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Structural barriers to women's sustained engagement in HIV care in Southern California

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Abstract

Since the introduction of antiretroviral therapy, the number of women living with HIV (WLHIV) continues to increase. Despite the decrease in HIV diagnosis among women in California, less than half of WLHIV are retained in HIV care. Structural barriers put women at increased risk for delayed HIV diagnosis, delayed entry into HIV care, and poorer treatment outcomes. The objective of this qualitative analysis is to identify how structural barriers negatively impact women's sustained engagement in HIV care in Southern California. WLHIV accessing local HIV support services participated in a qualitative study by completing a semi-structured interview and brief survey between January and April 2015 (n=30). Poverty, unemployment, housing instability, and needs for transportation emerged as the dominant structural barriers for women when discussing their challenges with sustained engagement in HIV care. System-level interventions that decrease these noted barriers may help improve HIV care continuum for women living in Southern California.

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Author Disclosure Statement
E Park, JK Stockman, B Thrift, A Nicole, and LR Smith have no conflicts of interest to report.

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. This study was conducted with the approval by the Human Research Protection Program of the University of California, San Diego. Informed consent was obtained from all individual participants included in the study.

Keywords

HIV care continuum; Women living with HIV; Structural barriers; Lived experience; Social determinants of health

Introduction

The success of antiretroviral therapy (ART) resulted in changes in HIV responses from emergency initiatives focused on disease treatment to long-term chronic disease management (1). The HIV care continuum reflects a sequential life-long process in HIV management, and is defined as: diagnosis of HIV infection, linkage to care, retention in care, receipt of antiretroviral therapy, and maintenance of viral suppression (2). Retention in care and sustained ART are critical to HIV viral load suppression (3). Benefits of reaching viral suppression extend to the treated individuals as well as their sexual partners and to the community (4–6) and multifaceted approaches that include both individual- and structural-level factors are important to achieving these outcomes through sustained engagement in HIV care (7).

Extensive evidence suggests that structural barriers such as housing and food insecurity impede optimal HIV care continuum outcomes (8–16). In the Institute of Medicine’s 2012 report “Monitoring HIV Care in the United States: Indicators and Data Systems”, housing, food, and transportation were identified as key mediators to entry and engagement in HIV care and report recommended to increase the percentage of Ryan White HIV/AIDS Program clients with permanent housing from 82 to 86 percent by 2015 (17). In a systematic review, Leaver et al. (2007) found a significant positive association between increased housing stability with outcomes of adherence to HIV treatment regimens, utilization of health and social services, and health status (15). While in Vancouver, Canada where ART is provided at no cost, a study found residential eviction was associated with incomplete ART adherence among ART-exposed HIV-positive people who inject drugs (18). In San Francisco, California, Clemenzi-Allen et al. (2018) showed that increased degree of unstable housing (e.g. Hotel/Single Room Occupancy, staying with friends, shelter and outdoors) and lower rates of viral suppression had “dose-response” relationship (19) and Riley et al. (2019) observed that neither outpatient health care nor case management predicted viral suppression for women living with HIV (WLHIV) while types of living conditions and incarceration significantly predicted future unsuppressed viral load (20). Weiser et al. (2009) also found food insecurity among marginally housed individuals in San Francisco was significantly associated with two times greater odds of having a low CD4 cell count (11). In rural California, being unemployed and having to travel 31-90 minutes were identified as major barriers for HIV care appointments and access to HIV care among rural WLHIV(21). Despite the acknowledgment of these structural barriers, and calls to reduce them within the Ryan White (17) and broader public assistance systems, they still persist. Understanding how WLHIV interpret and navigate these structural barriers in relation to their receipt of social services and engagement in the HIV care continuum may afford complementary insights on appropriate structural-level interventions.

California ranked second in the U.S. for both the highest number of persons newly diagnosed (n=4,791) and the highest number of people living with diagnosed HIV (PLWDH) (n=135,082) in 2017 (22). Specifically, Southern California has 5 counties among the 50 highest HIV burden areas in the U.S. (i.e. hot spots) that account for half of new HIV diagnoses each year that are currently targeted by the Ending the HIV Epidemic national strategy (23). Among cisgender women diagnosed with HIV in California, only 54% are retained in HIV care and 61% are virally suppressed (24). Less work has examined how structural barriers affect the day-to-day experiences of WLHIV, and how such experiences might impact HIV related health behaviors and sustained engagement in HIV care. Examining this issue among WLHIV in California is especially critical given the recent rise in homelessness in cities along the west coast (25), where WLHIV are often underserved in HIV epidemics that are largely comprised of men who have sex with men (MSM) (26–29). Given current efforts to prioritize ending the HIV epidemic in Southern California and other regions in the U.S. accounting for 50% of new HIV diagnoses (23, 30), it is both timely and essential to ensure the unique needs of WLHIV are appropriately characterized and not overlooked in this emerging national response. To this end, we conducted a secondary qualitative analysis to examine daily experiences with structural barriers among WLHIV, and the ways in which these experiences affected their HIV related health behaviors.

Methods

Participants and Procedures

All participants were recruited from a local HIV service agency in San Diego, California from January to April 2015 that serves the broader San Diego County Metropolitan Statistical area. The local Ryan White-funded HIV service agency provides comprehensive services for women, children, and families affected by HIV/AIDS. These services include case management and referral services to mental health services, drug & alcohol outpatient counseling, HIV counseling; childcare; basic needs assistance; and other educational workshops, trainings and retreats. Any WLHIV and their families who financially qualify can access these services. The service agency takes both referrals from HIV clinics and walk-in clients.

Study participants were 30 WLHIV with a history of poor engagement in HIV care who were currently enrolled in a peer navigation program called “Coordinated HIV Assistance and Navigation for Growth and Empowerment (CHANGE) for Women” program. Through the “CHANGE for Women” program, each participant was paired with a Peer Navigator (PN) to help them access care and make it through the entire HIV care continuum. PNs are HIV-positive, ART-adherent, peer role models with similar lived experiences as the clients they serve. PNs were trained to provide emotional (e.g. expression of empathy, love, trust, and caring words); practical (e.g. provision of tangible aid like childcare and transportation support), informational (e.g. advice and suggestions when clients talk to doctors and coping strategies to deal with treatment side-effects), and appraisal support. Through flyers posted at the agency and local HIV clinics, WLHIV enrolled in the “CHANGE for Women” Program were invited to participate to the current study. Women were eligible if they were: HIV-positive, able to communicate in English, and 18 years of age or older. Prior to the interview, participants completed a brief survey and the data were self-administered using audio computer assisted self-interview techniques programmed into the Questionnaire Development System™ (31). Next, a trained interviewer used a semi-structured interview guide to elicit women's HIV disclosure and current and previous HIV treatment experiences, and to contextualize experiences that facilitated and impeded sustained engagement in HIV care. Interviews took place in private rooms to assure confidentiality. Interviews were audio-recorded then transcribed verbatim. Transcripts were reviewed with the audio file by trained study staff and the interviewer as a quality assurance measure. The transcription protocol ensured no identifying information was included in the final transcript. Variance in participants' experiences was iteratively reviewed by the study team, and the final sample size (n=30) was sufficient for achieving saturation of responses in this sample (32). All participants provided informed consent and received a $40 in compensation for their time. The study protocol was approved by University of California San Diego Institutional Review Board.

Measures

We collected both quantitative and qualitative data from participants. Quantitative measures included sociodemographic (e.g., race, sexual orientation, country or birth, education, annual income, marital status, dependent children), structural-level determinants (e.g., housing type, employment status, type of received public assistance programs), and HIV acquisition and treatment history (33). Qualitative measures were collected through open-ended questions to describe participants' experiences related to HIV diagnosis, care and treatment process, social and economic support, current experiences in the peer navigation program, and barriers to engage and remain in HIV care and support services.

Data Analysis

As a cross sectional concurrent nested study design, emphasis was placed on eliciting participants lived experiences, while quantitative data were gathered to characterize, in aggregate, the sample's experiences, cross validate qualitative findings, and identify points of intervention (34). In the current analysis, descriptive statistics are used to characterize the samples' sociodemographic and HIV treatment experiences. Transcripts were iteratively reviewed for emergent themes, and a codebook was developed by the research team. Transcripts were then independently coded by trained coders to identify structural barriers. Coders routinely met with the corresponding author to discuss the coding process, refine codes as needed, and resolve any discrepancies in how codes were being applied. A random selection of 15 transcripts was independently reviewed by the corresponding author to ensure uniformity in the coding process across coders. The framework methodology was then applied to compare and to contrast experiences with structural barriers across participants as well as within individual participants (35). Framework methodology is developed by researchers from the Qualitative Research Unit at the National Center for Social Research in the United Kingdom and widely used in health research (35). The matrix output is consist of rows (participant cases), columns (codes for emergent themes). Each 'cell" of this matrix represents summarized data with exemplar quotes. This analytic structure allows multiple coders to systematically analyze the data by case (i.e. to observe how themes are experienced by a particular participant) and by code (i.e. how do themes emerge across participants). From these narratives, we observed how in the context of Ryan White services, structural barriers like poverty, unemployment, housing instability, and limited access to transportation affected WLHIV's sustained engagement in HIV care.

Results

Participant Characteristics

As shown in Table 1, thirty women participated in this study and most of them self-identified as either Black (47%) or Latina (27%). The mean age was 47.6 years (SD=10.41). Participants' ages ranged from 28 to 69. Twenty-six participants identified as straight or heterosexual and three participants identified as gay/lesbian or bisexual. Regarding structural-level determinants at the time of interview, most women (73%) were not employed and among those who were employed (n=8), only one participant had full-time employment. Most participants received some form of public assistance, including housing assistance (60%), Medicaid (40%), Food Stamps (40%), Disability (43%), and AIDS Drug Assistance Program (17%). Half of the participants earned less than $10,000 annually, and another 41% earned less than $19,999. The main mode of HIV transmission reported was sexual transmission from male partners (90%). Twenty-seven participants were on ART but only 13 women reported that they never miss a dose in the past month.

Emergent Themes

Poverty, unemployment, housing instability, and limited access to transportation emerged as the dominant theme across WLHIV's experiences when discussing their challenges with sustaining engagement in their HIV care. Most of the participants in this study lacked access to stable income, housing, and transportation and reflected on the difficulties of accessing HIV care when these issues are not resolved. Challenges navigating existing government assisted programs for housing and insurance were discussed and having assistance from peer navigators to navigate these ancillary systems was perceived to be beneficial for maintaining or reengaging in HIV care.

Poverty and unemployment—Poverty emerged as a substantial barrier for women accessing HIV care. Most respondents experienced economic instability due to unemployment and reflected on their dependence on public assistance programs for their survival and HIV care. Few participants had jobs but those that did commented that their jobs didn't provide sick leave or flexible work hours, which often prohibited them from maintaining proper care.

> "I get out of the hospital today and the next day I go to work. When you are sick, they don't pay. I been working for them for almost nine years, but they don'tpay. So it's up to you, you have to go to work, "

Throughout the women's experiences, we observed ways in which HIV itself can be a cause of poverty for those affected. Some participants said that because of their health, they had to stop working. Often having a job was viewed as worse than being unemployed because it made them ineligible for public assistance programs such as Medicaid, Food Stamps, and Social Security Disability Insurance (SSDI); leaving them more under-resourced despite being employed. Some participants emphasized that they made an intentional choice to leave their job so that they could get government assistance and time to go to their doctor's appointment.

> "I quit my job…I didn'thave the income I had [when unemployed]… I [was] still paying rent but didn't have food. "

One participant with a job illustrated the ways in which, despite her employment, she was still negatively impacted by poverty which prevented her from not just getting her HIV care, but having access to food, water, and electricity.

> "If I don't go to work, it's just a mess. Like a few months ago I didn't have water in the house for four months… For four months!"

While poverty was a common factor across women's experiences, lack of employment benefits and sick time, reflecting the quality of employment, emerged as a distinct barrier to sustained engagement in HIV care. In other words, the absence of sick time and flexible work schedule prohibited WLHIVs' access to HIV care and it encouraged them to leave their job to be better positioned to take care of themselves and help them become eligible for government-assisted insurance programs, HIV care appointments, and pay for ART. Thus, low quality employment options without guaranteed benefits (e.g. sick time) in the context of living with HIV as a chronic disease reflected a complex cycle where sustained medical treatment is counterintuitively hindered by employment opportunities and poverty itself is reinforced by living with a life-long illness.

> "I wasn't able to really see the doctor because I was at work every day. From 8 to 4. I wasn't taking care of myself. And so I made a conscious decision to say, this is me first. These people are gonna have to wait. I started breaking out in hives at the end. And I knew that I needed to move on. To go and take care of myself… The liver treatment and so I, I stopped working period. I passed the liver treatment but it just seemed like other parts of my body started breaking down. I came down with fibromyalgia, and, you know just a lot of pain and stuff, so. I decided that, you know, I'm gonna stay at home. "

In the context of unemployment and qualifying for health insurance, it was difficult for one woman to navigate the insurance process. She described being so overwhelmed by the experience that in the end she gave up. She also implied that getting help to navigate the health care system might help her to stay in HIV care.

> "Right now, I don't have insurance, so I don't know if I'll be able to get my medicine, not just the HIV [medicine]. And they want to pay, to do the like a co-pay, stuff like that. It's very expensive. My HIV, [ADAP: AIDS Drug Assistance Program] will pay for my [HIV] medication. But just general in health, I don't know what I'm going to do…I have blood pressure medicine, I have to take potassium because my immune system is really bad. "

Maintaining a healthy lifestyle and getting HIV care were frequently overshadowed by more immediate priorities to meet basic needs for food, transportation, and a place to sleep. Moreover, women had other competing social priorities as a wife, a mother, and/or a grandmother which meant they had to prioritize providing care for other family members over their own treatment.

> “Whether it’s my daughters ‘ mental health, whether It’s getting her to school, whether it’s food…cause food is a big issue…what good is my medical care with HIV if I don’t have housing, if I can’t get her psychiatric care? ”

Housins instability—Maintaining HIV care was not always a priority among WLHIV when they were struggling to find a place to sleep for the night. When there were urgent and immediate needs, scheduling an appointment or remembering to take HIV medications weren’t the priority.

> “Housing. That’s mainly it. You know, we’ve had a place before and everything, but, it seemed like, when we did have a place it was a lot easier to remember to take meds and remembering appointments, and doing this and that, the important stuff. I already have problems with sleep anyway, so that doesn’t help. If cop’s gonna walk up and give you a ticket for being somewhere you’re not supposed to be. That’s really it, it’s housing.”

Women living with HIV described the danger of losing their jobs due to health-related issues. As a result, they were at a high risk of becoming homeless. In addition, WLHIV who were homeless experienced a great deal of daily stress. Homelessness or housing instability emerged as a considerable factor affecting WLHIV’s HIV treatment experiences.

> “I ended up being homeless because I didn’t have a job…I ended up in the shelter system, I’m in traditional hosing [now]. So I had to go through…some tough ordeals, like with my meds, I’m back on my meds, now. ”

While many participants experienced housing instability, other participants were susceptible to less visible forms of homelessness such as doubling up with friends and family, moving frequently among different friends, or living in a car. One participant described how hard it is to keep track of time to take medication because she was living in a car and the situation was very stressful to her.

> “It’.s hard to be [in a car] cause you never know what time it is…Since I got sick, we been back and forth, motels, staying with so-called family members, and [my HIV care] just never seemed to work out.”

Several participants lived in a car and others lived in a public housing or shelter. In these contexts, they described having a hard time keeping track of time to take medication and felt the environment for taking their medications was unsafe and not private.

> “I couldn’t take my meds in the shelter because everybody’s in the shelter and it was not so much privacy…I felt uncomfortable and I wasn’t in the position to tell anybody like, I’m taking the HIV meds. I wasn’t comfortable sharing my status. ”

Limited access to transportation—Limited access to transportation was another barrier to sustained HIV care. Most participants were unemployed, on government-assisted programs, and dependent on other people for transportation. One participant commented on how relying on favors from others and trying to pay for a car was extremely challenging and could compromise her access to HIV care transportation.

> "I called everybody, anybody who can help me. Never received even one penny from nobody. So, I just took my title for the car, I went to the cash check and they put my title down, they give me the month, so I can pay the water. So right now, I need to pay them back…If I don't pay, they take my car."

Transportation was not always available when women needed a ride. WLHIV often reported that they didn't have enough people to ask for a ride and most people around them were also in an impoverished situation.

> "… if I would get sick or something [my ex] would help me out…if I needed a ride…he would you know, take me but he's pretty much the only person…. because majority of the friends that I have, they're pretty much the same financial situation that I'm in. They don't have cars."

Several WLHIV highlighted the discount bus pass program through Ryan White that had been discontinued in the region, making it harder to get to their HIV care appointment.

> "It's been times I've had appointments after my bus pass ended and I didn't have money to renew the bus pass, so I've had to miss appointments here and there. "

Other participants reflected on ways comorbid mental health and substance use complicated their access to transportation for care. One woman reflected on how her mental illness resulted in her disengagement from treatment because she was too distressed to navigate a bus ride, while another found a way to get to care in spite of her substance use.

> "There's nobody that could come pick me up…I cannot take a bus right now. There's no way I can take a bus cause, there's no way I could deal with people right now [due to her mental health]. "

> "I would hitchhike to my appointment. And I would hitchhike back to the dope hole. Back to the crack house. "

Many women reflected that having access to services addressing their needs for transportation assistance was helpful. One reported that getting access to a medication delivery service for her HIV and non-HIV medications was very helpful.

> "The pharmacy's delivery boy…once or twice a month. When I started using new medication, I didn't recognize the name of the product. I go, "What is this for"? He goes, [Whispering] "This is for your HIV." It is so sweet [Laughter] "

Several women commented how getting a ride assistance from the HIV service agency's peer navigators or a subsidized bus pass were helpful. Depending on specific needs and circumstances, participants' preference for types of transportation services varied.

> "While I was really sick and I didn't have a car, there was one of the Peer Navigators took me to the doctors, and waited for me. "

> "She [peer navigator] told me that I could get an emergency bus pass and she was able to get one for me…. I was able to get a bus pass and ride the trolley, ride the train [to my HIV doctor]."

Discussion

Building on existing studies showing the association between structural barriers and poorer HIV treatment outcomes (8–10, 16, 36, 37), this work helps to contextualize our understanding on how the day-to-day experiences of structural barriers hinder sustained engagement in HIV care among low-income WLHIV living in well-resourced U.S. cities. Structural barriers persistently impeded the sustained HIV care among WLHIV even in the presence of Ryan White supported comprehensive HIV clinical care and case management services. WLHIV in the region repeatedly expressed day-to-day struggles related to poverty and how it impeded their engagement in the HIV care continuum; where retention in care emerged as the biggest challenge in these contexts. WLHIV may receive free, quality medical HIV care, but structural barriers continued to interfere with their HIV treatment. Given recent calls by the federal government to prioritize ending the HIV epidemic in Southern California and hot spots in the U.S. that account for 50% of new HIV diagnoses, it is critical to articulate the structural challenges this initiative will need to address (23).

Housing instability as a structural determinant of health emerges in this context through the striking increases in housing costs in Southern California that is contributing to a rapidly growing homeless epidemic, prohibiting access to HIV care as well as primary care in the region (21, 38, 39). The day-to-day challenges of having to prioritize access to government assistance over employment, and the ways in which housing instability destabilized engagement in HIV care were deeply rooted and intersecting themes observed across WLHIVs' HIV treatment challenges. Regarding efforts to end the HIV epidemic, previous work has observed that unsheltered WLHIV are less likely to receive and engage with HIV care (11, 36, 40, 41) while simultaneously experiencing other risk factors that could impede efforts to reduce HIV transmission, like illicit drug use (37, 42, 43), risky sexual behavior (44–46), and poor mental health (46–48).

Limited access to transportation emerged as another important structural barrier in our study. According to the 2016 California Needs Assessment for HIV, increased housing costs also mean that WLHIV, when stably housed, reside further outside the urban region where HIV care is concentrated and have poorer access to reliable public transportation (49). This challenge was reflected in WLHTV's concerns over how to pay for transportation. Yet when transportation assistance was provided, it greatly facilitated engagement in HIV care pointing to a promising intervention strategy. Relatedly, transportation emerged as a substantial barrier to HIV care among WLHIV in the U.S. South (50–52). While WLHIV in both regions reflected on the cost of transportation being a tangible challenge, WLHIV in the U.S. South were equally concerned that requesting transportation assistance from persons in their social network would risk disclosing their HIV status to others (50). However, HIV stigma as a barrier to HIV care-related transportation was not observed in this sample.

Despite its contribution to the literature, this study has a few limitations. As with qualitative research, there is always a potential for social desirability bias. To mitigate this bias, our trained interviewers were external to the service agency from which women were recruited, and given the convergence of WLHIV's experiences across our emergent themes, desirability bias is likely to be low in this sample. Second, generalizability of our findings are limited to women receiving support services from an HIV community-based organization in Southern California and may not extend to other regions, such as the U.S. South where women represent a larger proportion of the HIV epidemic or may live further distances from available HIV services. Similarly, WLHIV in this study were connected to a peer navigation program and may not have been currently disengaged from HIV care. However, our interview protocol covered a wide period of time, from diagnosis to the present, providing opportunities to reflect on times when accessing or maintain HIV treatment was challenging. We sought to highlight relevant structural barriers to ending the HIV epidemic in Southern California among WLHIV who remain underserved in areas with a predominantly MSM-focused response. Efforts to end the HIV epidemic that are not inclusive of, or tailored to, WLHIV may risk elevating HIV-related health disparities in this population (53). However, efforts that are inclusive or, or tailored to, WLHIV will likely yield efficiencies that are beneficial to low-income MSM and MSM of color who may face similar structural barriers as WLHIV in the region, optimizing HIV reduction efforts across multiple sub-populations.

Structural gender-responsive opportunities to sustain engagement in the HIV care continuum among WLHIV will require that we realign eligibility criteria for HIV and ancillary services to better meet the realities of the post-HAART (highly active antiretroviral therapy) era. As observed across participants' experiences, the current disability and income eligibility criteria no longer reflect the intersecting realities of life-long HIV treatment and exponential increases in the cost of living. In fact, the lowest reduction in HIV viral suppression disparities among Ryan White clients from 2010 to 2016 was observed for those with unstable or temporary housing (53). Specifically, our data suggest the income requirements to ensure access to HIV care are out dated for the current economic contexts. First, we observed that income restrictions to qualify for critical HIV services such as Ryan White-supported medical care and ADAP are set too low and do not reflect the realities of housing and transportation costs in major metropolitan U.S. settings. As a result, WLHIV are forced to choose between HIV care or employment. Secondly, we observed that the broader employment infrastructure does adequately support people living with life-long chronic conditions such as HIV, and would benefit from policies that ensure a livable wage and guarantee paid sick leave. Policy revisions are needed to ensure coverage augmentation that does not undermine income generating or stable housing opportunities among WLHIV. The ability to access HIV care and adhere to ART should not be a choice that compromises access to life stabilizing resources as reflected in the experience of study participants. Relatedly, "Housing First" programs have demonstrated that the provision of housing alongside intensive case management was significantly and substantially associated with increased CD4 counts and decreased viral load among chronically homeless people living with HIV randomized to the program compared to the control arm (54). Similar Housing First programs may not require resource intensive management for all WLHIV, but could be paired with peer navigation and the provision of subsidized public transport (i.e. bus passes) identified in the current study as tangible strategies, that when funded, reduce structural barriers to WLHIVs' engagement in HIV care. Future efforts might also investigate behavioral economic strategies (55, 56) that link more optimal HIV treatment behaviors to a guaranteed housing subsidy, offsetting the full cost of rent and supporting resource stability. Extending HIV services to ensure housing and transportation support for low income and underemployed WLHIV is necessary to strengthen and sustain engagement in the HIV care continuum in Southern California.

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References

1. Deeks SG, Lewin SR, Havlir DV. The end of AIDS: HIV infection as a chronic disease. Lancet. 2013;382(9903):1525–33. [PubMed: 24152939]
2. Gardner EM, McLees MP, Steiner JF, del Rio C, Burman WJ. The Spectrum of Engagement in HIV Care and its Relevance to Test-and-Treat Strategies for Prevention of HIV Infection. Clinical Infectious Diseases. 2011;52(6):793–800. [PubMed: 21367734]
3. Cohen MS, Chen YQ, McCauley M, Gamble T, Hosseinipour MC, Kumarasamy N, et al. Prevention of HIV-1 infection with early antiretroviral therapy. N Engl J Med. 2011;365(6):493–505. [PubMed: 21767103]
4. Rodger AJ, Cambiano V, Bruun T, Vernazza P, Collins S, van Lunzen J, et al. Sexual Activity Without Condoms and Risk of HIV Transmission in Serodifferent Couples When the HIV-Positive Partner Is Using Suppressive Antiretroviral Therapy. Jama. 2016;316(2):171–81. [PubMed: 27404185]
5. Loutfy MR, Wu W, Letchumanan M, Bondy L, Antoniou T, Margolese S, et al. Systematic review of HIV transmission between heterosexual serodiscordant couples where the HIV-positive partner is fully suppressed on antiretroviral therapy. PLoS One. 2013;8(2):e55747. [PubMed: 23418455]
6. LeMessurier J, Traversy G, Varsaneux O, Weekes M, Avey MT, Niragira O, et al. Risk of sexual transmission of human immunodeficiency virus with antiretroviral therapy, suppressed viral load and condom use: a systematic review. CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne. 2018;190(46):E1350–e60.
7. Adimora AA, Auerbach JD. Structural Interventions for HIV Prevention in the United States. Jaids-J Acq Imm Def. 2010;55:S132–S5.
8. Wang EA, McGinnis KA, Fiellin DA, Goulet JL, Bryant K, Gibert CL, et al. Food Insecurity is Associated with Poor Virologic Response among HIV-Infected Patients Receiving Antiretroviral Medications. Journal of General Internal Medicine. 2011;26(9):1012–8. [PubMed: 21573882]
9. Young S, Wheeler A, McCoy S, Weiser SD. A review of the role of food insecurity in adherence to care and treatment among adult and pediatric populations living with HIV and AIDS. Aids Behav. 2014;18(0 5):505–15. [PubMed: 24469223]
10. Weiser SD, Frongillo EA, Ragland K, Hogg RS, Riley ED, Bangsberg DR. Food Insecurity is Associated with Incomplete HIV RNA Suppression Among Homeless and Marginally Housed HIV-infected Individuals in San Francisco. Journal of General Internal Medicine. 2009;24(1):14–20. [PubMed: 18953617]

11. Weiser SD, Bangsberg DR, Kegeles S, Ragland K, Kushel MB, Frongillo EA. Food insecurity among homeless and marginally housed individuals living with HIV/AIDS in San Francisco. Aids Behav. 2009;13(5):841–8. [PubMed: 19644748]
12. Milloy MJ, Marshall BD, Montaner J, Wood E. Housing status and the health of people living with HIV/AIDS. Curr HIV/AIDS Rep. 2012;9(4):364–74. [PubMed: 22968432]
13. Aidala AA, Wilson MG, Shubert V, Gogolishvili D, Globerman J, Rueda S, et al. Housing Status, Medical Care, and Health Outcomes Among People Living With HIV/AIDS: A Systematic Review. American journal of public health. 2016;106(1):e1–e23.
14. Kidder DP, Wolitski RJ, Royal S, Aidala A, Courtenay-Quirk C, Holtgrave DR, et al. Access to housing as a structural intervention for homeless and unstably housed people living with HIV: rationale, methods, and implementation of the housing and health study. Aids Behav. 2007;11(6 Suppl):149–61. [PubMed: 17546496]
15. Leaver CA, Bargh G, Dunn JR, Hwang SW. The effects of housing status on health-related outcomes in people living with HIV: a systematic review of the literature. Aids Behav. 2007;11(6 Suppl):85–100. [PubMed: 17682940]
16. Riley ED, Moore K, Sorensen JL, Tulsky JP, Bangsberg DR, Neilands TB. Basic Subsistence Needs and Overall Health Among Human Immunodeficiency Virus-infected Homeless and Unstably Housed Women. Am J Epidemiol. 2011;174(5):515–22. [PubMed: 21749972]
17. Institute of Medicine. Monitoring HIV Care in the United States: Indicators and Data Systems. Washington, DC; 2012.
18. Kennedy MC, Kerr T, McNeil R, Parashar S, Montaner J, Wood E, et al. Residential Eviction and Risk of Detectable Plasma HIV-1 RNA Viral Load Among HIV-Positive People Who Use Drugs. Aids Behav. 2017;21(3):678–87. [PubMed: 26906022]
19. Clemenzi-Allen A, Geng E, Christopoulos K, Hammer H, Buchbinder S, Havlir D, et al. Degree of Housing Instability Shows Independent “Dose-Response” With Virologic Suppression Rates Among People Living With Human Immunodeficiency Virus. Open Forum Infect Dis. 2018;5(3):ofy035. [PubMed: 29577059]
20. Riley ED, Vittinghoff E, Koss CA, Christopoulos KA, Clemenzi-Allen A, Dilworth SE, et al. Housing First: Unsuppressed Viral Load Among Women Living with HIV in San Francisco. Aids Behav. 2019;23(9):2326–36. [PubMed: 31324996]
21. Sarnquist CC, Soni S, Hwang H, Topol BB, Mutima S, Maldonado YA. Rural HIV-infected women’s access to medical care: ongoing needs in California. Aids Care. 2011;23(7):792–6. [PubMed: 21287418]
22. California Department of Public Health, Office of AIDS. Epidemiology of HIV in California. CA 2017.
23. Fauci AS, Redfield RR, Sigounas G, Weahkee MD, Giroir BP. Ending the HIV Epidemic: A Plan for the United States. Jama. 2019.
24. Office of AIDS. California Continuum of HIV Care In: Health CDoP, editor. CA 2017.
25. The U.S. Department of Housing and Urban Development. The 2017 Annual Homeless Assessment Report to Congress. Office of Community Planning and Development; 2017.
26. Pellowski JA, Kalichman SC, Matthews KA, Adler N. A pandemic of the poor: social disadvantage and the U.S. HIV epidemic. The American psychologist. 2013;68(4): 197–209. [PubMed: 23688088]
27. Aziz M, Smith KY. Challenges and Successes in Linking HIV-Infected Women to Care in the United States. Clinical Infectious Diseases. 2011;52(suppl_2):S231–S7. [PubMed: 21342912]
28. Aziz M, Smith KY. Treating Women with HIV: Is it Different than Treating Men? Curr Hiv-Aids Rep. 2012;9(2): 171–8.
29. Gomez CA. Preventing HIV in U.S. women and girls: a call for social action. Women’s health issues : official publication of the Jacobs Institute of Women’s Health. 2011;21(6 Suppl):S287–94.
30. Centers for Disease Control and Prevention. HIV Surveillance Report. Atlanta, Georgia; 2017.
31. NOVA Research Company. QDS™: Questionnaire Development System 20. Silver Spring, MD 2014.
32. Morse JM, Denzin NK, Lincoln YS. Designing qualitative research 1994.

33. Berry SH, Bozzette Samuel A., Hays Ron D., Stewart Anita, and Kanouse David E., . Measuring Patient-Reported Health Status in Advanced HIV Disease: HIV-PARSE Survey Instrument. Santa Monica, CA: RAND Corporation; 1994.
34. Creswell JW. Research design : qualitative, quantitative, and mixed methods approaches. 4th ed Thousand Oaks, California: SAGE Publications; 2014 xxix, 273 pages p.
35. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC Medical Research Methodology. 2013;13:117-. [PubMed: 24047204]
36. Milloy MJ, Kerr T, Bangsberg DR, Buxton J, Parashar S, Guillemi S, et al. Homelessness as a structural barrier to effective antiretroviral therapy among HIV-seropositive illicit drug users in a Canadian setting. AIDS Patient Care STDS. 2012;26(1):60–7. [PubMed: 22107040]
37. Riley ED, Gandhi M, Hare C, Cohen J, Hwang S. Poverty, unstable housing, and HIV infection among women living in the United States. Curr HIV/AIDS Rep. 2007;4(4):181–6. [PubMed: 18366949]
38. Luck J, Andersen R, Wenzel S, Arangua L, Wood D, Gelberg L. Providers of primary care to homeless women in Los Angeles County. The Journal of ambulatory care management. 2002;25(2):53–67.
39. Gelberg L, Browner CH, Lejano E, Arangua L. Access to Women’s Health Care: A Qualitative Study of Barriers Perceived by Homeless Women. Women & Health. 2004;40(2):87–100. [PubMed: 15778140]
40. Berg KM, Demas PA, Howard AA, Schoenbaum EE, Gourevitch MN, Arnsten JH. Gender differences in factors associated with adherence to antiretroviral therapy. J Gen Intern Med. 2004;19(11):1111–7. [PubMed: 15566440]
41. Palepu A, Milloy MJ, Kerr T, Zhang R, Wood E. Homelessness and adherence to antiretroviral therapy among a cohort of HIV-infected injection drug users. J Urban Health. 2011;88(3):545–55. [PubMed: 21409604]
42. Cox J, Maurais E, Hu L, Moodie EE, Law S, Bozinoff N, et al. Correlates of drug use cessation among participants in the Canadian HIV-HCV Co-infection Cohort. Drug and alcohol dependence. 2014;137:121–8. [PubMed: 24559606]
43. Krishnan A, Wickersham JA, Chitsaz E, Springer SA, Jordan AO, Zaller N, et al. Post-release substance abuse outcomes among HIV-infected jail detainees: results from a multisite study. Aids Behav. 2013;17 Suppl 2:S171–80. [PubMed: 23142854]
44. Bobashev GV, Zule WA, Osilla KC, Kline TL, Wechsberg WM. Transactional sex among men and women in the south at high risk for HIV and other STIs. J Urban Health. 2009;86 Suppl 1(Suppl 1):32–47. [PubMed: 19513853]
45. Bailey SL, Camlin CS, Ennett ST. Substance use and risky sexual behavior among homeless and runaway youth. J Adolesc Health. 1998;23(6):378–88. [PubMed: 9870332]
46. Meacham MC, Bahorik AL, Shumway M, Marquez C, Riley ED. Condomless Sex and Psychiatric Comorbidity in the Context of Constrained Survival Choices: A Longitudinal Study Among Homeless and Unstably Housed Women. Aids Behav. 2019;23(3):802–12. [PubMed: 30267368]
47. Cederbaum JA, Wenzel SL, Gilbert ML, Chereji E. The HIV risk reduction needs of homeless women in Los Angeles. Women’s health issues : official publication of the Jacobs Institute of Women’s Health. 2013;23(3):e167–e72.
48. Duke AR, Searby A PhD RN Mental Ill Health in Homeless Women: A Review. Issues in mental health nursing. 2019:1–8.
49. California Department of Public Health. California Needs Assessment for HIV. Sacramento, California, Office of AIDS; 2016.
50. Moneyham L, McLeod J, Boehme A, Wright L, Mugavero M, Seal P, et al. Perceived Barriers to HIV Care Among HIV-Infected Women in the Deep South. J Assoc Nurse Aids C. 2010;21(6):467–77.
51. Vyavaharkar MV, Moneyham L, Corwin S. Health care utilization: The experiences of rural HIV-positive African American women. Journal of health care for the poor and underserved. 2008;19(1):294–306. [PubMed: 18264003]

52. Kempf MC, McLeod J, Boehme AK, Walcott MW, Wright L, Seal P, et al. A Qualitative Study of the Barriers and Facilitators to Retention-in-Care Among HIV-Positive Women in the Rural Southeastern United States: Implications for Targeted Interventions. Aids Patient Care St. 2010;24(8):515–20.
53. Mandsager P, Marier A, Cohen S, Fanning M, Hauck H, Cheever LW. Reducing HIV-Related Health Disparities in the Health Resources and Services Administration's Ryan White HIV/AIDS Program. American journal of public health. 2018;108(S4):S246–s50. [PubMed: 30383416]
54. Buchanan D, Kee R, Sadowski LS, Garcia D. The Health Impact of Supportive Housing for HIV-Positive Homeless Patients: A Randomized Controlled Trial. American journal of public health. 2009;99(S3):S675–S80. [PubMed: 19372524]
55. Galarraga O, Genberg BL, Martin RA, Barton Laws M, Wilson IB. Conditional economic incentives to improve HIV treatment adherence: literature review and theoretical considerations. Aids Behav. 2013;17(7):2283–92. [PubMed: 23370833]
56. Operario D, Kuo C, Sosa-Rubi SG, Galarraga O. Conditional economic incentives for reducing HIV risk behaviors: integration of psychology and behavioral economics. Health psychology : official journal of the Division of Health Psychology, American Psychological Association. 2013;32(9):932–40.

Table 1.

Demographic Characteristics of Participants

	Category	**n (%)**
Gender	Female	30 (100.0%)
Race/Ethnicity	Non-Hispanic White	5 (16.7%)
	Non-Hispanic Black	14 (46.7%)
	Hispanic/Latina (all races)	8 (26.7%)
	Non-Hispanic (no race specified)	3 (10.0%)
Country of Birth	United States	22 (73.3%)
	Mexico	4 (13.3%)
	I was born in another country	4 (13.3%)
Education status	8th grade or less	2 (6.7%)
	9th grade or more, but did not complete high school or received a GED	5 (16.7%)
	Graduated from high school or received a GED	8 (26.7%)
	Some trade school, vocational school, or some college	8 (26.7%)
	Completed trade school or vocational school	1 (3.3%)
	Completed college (2 or 4-year program)	5 (16.7%)
	Other	1 (3.3%)
Sexual Orientation	Straight or heterosexual	26 (86.7%)
	Gay or lesbian	1 (3.3%)
	Bisexual	2 (6.7%)
	Prefer not to answer	1 (3.3%)
Marital Status	Single	12 (40.0%)
	Partnered, but not married	3 (10.0%)
	Married	6 (20.0%)
	Separated	3 (10.0%)
	Widowed	5 (16.7%)
	Other	1 (3.3%)
Current Employment	No	22 (73.3%)
	Yes	8 (26.7%)
Employment Type	Full-time	1 (12.5%)
	Part-time	7 (87.5%)
Public housing, housing assistance, housing vouchers	No	18 (60.0%)
	Yes	12 (40.0%)
Medicaid	No	18 (60.0%)
	Yes	12 (40.0%)
WIC	No	26 (86.7%)
	Yes	4 (13.3%)
Food stamps	No	18 (60.0%)
	Yes	12 (40.0%)

	Category	**n (%)**
Disability, SSI, SSDI	No	17 (56.7%)
	Yes	13 (43.3%)
ADAP (AIDS Drug Assistance Program)	No	25 (83.3%)
	Yes	5 (16.7%)
Annual Income	Less than $10,000	16 (55.2%)
	$10,000- $19,999	12 (41.4%)
	$20,000 - $29,999	1 (3.4%)
Dependent Children	No	22 (73.3%)
	Yes	8 (26.7%)
Self-reported mode of HIV acquisition	Having sex with a man who had HIV	27 (90.0%)
	Sharing needles or works	1 (3.3%)
	Blood transfusion	1 (3.3%)
	Other	1 (3.3%)
Currently has a usual source of HIV Care	No	1 (3.3%)
	Yes	29 (96.7%)
Currently taking ART	No	3 (10.0%)
	Yes	27 (90.0%)
	No	13 (43.3%)
Never miss a dose in the past month	Yes	17 (56.7%)