as to whether sex was considered a profession for some of these women, or to what degree poverty, addiction, and conditions of desperation might have influenced this practice. Similarly, sex for food, housing, or other material goods was not

assessed in this study. The mechanism of recruitment in this study may have also led to some recruitment bias, as those in segregation or non-English speaking were not included in the study based on inclusion criterion and resource limitations. However, this portion of the correctional facility population is relatively small. In addition, that age was limited to 35 years may also influence results, as older women engaged in sex exchange were eliminated from the sample. The cross-sectional nature of the design also does not allow for evaluation of temporal relationships that might assist in determining cause and effect among constructs. Although our outcomes are tied to client-level data, clearly, future studies may wish to evaluate and intervene at the institutional level, including community interventions targeting education and job opportunities that may impact engaging in sex exchange. Notably, this study was limited to women, and future work should evaluate men engaged in sex exchange either providing or receiving sex for resources.

However, in spite of these limitations, a major strength of this paper is the large sample size and rigorous analyses. Furthermore, this study examines a particularly hard to reach and uniquely underserved population—incarcerated women with histories of sex exchange. A total of 68 women reported prior sex exchange, allowing for detection of significant associations between sex exchange over a lifetime and various associated risk factors in a difficult to study population.

Conclusion

Correctional providers can potentially play an important role in the health and lives of incarcerated women by asking about a history of sex exchange. By doing so, providers can identify key risk factors such as untreated depression, psychological trauma or safety concerns, joblessness, or homelessness. This knowledge enables providers, in conjunction with intensive case management and social service support, to provide more compassionate, trauma-informed care that directly addresses the unique physical and psychological needs of this population.

Acknowledgments

Disclosures

This research was facilitated in part by the infrastructure and resources provided by the Lifespan/Tufts/Brown Center for AIDS Research (NIH grant P30AI42853). The project described was also supported by R25DA013582 from the National Institute on Drug Abuse.

References

1. Astemborski J, Vlahav D, Warren D, et al. The trading of sex for drugs or money and HIV seropositivity among female intravenous drug users. *Am J Public Health*. 1994 Mar; 84(3):382–387. <http://dx.doi.org/10.2105/AJPH.84.3.382> Pmid:8129052 PMCID:PMC1614821. [PubMed: 8129052]
2. Jenness SM, Kobrak P, Wendel T, et al. Patterns of exchange sex and HIV infection in high-risk heterosexual men and women. *J Urban Health*. 2011 Apr; 88(2):329–341. <http://dx.doi.org/10.1007/s11524-010-9534-5> Pmid:21286827 PMCID:PMC3079035. [PubMed: 21286827]
3. Tobin KE, Hester L, Davey-Rothwell MA, et al. An examination of spatial concentrations of sex exchange and sex exchange norms among drug users in Baltimore, MD. *Ann Assoc Am Geogr*. 2012 Sep 1; 102(5):1058–1066. <http://dx.doi.org/10.1080/00045608.2012.674902> Pmid:23626374 PMCID:PMC3636531. [PubMed: 23626374]

4. Bobashev GV, Zule WA, Osilla KC, et al. Transactional sex among men and women in the south at high risk for HIV and other STIs. *J Urban Health*. 2009 Jul; 86(Suppl 1):32–47. Epub 2009 Jun 10. <http://dx.doi.org/10.1007/s11524-009-9368-1> Pmid:19513853 PMcid:PMC2705487. [PubMed: 19513853]
5. Edlin BR, Irwin KL, Faruque S, et al. Intersecting epidemics-crack cocaine use and HIV infection among inner-city young adults. Multicenter crack cocaine and HIV infection study team. *N Engl J Med*. 1994 Nov 24; 331(21):1422–1427. <http://dx.doi.org/10.1056/NEJM199411243312106> Pmid: 7969281. [PubMed: 7969281]
6. Harrell PT, Mancha B, Petras H, et al. Latent classes of heroin and cocaine users predict unique HIV/HCV risk factors. *Drug Alcohol Depend*. 2012 May 1; 122(3):220–227. Epub 2011 Oct 24. <http://dx.doi.org/10.1016/j.drugalcdep.2011.10.001> PMid:22030276 PMcid:PMC3309123. [PubMed: 22030276]
7. Gelpí-Acosta C, Hagan H, Jenness SM, et al. Sexual and injection-related risks in Puerto Rican-born injection drug users living in New York City: a mixed methods analysis. *Harm Reduct J*. 2011 Oct 17;8:28. <http://dx.doi.org/10.1186/1477-7517-8-28> PMid:22004801 PMcid:PMC3230122. [PubMed: 22004801]
8. Adimora AA, Schoenbach VJ. Social context, sexual networks, and racial disparities in rates of sexually transmitted infections. *J Infect Dis*. 2005 Feb 1; 191(Suppl 1):S115–S122. <http://dx.doi.org/10.1086/425280> Pmid:15627221. [PubMed: 15627221]
9. Deschenes, EP.; Owen, B.; Crow, J. Recidivism among female prisoners: secondary analysis of the 1994 BJS Recidivism Data Set. Washington, DC: US Dept of Justice Bureau; 2006. Available at: <https://www.ncjrs.gov/pdffiles1/nij/grants/216950.pdf>.
10. Dehart, DD. Pathways to prison: impact of victimization in the lives of incarcerated women. Washington, DC: US Dept of Justice Bureau; 2004. Available at: <https://www.ncjrs.gov/pdffiles1/nij/grants/208383.pdf>. PMcid:PMC522272
11. E. Ann. Prisoners in 2013. Washington, DC: U.S. Department of Justice Bureau of Justice Statistics; 2014.
12. Durose, MR.; Cooper, AD.; Snyder, HN. Recidivism of prisoners released in 30 states in 2005: patterns from 2005 to 2010. Washington, DC: U.S. Department of Justice; 2014.
13. Strathadee SA, West BS, Reed E, et al. Substance use and HIV among female sex workers and female prisoners: Risk environments and implications for prevention, treatment, and policies. *J Acquir Immune Defic Syndr*. 2015 Jun; 69(Suppl 2):S110–S117. <http://dx.doi.org/10.1097/QAI.0000000000000624> Pmid:25978477 PMcid:PMC4493865. [PubMed: 25978477]
14. Quesada J, Hart LK, Bourgois P. Structural vulnerability and health: Latino migrant laborers in the United States. *Med Anthropol*. 2011 Jul; 30(4):339–362. <http://dx.doi.org/10.1080/01459740.2011.576725> Pmid:21777121 PMcid:PMC3146033. [PubMed: 21777121]
15. Roy É, Robert M, Vaillancourt É, et al. Residential trajectory and HIV high-risk behaviors among Montréal street youth—a reciprocal relationship. *J Urban Health*. 2011 Aug; 88(4):767–778. <http://dx.doi.org/10.1007/s11524-011-9574-5> Pmid:21494896 PMcid:PMC3157499. [PubMed: 21494896]
16. Folch C, Casabona J, Espelt A, et al. Gender differences in HIV risk behaviours among intravenous drug users in Catalonia, Spain. *Gac Sanit*. 2013 Jul-Aug;27(4):338–343. Epub 2013 Apr 8. <http://dx.doi.org/10.1016/j.gaceta.2013.02.006> PMid:23578527. [PubMed: 23578527]
17. Riehm KS, Kral AH, Anderson R, et al. Sexual relationships, secondary syringe exchange, and gender differences in HIV risk among drug injectors. *J Urban Health*. 2004 Jun; 81(2):249–259. <http://dx.doi.org/10.1093/jurban/jth111> Pmid:15136658 PMcid:PMC3456452. [PubMed: 15136658]
18. Magnus M, Kuo I, Phillips G II, et al. Differing HIV risks and prevention needs among men and women injection drug users (IDU) in the District of Columbia. *J Urban Health*. 2013 Feb; 90(1): 157–166. <http://dx.doi.org/10.1007/s11524-012-9687-5> Pmid:22692841 PMcid:PMC3579300. [PubMed: 22692841]
19. German D, Latkin CA. Boredom, depressive symptoms, and HIV risk behaviors among urban injection drug users. *AIDS Behav*. 2012 Nov; 16(8):2244–2250. <http://dx.doi.org/10.1007/s10461-012-0247-5> Pmid:22760741 PMcid:PMC3562364. [PubMed: 22760741]

20. Page-Shafer KA, Cahoon-Young B, Klausner JD, et al. Hepatitis C virus infection in young, low-income women: the role of sexually transmitted infection as a potential cofactor for HCV infection. *Am J Pub Health*. 2002 Apr; 92(4):670–676. <http://dx.doi.org/10.2105/AJPH.92.4.670> Pmid:11919070 PMcid:PMC322218. [PubMed: 11919070]
21. Riley ED, Moss AR, Clark RA, et al. Cash benefits are associated with lower risk behavior among the homeless and marginally housed in San Francisco. *J Urban Health*. 2005 May; 82(1):142–150. Epub 2005 Feb 28 <http://dx.doi.org/10.1093/jurban/jti015> Pmid:15738328 PMcid:PMC3456632. [PubMed: 15738328]
22. Cederbaum JA, Wenzel SL, Gilbert ML, et al. The HIV risk reduction needs of homeless women in Los Angeles. *Women's Health Issues*. 2013 May-Jun; 23(3):e167–e172. Epub 2013 Mar 29. <http://dx.doi.org/10.1016/j.whi.2013.01.004> Pmid:23541392 PMcid:PMC3742315. [PubMed: 23541392]
23. Baseman J, Ross M, Williams M. Sale of Sex for Drugs and Drugs for Sex: An Economic Context of Sexual Risk Behavior for STDs. *Sex Transm Dis*. 1999 Sep; 26(8):444–449. <http://dx.doi.org/10.1097/00007435-199909000-00005> Pmid:10494935. [PubMed: 10494935]
24. Dunkle KL, Wingood GM, Camp CM, et al. Economically motivated relationships and transactional sex among unmarried African American and white women: results from a U.S. national telephone survey. *Public Health Rep*. 2010 Jul-Aug; 125(Suppl 4):90–100. Pmid: 20626196 PMcid:PMC2882979. [PubMed: 20626196]
25. McMahon JM, Tortu S, Pouget ER, et al. Contextual determinants of condom use among female sex exchangers in East Harlem, NYC: an event analysis. *AIDS Behav*. 2006 Nov; 10(6):731–741. <http://dx.doi.org/10.1007/s10461-006-9093-7> Pmid:16779657. [PubMed: 16779657]
26. Parvez F, Katyal M, Alper H, et al. Female sex workers incarcerated in New York City jails: prevalence of sexually transmitted infections and associated risk behaviors. *Sex Transm Infect*. 2013 Jun; 89(4):280–284. <http://dx.doi.org/10.1136/sextrans-2012-050977> Pmid:23687128 PMcid:PMC3664364. [PubMed: 23687128]
27. Wagner KD, Lankenau SE, Palinkas LA, et al. The perceived consequences of safer injection: an exploration of qualitative findings and gender differences. *Psychol Health Med*. 2010 Oct; 15(5): 560–573. <http://dx.doi.org/10.1080/13548506.2010.498890> Pmid:20835966 PMcid:PMC2939721. [PubMed: 20835966]
28. Lloyd JJ, Ricketts EP, Havens JR, et al. The relationship between lifetime abuse and suicidal ideation in a sample of injection drug users. *J Psychoactive Drugs*. 2007 Jun; 39(2):159–166. <http://dx.doi.org/10.1080/02791072.2007.10399874> Pmid:17703710 PMcid:PMC2258230. [PubMed: 17703710]
29. Lorvick J, Lutnick A, Wenger LD, et al. Non-partner violence against women who use drugs in San Francisco. *Violence Against Women*. 2014 Nov; 20(11):1285–1298. Epub 2014 Oct 5. <http://dx.doi.org/10.1177/1077801214552910> Pmid:25288597 PMcid:PMC4332555. [PubMed: 25288597]
30. Reuben J, Serio-Chapman C, Welsh C, et al. Correlates of current transactional sex among a sample of female exotic dancers in Baltimore, MD. *J Urban Health*. 2011 Apr; 88(2):342–351. <http://dx.doi.org/10.1007/s11524-010-9539-0> Pmid:21327548 PMcid:PMC3079042. [PubMed: 21327548]
31. Sherman S, Lilleston P, Reuben J. More than a dance: the production of sexual health risk in the exotic dance clubs in Baltimore, USA. *Soc Sci Med*. 2011 Aug; 73(3):475–481. Epub 2011 Jun 17. <http://dx.doi.org/10.1016/j.socscimed.2011.05.036> Pmid:21724311 PMcid:PMC3154252. [PubMed: 21724311]
32. Ditmore, MH. *Prostitution and sex work*. Santa Barbara, CA: Greenwood; 2011. PMcid:PMC3099186
33. Rudolph AE, Linton S, Dyer TP, et al. Individual, network, and neighborhood correlates of exchange sex among female non-injection drug users in Baltimore, MD (2005–2007). *AIDS Behav*. 2013 Feb; 17(2):598–611. <http://dx.doi.org/10.1007/s10461-012-0305-z> Pmid:22983502 PMcid:PMC3552090. [PubMed: 22983502]
34. Metzl JM, Hansen H. Structural competency: theorizing a new medical engagement with stigma and inequality. *Soc Sci Med*. 2014 Feb; 103:126–133. <http://dx.doi.org/10.1016/j.socscimed.2013.06.032> Pmid:24507917 PMcid:PMC4269606. [PubMed: 24507917]

35. Quinn TC, Overbaugh J. HIV/AIDS in women: an expanding epidemic. *Science*. 2005 Jun 10; 308(5728):1582–1583. <http://dx.doi.org/10.1126/science.1112489> Pmid:15947174. [PubMed: 15947174]
36. Andresen EM, Malmgren JA, Carter WB, et al. Screening for depression in well older adults: evaluation of a short form of the CES-D (Center for Epidemiologic Studies Depression Scale). *Am J Prev Med*. 1994 Mar-Apr;10(2):77–84. Pmid:8037935. [PubMed: 8037935]
37. Absalon J, Fuller CM, Ompad DC, et al. Gender differences in sexual behaviors, sexual partnerships, and HIV among drug users in New York City. *AIDS Behav*. 2006 Nov.10:707–715. <http://dx.doi.org/10.1007/s10461-006-9082-x> Pmid:16676223. [PubMed: 16676223]
38. Gollub EL, Rey D, Obadia Y, et al. Gender differences in risk behaviors among HIV+ persons with an IDU history. The link between partner characteristics and women's higher drug-sex risks: The Manif 2000 Study Group. *Sex Transm Dis*. 1998 Oct; 25(9):483–488. <http://dx.doi.org/10.1097/00007435-199810000-00008> Pmid:9800261. [PubMed: 9800261]
39. Cintra AM, Caiaffa WT, Mingoti SA. Characteristics of male and female injecting drug users of the AjUDE-Brasil II Project. *Cad Saude Publica*. 2006 Apr; 22(4):791–802. Epub 2006 Apr 5. <http://dx.doi.org/10.1590/S0102-311X2006000400018> Pmid:16612433. [PubMed: 16612433]
40. Rosengard C, Anderson B, Stein M. Intravenous drug users' HIV-risk behaviors with primary/other partners. *Am J Drug Alcohol Abuse*. 2004 May; 30(2):225–236. <http://dx.doi.org/10.1081/ADA-120037375> Pmid:15230073 PMCID:PMC1351211. [PubMed: 15230073]
41. Edwards JM, Iritani BJ, Hallfors DD. Prevalence and correlates of exchanging sex for drugs or money among adolescents in the United States. *Sex Transm Infect*. 2006 Oct; 82(5):354–358. Epub 2006 Aug 10. <http://dx.doi.org/10.1136/sti.2006.020693> Pmid: 16901917 PMCID:PMC2563846. [PubMed: 16901917]
42. Chettiar J, Shannon K, Wood E, et al. Survival sex work involvement among street-involved youth who use drugs in a Canadian setting. *J Public Health*. 2010 Sep; 32(3):322–327. Epub 2010 Jan 9. <http://dx.doi.org/10.1093/pubmed/fdp126> Pmid:20061578 PMCID:PMC2924786.
43. Weber AE, Boivin JF, Blais L, et al. Predictors of initiation into prostitution among female street youths. *J Urban Health*. 2004 Dec; 81(4):584–595. <http://dx.doi.org/10.1093/jurban/jth142> Pmid: 15466840 PMCID:PMC3455930. [PubMed: 15466840]

Table 1

Demographic Factors associated with Sex Exchange in Incarcerated Women in Providence, RI

Variables	Total (n=257)	SE (n=68, 26.5%)	No SE (n=189, 72.5%)	p value
Age (mean, SD years)	25.8 (4.6)	27.8 (4.7)	25.1 (4.4)	<.001
Race/Ethnicity				NS
White	164(63.8%)	45(66.2%)	119(63.0%)	
Hispanic	38(14.8%)	5(7.4%)	33(17.5%)	
Black	21(8.2%)	6(8.8%)	15(7.9%)	
Other (non-Hispanic)	34(13.2%)	12(17.6%)	22(11.6%)	
Education				NS
Less than high school	110(42.8%)	33(48.5%)	77(40.7%)	
High school	41(16.0%)	7(10.3%)	34(18.0%)	
Beyond high school	106(41.2%)	28(41.2%)	78(41.3%)	

Abbreviations: ns= not significant, SE= sex exchange, SD = standard deviation

Table 2

Factors Associated with Sex Exchange in Incarcerated Women Living in Providence, RI

Variable	Total (n=257)	SE (n=68, 26.5%)	No SE (n=189, 72.5%)	p value
Depression score				.009
Moderate (DSI score 15–30)	164(63.8%)	51(82.3%)	113(61.7%)	
Physical abuse	113(44.0%)	45(68.2%)	68(36.4%)	<.001
STI History	133 (51.7%)	51(75%)	82(44.3%)	<.001
Number of Sexual Partners				<.001
>10 partners	161(62.6%)	64(94.1%)	97(51.3%)	
<= 10 partners	96(37.4%)	4(5.9%)	92(48.7%)	
Steady partner				.040
No partner	23(8.9%)	8(12.3%)	15(8.2%)	
Steady partner for <2 yrs	100(38.9%)	33(50.8%)	67(36.6%)	
Steady partner for >= 2 yrs	125(48.6%)	24(36.9%)	101(55.2%)	
Held a job for at least 1 year prior to incarceration				0.001
No	88 (34.2%)	34 (50.0%)	54 (28.6%)	
Yes	169 (65.8%)	34 (50.0%)	135 (71.4%)	
Living Situation Prior to Incarceration				.003
Stable	167 (67.3%)	33 (52.4%)	134 (72.4%)	
Unstable	81 (32.7%)	30 (47.6%)	51 (27.6%)	

Abbreviations: SE= sex exchange, DSI= depression severity index, STI= sexually transmitted infection, yrs= years

Table 3

Patterns of Drug use and Associated Risk for Sex Exchange in Incarcerated Women Living in RI

Variable	Total (n=257)	SE (n=68)	No SE (n=189)	p value
Ever Drug Use (%)	227(88.3%)	66(97.1%)	161(85.6%)	<.001
Ever Injection Drug Use (%)	64(24.9%)	34(50.7%)	30(16.0%)	<.001
Ever Smoked (non-THC) Drugs (%)	102(39.7%)	51(76.1%)	51(27.6%)	<.001
Ever Snorted Drugs (%)	137(53.3%)	52(77.6%)	85(45.9%)	<.001
Ever Crack-cocaine Use (%)	92(35.8%)	48(71.6%)	44(23.8%)	<.001
Length of Drug Use (SD, years)	8.0 (6.3)	12.4(6.2)	6.4(5.5)	<.001

Abbreviations: SE= sex exchange, SD= standard deviation, THC= marijuana, RI= Rhode Island

Table 4

Multiple Variable Logistic Regression for Sex Exchange Risk in Incarcerated Women Living in Providence, RI

Variable	Odds Ratio	Odds Ratio 95% Confidence Interval		p value
Age	1.10	1.01	1.20	.03
Physical abuse history	2.20	1.02	4.77	.05
STI History (2 or more STD's)	2.90	1.30	6.49	.01
Number of Sexual Partners (10+ partners)	8.27	2.26	30.22	<.01
Held job for 1+ years prior to incarceration	0.29	0.13	0.66	<.01
Ever Injection Drug Use	2.46	1.06	5.72	.04
Ever Smoked (non-THC) Drugs	3.42	1.50	7.82	<.01

Abbreviations: SE= sex exchange, SD= standard deviation, THC= marijuana, RI= Rhode Island