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Gender Differences in Baseline Health, Needs at Release, and Predictors of Care Engagement Among HIV-Positive Clients Leaving Jail

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Abstract Women represent a significant and growing segment of jail detainees and persons living with HIV. This paper examines gender differences in health status, care and social service needs, and care engagement among jail releasees with HIV. Data are from 1,270 participants in the HRSA-funded Enhancing Linkages to HIV Primary Care and Social Services multisite demonstration project (EnhanceLink). Compared to men, more women reported homelessness, reduced adherence to prescribed ART, worse health, more severe substance use disorders, and more chronic health conditions. Men and women generally reported different needs post-release. As the number of expressed needs increased, women were more likely to drop out of care. Our findings suggest that effective and gender-specific strategies are required to identify needs, link services between jails and communities, and sustain retention of women with HIV in programs after release from criminal justice settings.

Keywords Women · Jail · Linkage to care · Gender differences · Health status

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Introduction

Of the 2.3 million individuals incarcerated in the United States on any given day, about one-third are held in city and county jails [1]. Approximately 12 % of jail detainees are women, and their numbers have increased nearly fivefold since 1985 [2, 3]. HIV prevalence is about 1.5 % for incarcerated men and 2 % for incarcerated women, far above the estimated national average of 0.36 % [4]. Engaging persons living with HIV in sustained antiretroviral therapy (ART) will not only extend their lives substantially [5–7], it will also nearly eliminate the heterosexual transmission of HIV to their sex partners [8–10]. Jails provide substantial individual and public health opportunities to engage persons living with HIV/AIDS (PLWHA) in early and sustained enrollment in ART. Jail populations experience high turnover rates [3], therefore early and tight linkages to care following release from jail are needed to realize these benefits.

Studies of post-release adherence to ART by persons leaving correctional facilities show large gaps in treatment. Of jail inmates in San Francisco known to be HIV-Positive who were re-incarcerated within 12 months, 59 % had discontinued ART prior to re-incarceration [11]. Among PLWHA released from Texas prisons between 2004 and

2007, 70 % had not filled a prescription for ART 60 days after release [12]. Women were less likely than men to have filled a prescription (23 vs. 31 %), though the difference was not statistically significant.

Multiple barriers to sustained post-release ART adherence for the US jail population include poverty, unemployment, lack of education, homelessness, substance use, poor mental health, and loss of medical benefits [13–19]. Barriers may be even greater for women. Binswanger et al. [20] found that, compared to men, women in jail more often experience chronic medical disorders, psychiatric disorders, and drug dependence. Many of these women have sustained physical and sexual abuse as children or adults that contributes to the higher rates of posttraumatic stress disorder, depression, and substance use among women in the criminal justice system (CJS) [17, 21–27]. Incarcerated women also typically come from highly disadvantaged neighborhoods [28] and incarceration itself often exacerbates social and financial instability [29–33]. Two-thirds of women in prison have one or more dependent children, and the majority were caretakers of their children prior to incarceration [34, 35], contributing to the significant impact of women's incarceration to families and communities as a whole.

Discharge planning and case management are one means of addressing these issues with a goal of helping PLWHA engage in appropriate and sustained treatment for HIV and other disorders after release from jail and prison. Research findings regarding this approach have been mixed. Project Bridge provided case management to PLWHA leaving prison in Rhode Island and reported high rates of retention in care over a 12 month period [36]. In perhaps the only randomized trial of case management published to date for prisoners in the US, Wohl et al. [37] found no significant differences in post-release service utilization among North Carolina released prisoners with HIV compared to standard discharge planning. Both studies were constrained by small samples (100 and 104, respectively), and in the North Carolina study those receiving case management more often reported receiving services on six of the seven measures. There have been no randomized clinical trials to date of gender-specific interventions for women with HIV leaving jail.

This paper examines gender differences in engaging HIV-positive jail releasees in primary care and social services for a large sample of persons leaving jail, and explores the needs of women and factors that prevent their successful engagement and retention in care. We hypothesize that women will have more health and social service needs than men and that more intensive case management will be required to successfully engage and retain women in care.

Methods

This study examines data from the EnhanceLink project. EnhanceLink is a Special Project of National Significance (SPNS) funded by the Health Resources and Services Administration and is comprised of ten diverse jail-based demonstration programs. Demonstration sites are located in Atlanta, GA; Chester, PA; Chicago, IL; Cleveland, OH; Columbia, SC; New Haven, CT; New York, NY; Philadelphia, PA; Providence, RI; and Springfield, MA. Nine EnhanceLink sites collected client-level data on men and women, while the Chicago program targeted only women. Individuals with confirmed HIV were approached, usually while in jail, and asked to participate in a voluntary evaluation of their experience in the linkage programs. While sites varied in criteria for enrollment in the client-level evaluation, all sites limited participation to persons 18 years or older. Project-wide, 1,270 men and women were eligible and consented to the multisite evaluation.

Evaluators administered a baseline survey to participants, which included questions about demographic characteristics, mental and physical health, and substance use. While in jail, every service delivery event was documented for each enrolled client. During incarceration and after the client was released from their index jail stay, clinical data were extracted from jail and community medical records. Thirty days after release, a post-release summary was administered to clients to reassess their needs since being released. Between release to the community and the program's end (6 months post-release), services delivered in the community were documented. Finally, 6 months after release from their index jail stay, clients participated in a follow-up survey that closely mirrored the baseline survey. Data from each of these sources were used in the current analysis. Data were collected from July 2008 to October 2011. Institutional Review Boards at each site reviewed and approved the multisite evaluation protocol. All participants provided informed consent and a Certificate of Confidentiality conferred additional assurance.

The primary aims of this analysis were to assess gender differences in: (1) health status, (2) reported needs, and (3) intensity of services required to engage PLWHA in care following release from jail. Sociodemographic data was collected at baseline. Using data from the baseline survey and jail medical charts, we describe medication adherence, health status, and risk severity by gender. Medication adherence was measured with an item assessing the percentage of prescribed HIV medication detainees reported taking in the 7 days prior to incarceration. For health status, we examined differences in CD4 count, viral load, number of reported chronic medical conditions other than HIV, and Short Form 12 (SF-12) general health survey [38] scores for self-perceived physical and mental health. Using

data from the 30-day post-release assessment the number of expressed needs was calculated by tabulating how many specific needs were reported. Intensity of services was measured by summing the number of jail-based and community-based services performed by case managers on clients' behalf. Chi square and ANOVA tests, as appropriate, were conducted to assess gender differences in terms of sociodemographic characteristics, health status, and expressed needs.

We used logistic regression to examine two primary predictors of care engagement (measured by program completion): the degree of intensity of service provision and the number of expressed needs. Interaction terms between each of the two primary predictors and gender were also tested. Although the EnhanceLink study did collect some data on participants' attendance at HIV clinic appointments, drug treatment programs, and housing assistance programs, these data were not systematically collected across the ten sites. Therefore, we used program completion as a proxy for healthcare and social service engagement based on the assumption that those who remained in the project for 6 months surmounted some of the same structural barriers required for engaging in systems overall. Other covariates, such as demographics and potential confounders, were included in the model. Potential confounders assessed were substance use and mental disorder severity (measured by scores from the Addiction Severity Index [39]) and social support. Whereas demographic variables were retained a priori, to achieve a more parsimonious model, other potential confounding variables were removed if not statistically significant at $p < 0.05$. Only participants who had an opportunity to engage in care in the community were included in the analysis; those who were transferred to another correctional facility or died, for example, were removed from the analysis.

Results

Table 1 summarizes sociodemographic characteristics of the sample. Men were slightly older than women. There were no significant racial differences between men and women, but more men than women were of Latino ethnicity. Significantly more women reported having not achieved a high school education, being mostly unemployed in the past 3 years, being homeless for some period in the 30 days prior to incarceration, and having children in their care.

Table 2 describes the results for gender differences in health status. Women reported adhering to less of their prescribed HIV medications in the 7 days prior to incarceration, but there were no statistically significant gender differences in HIV status indicators. Women's physical and mental health scores on the SF-12 measure of self-reported well-being were significantly lower than men's scores, and women reported having more chronic conditions than men.

Table 3 lists clients' health and social service needs after release by gender. Significantly more women reported needing case management, HIV and non-HIV medical services, cash and medical benefits, transportation and basic needs. Significantly more men reported needing help with advancing their educational credentials and finding employment, addressing legal and family issues, and with HIV partner notification.

Finally, we examined the degree of intensity of service provision as a predictor of care engagement (measured by program completion), and whether the degree of intensity of service provision was moderated by gender (Table 4). Results from multiple logistic regression analyses revealed no significant main effect of gender on care engagement. Significant main effects, however, were observed for needs expressed at release and case management services received. The greater the degree of needs that clients expressed at release, the greater the likelihood that they engaged in care (OR = 1.11, CI: 1.06, 1.16). A similar positive, but more modest, association was observed between the intensity of case management services provision and care engagement (OR = 1.05, CI: 1.04, 1.07). Tests of moderating effects of gender on both expressed needs and services provided yielded significant interaction effects for needs only. Women who expressed more needs were significantly less likely than men to engage and stay in care (OR = 0.90, CI: 0.84, 0.97). Needs and services were correlated at 0.16 ($p < 0.001$).

Older age and having a greater number of children in one's care significantly predicted engagement in care. In fact, clients were 2 times more likely to remain engaged in care if they had children in their care. Clients reporting an experience of homelessness in the 30 days prior to the index incarceration had a 33 % decreased odds of engaging in care (OR = 0.63, CI: 0.46, 0.86). Other variables thought to be associated with care engagement—substance abuse and mental health problems and social support—were also tested. These variables did not yield significant results and were removed from the final model. Clients' CD4 counts were also not significantly associated with care engagement.

Discussion

People returning from jails to communities face a multitude of challenges that include legal and family problems, mental health and substance abuse issues, housing and food instability, and general social and economic disadvantage. PLWHA frequently have the added burden of experiencing difficulty in engaging in and maintaining post-release HIV

Table 1 Sociodemographic characteristics of study sample

Variable	Women	Men	Test statistic, *p* value
Age (M(SD))	41.4 (8.2)	43.5 (9.5)	F = 12.5, <0.01
Latino ethnicity (%)	17.5	27.6	$\chi^2 = 16.1$, <0.01
Race			$\chi^2 = 0.86$, ns
White	20.3	19.2	
Black	58.9	61.7	
Other	20.9	19.1	
Education			
Less than HS or GED	61.4	46.6	$\chi^2 = 21.8$, <0.001
Mostly unemployed in past 3 years	68.0	59.04	$\chi^2 = 8.48$, <0.01
Homeless 30 days prior to incarceration	44.2	32.9	$\chi^2 = 13.8$, <0.001
Number of children under 18 in client's care			$\chi^2 = 8.46$, <0.05
0	83.7	89.6	
1	8.02	4.73	
2 or more	8.31	5.66	

M mean, *SD* standard deviation, *HS* high school, *GED* general equivalency diploma

Table 2 Gender differences in health status at baseline

	Women (%)	Men (%)	Test statistic, *p* value
Mean % of prescribed HIV meds taken 7 days prior to index incarceration (SD)	61.4 (42.1)	69.7 (39.2)	$F_{(1,711)} = 5.09$, <0.05
CD4 count at or below 350 cells/mm^3 during index incarceration	36.0	37.1	$\chi^2_{(1,1224)} = 0.123$, ns
HIV viral load at or above 400 copies/mm^3 during index incarceration	69.4	72.0	$\chi^2_{(1,1224)} = 0.787$, ns
Mean SF-12 mental health status score (SD)	38.1 (13.3)	40.9 (12.5)	$F_{(1,1217)} = 12.2$, <0.001
Mean SF-12 physical health status score (SD)	44.5 (12.1)	46.6 (11.8)	$F_{(1,1217)} = 7.89$, <0.01
Mean substance abuse score from ASI	0.25 (0.16)	0.20 (0.17)	$F_{(1,1102)} = 15.7$, <0.001
Mean number of chronic health conditions in addition to HIV disease (SD)	1.6 (1.4)	1.4 (1.3)	$F_{(1,1222)} = 10.3$, <0.01

SD standard deviation, *ASI* addiction severity index

Table 3 Gender differences in expressed baseline health and social service needs

	Women, $N = 350$ (%)	Men, $N = 874$ (%)	Test statistic, *p* value
Case management	48.6	34.8	$\chi^2 = 20.0$, <0.001
HIV medical services	46.0	34.1	$\chi^2 = 15.1$, 0.001
Non-HIV medical services	19.4	8.6	$\chi^2 = 28.5$, <0.001
Substance abuse treatment	21.7	20.2	$\chi^2 = 0.33$, ns
Mental health services	21.4	21.7	$\chi^2 = 0.01$, ns
Housing	18.6	23.7	$\chi^2 = 3.78$, <0.10
Cash benefits (e.g. TANF)	35.7	23.3	$\chi^2 = 19.5$, <0.001
Medical benefits (e.g. Medicaid)	35.1	22.6	$\chi^2 = 20.1$, <0.001
Employment or job training	8.3	17.0	$\chi^2 = 15.4$, <0.001
Education (e.g. GED)	5.1	13.4	$\chi^2 = 17.3$, <0.001
Family services (e.g. child care)	4.6	12.8	$\chi^2 = 18.1$, <0.001
Legal services	7.7	15.1	$\chi^2 = 12.1$, <0.001
Transportation	33.7	23.1	$\chi^2 = 14.5$, <0.001
Basic needs (e.g. food, clothes)	30.9	21.4	$\chi^2 = 12.2$, <0.001
HIV prevention services	19.1	16.8	$\chi^2 = 0.94$, ns
Partner notification services	3.7	13.0	$\chi^2 = 23.4$, <0.001
Mean number of needs expressed (SD)	3.7 (4.2)	3.3 (4.1)	$F_{(1,1222)} = 2.07$, ns

Table 4 Multiple logistic regression model of 6 month care engagement, moderated by gender ($N = 887$)

Predictor variable	Adjusted odds ratio	Confidence interval
Demographic variables		
Age	**1.03**	**1.01, 1.05**
Gender		
Male	Reference	
Female	1.16	0.68, 1.98
Work status		
Regularly employed in past 3 Years	Reference	
Regularly unemployed in past 3 Years	1.20	0.87, 1.66
Race		
White	Reference	
Black	1.00	0.68, 1.49
Other	1.10	0.69, 1.77
Number of children in client's care		
0	Reference	
1	2.02	1.01, 4.04
2 or more	**2.11**	**1.12, 3.97**
Homeless in 30 days prior to index incarceration		
No	Reference	
Yes	**0.63**	**0.46, 0.86**
Health status		
CD4 count > 350	Reference	
CD4 count ≤ 350	1.29	0,94, 1.76
Number of needs expressed	**1.11**	**1.06, 1.16**
Number of services provided	**1.05**	**1.04, 1.07**
Gender X needs expressed	**0.90**	**0.84, 0.97**
Gender X services provided	0.98	0.97, 1.00
Pseudo $R^2 = 0.18$		

Bold lettering = significant at $p < 0.05$

treatment and related services, which may be a function of their life circumstances [40–42]. Based on prior literature and observations across the demonstration sites during the study, we hypothesized that the health and social service needs of women with HIV leaving jail were more severe than for men, and our study results provide support for this hypothesis.

Although the levels of disadvantage of all study participants were extensive, the results of this study demonstrate that, across multiple dimensions, women were significantly worse off than their male counterparts. Social and economic indicators, such as education and income, have long been associated with poor health, and across the ten demonstration sites significantly more women than men reported not achieving a high school education and experiencing prolonged periods of unemployment. Further, although housing insecurity has been well-documented among CJS populations [43–45], experiences of homelessness were reported among significantly more women.

In general, women across our ten sites reported worse health status than men, which was reflected in their expression of needs. For example, in addition to more women reporting case management and HIV medical service needs, significantly more women reported needing non-HIV medical services. Chronic health conditions are common among PLWHA [46–48]; and because women are more likely than men to seek healthcare [49], the fact that women in our study reported more health and social service needs follows logically. Overall, women's needs involved basic subsistence deficits, including requesting help securing cash benefits, food, clothes, and transportation. Men, on the other hand, more often reported needing assistance with employment or job training, education, and family and legal services. Women's greater focus on the most basic needs either suggests that women's circumstances are more dire than men's or that men had different priorities. Alternatively, because men tend to seek services less often than women, observed differences could reflect an underreporting bias among men who actually had these needs but were inhibited in mentioning them because of cultural norms defining masculinity [50].

One of our primary aims was to determine if more intensive case management services were needed to engage women in care as compared to men. Our results indicated

that gender did not moderate the relationship between services and care engagement, but it did modify the effect of expressed needs on care engagement. As a main effect, gender was not significantly associated with care engagement. Increased expressed needs, on the other hand, did predict greater care engagement, but not for women. Women who reported a greater number of needs were significantly less likely to engage in care, and—given that women reported more extensive needs overall—this lack of care engagement suggests persistent unmet needs on multiple levels. This link between greater need and less engagement in care represents a substantial barrier for those seeking to improve linkage and retention of HIV-Positive women in ART.

PLWHA leaving jail represent an extremely socioeconomically disadvantaged group, and it is no surprise that they face difficulties engaging with multiple care systems. If our results indicate that having more needs generally leads to greater care engagement, which seems sensible, then why would having more needs prevent women from engaging and staying linked in care? Perhaps the answer lies with the types of needs women report. Because women indicate more basic needs, it may be that their perception is of having to start from "rock bottom," which they see as overwhelming and causes them to drop out. Work by Riley et al. [51] is consistent with this interpretation, showing that unmet subsistence needs among women are related to poor mental health and poorer ART adherence. In contrast, our findings indicate that men are more likely to return to the community with some basic level of needs already met.

If the number and type of needs are in fact overwhelming to women, then factors such as social support, self-efficacy, and positive adaptive coping skills would seem likely to mitigate some of the despair. We did not find evidence that social support differed by gender, nor was it associated with care engagement as we measured it (data not shown). Further, one might speculate that more needs would require more services and that more intensive service provision would, in turn, forestall disengagement. While we observed a significant positive association between services provided and care engagement, the effect was small and the interaction with gender was not significant. Perhaps the modest impact is reflective of problems in the availability and accessibility of medical care and other services that case management relies upon to be effective.

If, as our findings suggest, more intensive case management services do not enable women to effectively access and maintain care, then the question remains, what does help? More coordinated systems and service linkages between correctional facilities and public health can serve to keep individuals linked to the same care provider as they move between the community and jail. From a criminal justice perspective, increasing alternatives to incarceration will also minimize care interruptions, although realization of these benefits may differ for men and women. More research is needed to understand gender differences in the strategies that might help PLWHA leaving jail link and stay engaged in care. More specifically, targeted research that identifies the drivers of women's disengagement and dropout of care and efficacious interventions to address those drivers is sorely needed.

Other findings in this paper deserve mention. Consistent with earlier research, clients who reported homelessness in the 30 days prior to incarceration were 33 % less likely to engage in care. Housing remains an important issue for individuals leaving jail and is critically important for those who are HIV-Positive, since housing stability is related to care engagement and medication adherence [45, 51].

Clients who had children in their care were over two times more likely to stay engaged in care. More women than men reported having children in their care and rather than serving as a barrier to engagement, children appear to have been a motivating factor for improving one's health and well-being. Alternatively, women with children in their care may have better circumstances than those without children and are more able to manage their own healthcare and service engagement.

This study has several limitations. Some of the data items assessed were self-reported and are subject to bias, although HIV viral loads and CD4 counts were objectively determined by standardized laboratory measurements. Case management services were recorded by the case managers themselves. The measure of intensity of services was measured by the sum of the number of services the case manager reported. These services include activities such as conducting client needs assessments, making appointments for clients, accompanying clients to appointments, and calling to follow-up with clients. Services, therefore, represent effort made by case managers on behalf of clients to ensure linkage and engagement in care and that client needs were addressed. More services may reflect some combination of effort, client need, or degree of difficulty in navigating health care and social service systems. Services by case managers should therefore not be misconstrued as the receipt of counseling, drug treatment, medical care or the like, nor the quality of those services. This limitation may explain the modest effect of services on care engagement. Whether clients received specific forms of care or treatment was not assessed as part of this paper. The outcome used in this analysis was completion of a 6 month follow-up data collection instrument, which is a proxy for engagement in care. Finally, this study did not examine other issues that are prevalent among women that may have affected study outcomes, such as childhood sexual abuse and intimate partner violence.

Results from this analysis are consistent with previous findings in the literature. Women with HIV leaving jail represent a severely disadvantaged subpopulation with multiple health and social services needs and challenges that may be different from those of their male counterparts. Because women and men approach health differently, occupy different social roles, and may cope differently with adversity, responding to the needs of women may require more aggressive outreach or more specialized care and attention. Additional research is warranted to better understand mechanisms as to how gender-specific factors and conditions influence continuity of care and retention among men and women, and to explore interventions that can improve care adherence among individuals with HIV leaving US jails.

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