



Suboptimal Retention in Care Among Recently Released Prisoners: Implications for Social Workers in HIV Primary Care

Jill Murphree¹ · D. Scott Batey² · Emma Sophia Kay³ · Andrew O. Westfall⁴ · Michael J. Mugavero⁵

© Springer Science+Business Media, LLC, part of Springer Nature 2018

Abstract

Certain populations of people living with HIV (PLWH) are at greater risk for falling out of care, including PLWH with a history of incarceration. This is associated with increased risk of morbidity and mortality. In the current retrospective cohort study, we examined patient-level information for 340 PLWH who had transferred HIV care services from prison or from other community-based or private HIV primary care providers to a large urban HIV clinic in the southeastern United States. Results indicated that, compared to those transferring care from another community-based or private medical provider, PLWH transferring care from prison were significantly less likely to be retained in care than PLWH transferring care from other providers, even after controlling for other factors. HIV primary care social workers, who are trained to provide case management services, can help provide PLWH with a coordinated continuum of care that addresses the complex issues faced post-release.

Keywords HIV/AIDS · Incarceration · Retention in care · Social work

Background

The development of antiretroviral therapy (ART), which helps suppress replication of the HIV virus and, therefore, decreases risk of morbidity and mortality, is one of the greatest public health achievements to date [1, 2]. Since ART was first made available to the general public in 1996, life expectancies have continued to increase among people living with HIV (PLWH) as mortality rates have decreased substantially [3]. However, some populations, such as PLWH who are currently or recently incarcerated, continue to experience suboptimal HIV health outcomes [4]. Given that an

estimated 20,093 PLWH were living in state or federal prisons in 2010 (the most recent publicly-available estimate), equivalent to about 15% of all PLWH in the United States (US) [4, 5], a closer examination into the health of PLWH with a history of incarceration is warranted.

US case law mandates that PLWH in prison receive access to ART treatment, so PLWH generally demonstrate high levels of engagement in care while incarcerated [5, 6]. However, results from cohort studies suggest that between 30 and 60% of PLWH do not establish care or adhere to treatment regimens after release from prison [7–10]. In a recent multisite randomized control trial, Wohl et al. found that approximately 40% of PLWH do not maintain ART adherence 6 months after release from prison [8]. Another cohort study of 2115 PLWH found that only 30% had filled an initial prescription within 60 days of release [9]. A multisite study with 867 PLWH had similar findings: Just 38% of participants were found to be retained in care (defined as having at least two primary care visits 90 or more days apart) after 6 months of observation [10]. Taken together, these studies suggest that the transition into HIV care post-prison release is far from seamless and demonstrates a need for re-entry programs.

Individual-level factors, such as substance use and depression [11], and community-level factors, including

✉ Emma Sophia Kay
esophkay@umich.edu

¹ Miriam Hospital, Providence, RI, USA

² Department of Social Work, University of Alabama at Birmingham, Birmingham, USA

³ School of Social Work, University of Michigan, 1080 S. University Ave, Ann Arbor, MI 48104, USA

⁴ Department of Biostatistics, University of Alabama at Birmingham, Birmingham, USA

⁵ Department of Medicine, University of Alabama at Birmingham, Birmingham, USA

limited access to medical services [12], create particular challenges for PLWH who are working to transition back into society while also navigating a complex healthcare system. For PLWH who may have suffered home and/or job loss while in prison, accessing healthcare is not often as much of a priority as are basic needs, such as finding a place to live [13, 14]. Issues of stigma related to HIV, as well as previous incarceration, may further confound the efforts of PLWH to reintegrate into their homes and communities and to maintain adherence to and retention in HIV care [13].

While existing literature provides useful insight into correlates of non-adherence and suboptimal retention among PLWH with a history of incarceration, less is known about how PLWH with a history of incarceration compare to PLWH without such a history. Thus, in the current study, we sought to compare retention outcomes between patients who were recently released from prison with retention outcomes for patients who transferred care from another outpatient provider during the same time period.

Methods

Design and Study Sample

This was a retrospective cohort study of patients transferring previously-established HIV care from another community provider or from within the prison system to a large, urban, southeastern US HIV clinic between August 2008 and August 2010. The study had two objectives. The first was to describe the demographic differences between individuals transferring care from prison versus those transferring care from another HIV primary care provider. We analyzed age, gender, race, cocaine use, HIV risk factor, education level, depressive symptomology, and laboratory results, all of which were measured at orientation. The second objective was to compare retention in care (RiC) outcomes for the first year following transfer of care between the two groups. As in previous research [15], RiC was measured as a proportion of arrived visits in relation to the number of scheduled visits, referred to as “visit adherence proportion.” To calculate this measure, the denominator includes “no show” visits and arrived visits; visits canceled ahead of time by the clinic or patient were not included. Patients who attended fewer than 80% of their scheduled appointments during their 1-year study period were considered to have suboptimal RiC.

Data Sources and Measures

Upon institutional review board approval, data was obtained from completed orientation sessions for new-to-clinic patients. Beginning in January 2007, all patients entering care at the study site were required to complete the

orientation session, lasting approximately one hour and generally conducted by a social work staff person, prior to their first visit with a HIV primary medical care provider. During the orientation, social workers conducted semi-structured interviews with new patients. This interview enabled social workers to assess for any barriers to care and provides new patients with an overview of the clinic and an introduction to their HIV care team. The interviews also elicited information on patients’ gender, race, living situation, education level, health insurance status, HIV testing history, previous HIV primary care history, incarceration history, and social support.

All patients who are new to the study site were routinely divided into three types: Newly diagnosed, transferring care, and re-engaging in care after being out of care for more than 1 year. In the current study, we focused on PLWH who were transferring care from another provider; this included PLWH who transferred care from prison as well as PLWH who transferred care from other providers.

Patients also completed self-reported patient reported outcome (PRO) questionnaires that included standardized, valid, and reliable measures, including the Patient Health Questionnaire (PHQ)-9 for depression [16], the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) [17], and the European Quality of Life Scale (Euro-QOL) [18]. In the PHQ-9, a nine-item, self-administered scale for measuring depression over the previous 2 weeks, patients provided one of the following responses to each symptom of depression: “not at all,” “several days,” “more than half the days,” or “nearly every day” [16]. For ASSIST, an eight-item, self-administered scale that collected information about substance use over the past 3 months, patients responded with “no, never,” “yes, in the past 3 months,” or “yes, but not in the past 3 months” [17]. Finally, the Euro-QOL measured quality of life across five different dimensions, including mobility, self-care, usual activities, pain/discomfort, and anxiety/depression [18].

PHQ-9 depression was categorized into major depressive symptoms (a score of 20–27), other depressive symptoms (score of 10–19), and no depressive symptoms (score of 0–9) [16]. Laboratory work was also completed during new patient orientation visits. CD4 and HIV viral load (VL), as well as basic metabolic profile, complete blood count, and syphilis and viral hepatitis panels were completed at that time and recorded in the patient’s electronic medical record (EMR). Race was divided into white and non-white categories for this study. Insurance was reported as public (Medicaid, Medicare), private, or uninsured.

Statistical Analysis

Descriptive statistics including frequency counts and percentages for categorical measures and medians with first and

third quartiles for continuous measures were examined. For categorical measures, Chi square tests were used to test for differences between those transferring care from prison and those transferring care from other providers. For continuous measures, non-parametric Wilcoxon Rank-Sum tests were used to test for differences between those transferring care from prison and those transferring care from other providers. Univariate logistic regression models were fit modeling RiC with suboptimal RiC as the event. Finally, a multivariable logistic regression model was fit with transfer type (prison vs. other provider) as the primary independent variable of interest. Variables with univariate p values < 0.10 were considered for inclusion in the multivariable model. All analyses were performed with SAS version 9.3 (SAS Institute Inc., Cary, NC, USA).

Results

Between August 2008 to August 2010, 340 PLWH transferred care to the study site, 70 of whom were recently released from prison. PLWH recently released from prison were more likely to be male (81.7%), $\chi^2(1) = 5.07$, $p = 0.03$ and non-white (78.6%), $\chi^2(1) = 13.53$, $p < 0.001$ than those transferring care from other providers (74.4% and 54.3%, respectively) (Table 1). They also were more likely to list heterosexual sex as their HIV risk factor (50.0% vs. 30.4%), $\chi^2(3) = 23.85$, $p < 0.001$. Although achievement of viral suppression (VL less than 50 copies/mL) was similar between groups, PLWH recently released from prison had significantly higher CD4 counts than PLWH who transferred from another provider ($\chi^2(1) = 15.83$, $p < 0.001$). PLWH recently released from prison had significantly lower education levels: Nearly half had not graduated from high school (41.4%), while, among PLWH who transferred care from another provider, just 14.8% had less than a high school education ($\chi^2(5) = 41.65$, $p < 0.001$). PLWH recently released from prison also had significantly higher rates of prior cocaine use (75.4% vs. 34.9%), $\chi^2(2) = 36.77$, $p < 0.001$. As would be expected, PLWH recently released from prison were mostly uninsured (91.4%), while less than half (45.2%) of PLWH transferring care from other providers were uninsured ($\chi^2(2) = 48.32$, $p < 0.001$). PLWH recently released from prison had lower rates of major depression than those transferring care from other providers as well, though this difference was just shy of statistical significance (13.6% vs. 21.2%), $\chi^2(2) = 5.68$, $p = 0.06$.

PLWH recently released from prison were significantly more likely to have a suboptimal visit adherence proportion of less than 0.8 (63% vs. 42%), $\chi^2(1) = 9.72$, $p < 0.01$ (Table 1). In fact, even when controlling for age and race, PLWH recently released from prison had over two times the

odds of having a suboptimal clinic adherence proportion (OR 2.2, 95% CI 1.2–3.8, $p < 0.01$) (Table 2).

Discussion

Consistent with previous research [10, 19], PLWH who were recently released from prison had lower education levels and higher rates of cocaine use. Further consistent with the literature [20], PLWH transferring care from prison had higher CD4 counts than those transferring from other providers. Prisoners have generally been reported to have uninterrupted ART access and high antiretroviral adherence levels while incarcerated [9, 21]. It appears that the effect of this adherence continued into their first laboratory work after release from prison. However, this adherence was not maintained post-release. Similar to previous research [9, 10], visit adherence proportions for recently released prisoners were significantly lower than those transferring care from other providers, as about 37% were found to have optimal RiC during the observation window. In contrast, for PLWH who were not recently released from prison, about 58% demonstrated optimal RiC.

PLWH recently released from prison face many challenges, including lack of stable housing, income, and social support [13, 22]. Several interventions have been shown to effectively aid PLWH in re-entry and maintain engagement in HIV medical care. For example, Project Bridge, first developed in Rhode Island, draws on a collaborative approach between social workers and doctors to help PLWH “bridge” the gap from prison to the community [23]. Through regular personal contact, individuals participating in Project Bridge are able to navigate some of the issues they face upon re-entry into society [23]. Another promising intervention called ImPACT (Individuals Motivated to Participate in Adherence, Care and Treatment) provides motivational interviewing and linkage services before and after release from prison to help PLWH increase self-efficacy and maintain treatment services without interruption [24]. Interventions like Project Bridge and ImPACT provide recently-incarcerated PLWH with the linkage tools they need to successfully reintegrate into their respective communities.

Limitations

This study is not without limitations. Recently released prisoners may become reincarcerated after release, which is not accounted for in the study. The sample size is small, which reduces statistical power. Since the analysis is cross-sectional, it does not allow for detection of trends in retention over time. The results have limited generalizability since the data was derived from just one HIV

Table 1 Patient characteristics by transfer type

	Prison (n = 70)	Other provider (n = 270)	Test statistic
	Median (SD)		
Age	42 (7.7)	43 (10.3)	Z = -0.08, p = 0.94
	N (%)		
Visit adherence proportion ^a			$\chi^2(1) = 9.72, p < .01$
Suboptimal (< 0.8)	44 (62.9)	109 (41.9)	
Optimal (≥ 0.8)	26 (37.1)	151 (58.1)	
Gender			$\chi^2(1) = 5.07, p = 0.03$
Male	61 (87.1)	201 (74.4)	
Female	9 (12.9)	69 (25.6)	
Race			$\chi^2(1) = 13.53, p < 0.001$
White	15 (21.4)	122 (45.7)	
Non-white	55 (78.6)	145 (54.3)	
Risk factor			$\chi^2(3) = 23.85, p < 0.001$
Heterosexual	35 (50.0)	82 (30.4)	
MSM	16 (22.9)	131 (48.5)	
IVDU	16 (22.9)	28 (10.4)	
CD4 count ^a			$\chi^2(1) = 15.83, p < 0.001$
< 200	2 (2.9)	56 (23.6)	
200–350	24 (34.3)	55 (23.2)	
> 350	44 (62.9)	126 (53.2)	
Viral suppression ^a			$\chi^2(1) = 0.67, p = 0.52$
Suppressed (< 50)	33 (47.1)	102 (43.2)	
Unsuppressed (≥ 50)	37 (52.9)	134 (56.8)	
Education level ^a			$\chi^2(5) = 41.65, p < 0.001$
Less than HS	29 (41.4)	40 (14.8)	
HS/GED	28 (40.0)	72 (26.7)	
Some college	7 (10.0)	82 (30.4)	
Undergraduate degree	2 (2.9)	44 (16.3)	
Post-graduate	1 (1.4)	17 (6.3)	
Insurance status			$\chi^2(2) = 48.32, p < 0.001$
Private	1 (1.4)	62 (23.0)	
Public	5 (7.1)	86 (31.9)	
Uninsured	64 (91.4)	122 (45.2)	
Depression			$\chi^2(2) = 5.68, p = 0.06$
Major depression	9 (13.6)	53 (21.20)	
Depressive symptoms	3 (4.6)	29 (11.6)	
None	54 (81.8)	168 (67.2)	
Cocaine use			$\chi^2(2) = 36.77, p < .001$
Current	4 (5.8)	27 (10.3)	
Prior	52 (75.4)	91 (34.9)	
Never	13 (18.8)	143 (54.8)	

^aMissing values for retention in care (n = 10), CD4 count (n = 33), viral suppression (n = 34), education (n = 18), and depression (n = 24)

clinic in one region of the US, and most PLWH in the study were recently released from the same state prison system. Future research should explore RiC outcomes among this population at other clinics and medical sites.

The appointment adherence proportion measurement also has limitations. It measures only arrived and “no show” visits and does not capture the amount of time between visits [25].

Table 2 Multivariable logistic regression model for RiC (event modeled is suboptimal RiC)

	OR	95% CI	<i>P</i>
Prison versus other provider	2.2	1.2 3.8	< 0.01
Non-White versus White	1.8	1.1 2.8	0.02
Age (per 10 years)	0.6	0.5 0.8	< 0.001

Conclusion

PLWH released from prison had significantly lower retention rates than their counterparts. Additional research is needed to further explore challenges to appointment adherence for prisoners after release to sustain the benefits of HIV treatment they experience during incarceration. In addition to learning how to manage HIV care, PLWH may experience additional structural and social challenges during re-entry into the community [22]. The need for care coordination between prison and community providers is crucial, especially during the initial transitional period, as passive referrals may not be sufficient to link PLWH to care outside of the controlled environment of the prison [13, 26, 27]. Additionally, experiencing multiple instances of stigma due to HIV status and previous incarceration can compound re-entry challenges and prompt PLWH to return to previous high-risk behaviors, like substance use and transactional sex [22, 28].

Social workers are expertly poised to provide personalized care that takes patients' unique strengths and needs into account. There is evidence that providing patients with enhanced personal contact (EPC) may result in higher rates of visit adherence [28]. In a randomized controlled trial, Gardner and colleagues found that patients who received EPC, which included face-to-face meetings and personalized reminder calls, had significantly higher visit adherence rates than patients who received automated reminder calls through a standard of care intervention [28]. Given the low rates of adherence found among PLWH who have been incarcerated, social workers may consider providing EPC to patients in HIV care who have a history of incarceration.

In conclusion, social workers in HIV care settings may leverage their case management and teamwork skills to shepherd newly released PLWH into outpatient HIV care and promote long-term adherence and retention. As social workers are trained to recognize multilevel barriers to care, they are well-poised to be aware of the competing issues faced by this population. By considering existing evidence-based interventions, as well as collaborating with the prison system and leveraging local community resources, social workers can facilitate successful reentry for PLWH recently released from prison.

Compliance with Ethical Standards

Conflict of interest All authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

1. Volberding PA, Deeks SG. Antiretroviral therapy and management of HIV infection. *Lancet*. 2010;376:49–62.
2. Thompson MA, Aberg JA, Cahn P, et al. Antiretroviral treatment of adult HIV infection 2010 recommendations of the International AIDS Society–USA Panel. *JAMA*. 2010;304(3):321–33.
3. Antiretroviral Therapy Cohort Collaboration. Life expectancy of individuals on combination antiretroviral therapy in high-income countries: a collaborative analysis of 14 cohort studies. *Lancet*. 2008;372(9635):293–9.
4. Centers for Disease Control and Prevention. HIV among incarcerated populations; 2017. <https://www.cdc.gov/hiv/group/correctional.html>. Accessed 20 Sept 2017.
5. Spaulding AC, Seals RM, Page MJ, et al. HIV/AIDS among inmates of and releasees from US correctional facilities, 2006: declining share of epidemic but persistent public health opportunity. *PLoS ONE*. 2009;4:e7558.
6. Westergaard RP, Spaulding AC, Flanigan TP. HIV among persons incarcerated in the US: a review of evolving concepts in testing, treatment and linkage to community care. *Curr Opin Infect Dis*. 2013;26(1):10–6.
7. Baillargeon J, Giordano TP, Harzke AJ, et al. Predictors of reincarceration and disease progression among released HIV-infected inmates. *AIDS Patient Care STDS*. 2010;24(6):389–94.
8. Wohl DA, Golin CE, Knight K, et al. Randomized controlled trial of an intervention to maintain suppression of HIV viremia after prison release: the impACT trial. *J Acquir Immune Defic Syndr*. 2017;75(1):81–90.
9. Baillargeon J, Giordano TP, Rich JD, et al. Accessing antiretroviral therapy following release from prison. *JAMA*. 2009;301(8):848–57.
10. Althoff AL, Zelenev A, Meyer JP. Correlates of retention in HIV care after release from jail: results from a multi-site study. *AIDS Behav*. 2013;17(suppl 2):S156–70.
11. Scheyett A, Parker S, Golin C, White B, Davis CP, Wohl D. HIV-infected prison inmates: depression and implications for release back to communities. *AIDS Behav*. 2010;14:300–7.
12. Chandler R, Gordon MS, Kruszka B, et al. Cohort profile: seek, test, treat and retain United States criminal justice cohort. *Subst Abuse Treat Prev Policy*. 2017;12:24.
13. Dennis AC, Barrington C, Hino S, Gould M, Wohl D, Golin CE. “You’re in a world of chaos”: experiences accessing HIV care and adhering to medications after incarceration. *JANAC*. 2015;26:542–55.
14. Bhushan A, Brown S, Marcus R, Altice FL. Explaining poor health-seeking among HIV-infected released prisoners. *Int J Prison Health*. 2015;11(4):209–24.

15. Mugavero M, Davila J, Nevin C, Giordano T. From access to engagement: measuring retention in outpatient HIV clinical care. *AIDS Patient Care STDS*. 2010;24(10):607–13.
16. Kroenke K, Spitzer RL, Williams JBW. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med*. 2001;16(9):606–13.
17. Humeniuk R, Ali R, Babor TF, et al. Validation of the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST). *Addiction*. 2008;103(6):1039–47.
18. Matthews WC, May S. EuroQol (EQ-5D) measure of quality of life predicts mortality, emergency department utilization, and hospital discharge rates in HIV-infected adults under care. *Health Qual Life Outcomes*. 2007;5:5.
19. White MC, Marlow E, Tulsy JP, Estes M, Menendez E. Recidivism in HIV-infected incarcerated adults: influence of the lack of a high school education. *J Urban Health*. 2008;85(4):585–95.
20. Lim S, Nash D, Hollod L, et al. Influence of jail incarceration and homelessness patterns on engagement in HIV care and HIV viral suppression among New York City adults living with HIV/AIDS. *PLoS ONE*. 2015;10(11):e0141912.
21. Meyer JP, Cepeda J, Wu J, Trestman RL, Altice FL, Springer SA. Optimization of human immunodeficiency virus treatment during incarceration: viral suppression at the prison gate. *JAMA Intern Med*. 2014;174(5):721–9.
22. Haley DF, Golin CE, Farel CE, et al. Multilevel challenges to engagement in HIV care after prison release: a theory-informed qualitative study comparing prisoners' perspectives before and after community reentry. *BMC Public Health*. 2014;14:1253.
23. Zaller ND, Holmes L, Dyl AC. Linkage to treatment and supportive services among HIV-positive ex-offenders in Project Bridge. *J Health Care Poor Underserved*. 2008;19(2):522–31.
24. Golin CE, Knight K, Carda-Auten J. Individuals motivated to participate in adherence, care and treatment (imPACT): development of a multi-component intervention to help HIV-infected recently incarcerated individuals link and adhere to HIV care. *BMC Public Health*. 2016;16:935.
25. Mugavero MJ, Westfall AO, Zinski A, et al. Measuring retention in HIV care: the elusive gold standard. *J Acquir Immune Defic Syndr*. 2012;61(5):574–80.
26. Hammett TM, Donahue S, LeRoy L. Transitions to care in the community for prison releasees with HIV: a qualitative study of facilitators and challenges in two states. *J Urban Health*. 2015;92(4):650–66.
27. Luther J, Reichert E, Holloway E, Roth A, Aalsma M. An exploration of community reentry needs and services for prisoners: a focus on care to limit return to high-risk behavior. *AIDS Patient Care STDS*. 2011;25(8):475–81.
28. Gardner LI, Giordano TP, Marks G, et al. Enhanced personal contact with HIV patients improves retention in primary care: a randomized trial in 6 US HIV clinics. *Clin Infect Dis*. 2014;59(5):725–34.