AIDS and Behavior (2019) 23:3044–3051
https://doi.org/10.1007/s10461-019-02647-w

ORIGINAL PAPER

HIV Testing and ART Adherence Among Unstably Housed Black Men Who Have Sex with Men in the United States

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Published online: 27 August 2019

Abstract
Black men who have sex with men (BMSM) have the highest HIV incidence rate among all MSM in the United States (US), and are also disproportionately affected by homelessness and housing instability. However, little is known about the effects of homelessness on the HIV testing and care continuum for BMSM. Between 2014 and 2017, the Promoting Our Worth, Equality, and Resilience (POWER) study collected data and offered HIV testing to 4184 BMSM at Black Pride events in six US cities. Bivariate analyses were used to assess differences in sociodemographics and healthcare access between BMSM who self-reported homelessness and those who did not. Multivariable logistic regression models were used to assess differences in HIV testing by homelessness status. Finally, bivariate and multivariable models were used to assess differences in HIV care continuum and treatment adherence outcomes by homelessness status. 615 (12.1%) BMSM in our sample experienced homelessness in the last 12 months. BMSM who self-reported homelessness had higher odds of receiving an HIV test in the past 6 months compared to their stably housed counterparts. BMSM who self-reported homelessness had higher odds of reporting difficulty taking ART and of missing a dose in the past week compared to stably housed BMSM. Findings suggest that HIV testing outreach and treatment-related services targeting unstably housed BMSM may be effective. Future community-based research is needed to investigate how homelessness and housing instability affect ART adherence, and how this population may experience success in HIV testing and adherence despite economic and social marginalization.

Keywords HIV · Homelessness · BMSM · Community sampling · Black · African American

Background

HIV disproportionately affects Black men who have sex with men (BMSM). In the United States (US), the incidence of HIV among BMSM is 10,000 new infections per year compared to 6700 new infections per year for white MSM [1]. BMSM also have the highest proportion of HIV-positive undiagnosed persons, as well as lower rates of antiretroviral therapy (ART) adherence and viral suppression than their white counterparts, factors that contribute to increased risk of transmission in this subpopulation [2–6]. The disparities in HIV among BMSM demand urgent attention: a 2015 review predicted that if HIV incidence rates remain the same, almost 40% of BMSM would be HIV-positive by age 30, and approximately 60% infected by age 40 [7].

While exact rates are still unknown, homelessness and housing instability are likely to be elevated among BMSM. The 2017 Annual Homeless Assessment Report to Congress revealed that Black Americans constitute over 40% of the homeless population despite representing only 13% of the general population [8]. Likewise, sexual and gender minorities are at increased risk of experiencing homelessness [9]. Thus, it is reasonable to infer that BMSM have rates of homelessness and housing instability as high as or higher than the larger population of Black Americans. This is of urgent concern given the association between housing instability and HIV burden.

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The prevalence of HIV among individuals experiencing homelessness or housing instability is three to nine times higher than people considered stably housed across the US [10]. Homelessness, along with other factors associated with economic marginalization and housing instability (e.g., food insecurity, depression, stigma, and discrimination), are also associated with poorer HIV-related outcomes including ART adherence [11, 12]. In contrast to these findings, Noska et al. [13] found that homeless veterans were more likely to report HIV testing compared to stably housed veterans. In this study, 63.8% of the homeless population had ever been tested for HIV compared with 36.8% of the stably housed population. However, these testing rates may not be relevant to BMSM given their substantial barriers to HIV testing including HIV stigma, lack of services where BMSM live, and lack of access to any available services [14, 15]. Overall, there is much more to be known about housing instability and HIV testing among BMSM if we are to reduce health disparities for this population.

An ecological model provides a framework through which HIV risk can be understood, in which HIV risk is influenced by nested structures relating to the individual, household, neighborhood, societal, and global levels, all of which have reciprocal effects with one another [16–18]. While HIV infection is ultimately a biological event (individual level), HIV risk is also elevated by myriad factors including poverty (individual), discrimination in healthcare settings (interpersonal), presence of HIV-related services (neighborhood), racism (societal), and stigma (societal) [18]. The influence of these risk factors is strongly established; however, it is unknown whether housing instability affects HIV-related outcomes above and beyond the effects of these risk factors [18].

To address this gap, the current study explores HIV testing rates, engagement in HIV-related care, and ART adherence among unstably housed BMSM who reported homelessness in the last 12 months. We adjust for several covariates, representing individual risk and access to healthcare to establish how housing instability independently affects HIV-related outcomes. To our knowledge there are no other published studies in the US that describe HIV testing and adherence among unstably housed BMSM. The results from this study may demonstrate if housing instability contributes to disparities in HIV-related outcomes among BMSM, and if interventions designed to address housing instability can help reduce these disparities.

Methods

Study Procedure

Data for this study are from Promoting Our Worth, Equality, and Resilience (POWER), a community-based sample recruited between 2014 and 2017 from Black Pride events in six US cities: Atlanta, GA; Detroit, MI; Houston, TX; Memphis, TN; Philadelphia, PA; and Washington, DC. POWER used time-location sampling to recruit eligible participants to complete computer-assisted self-interviews and onsite HIV testing performed by a local community-based organization. Participants were eligible for the study if they were (1) 18 years of age or older, (2) assigned male sex at birth, (3) reported having a male sexual partner in their lifetime, and (4) could give informed consent in English. A total of 5858 unique self-interviews were completed. Of those individuals, this study includes those who (1) currently identified as male; and (2) identified as Black/African American, for a total of 5143 individuals. The overall study design and sampling strategy have been described in greater detail elsewhere [19, 20]. All study procedures were approved by the Institutional Review Board at University of Pittsburgh.

Outcome Variables

For all variables, the proportion of missing data was less than 5%. The variable with the highest level of missingness was whether the participant was currently in care for HIV, n = 42 (4.4%). For the final analyses, listwise deletion was used to remove missing data.

Past 6-month HIV Testing History

HIV status was assessed with a combination of biological and self-report data. First, participants were asked: *What was the result of your most recent HIV test?* Participants who responded "positive" and later had a preliminary HIV-positive test result were categorized as HIV-positive (n = 957). Participants who responded "negative," "I did not get my results," "don't know" or "refuse to answer," or had never been tested for HIV and later had a preliminary HIV-negative test result were categorized as HIV-negative (n = 3467). Participants who responded "negative," "I did not get my results," "don't know" or "refuse to answer" or had never been tested for HIV and later had a preliminary HIV-positive test result were categorized as HIV-positive undiagnosed (n = 719).

Participants who were biologically confirmed to be HIV-negative or were HIV-positive undiagnosed were assessed for past 6-month HIV testing history. HIV testing history was measured using two questions: *Have you ever been tested for HIV?* and *Have you been tested for HIV in the past 6 months?* Participants who answered "no" to either or both questions were considered to have not been tested for HIV in the past 6 months. Participants who answered "yes" to both questions were considered to have been tested for HIV in the past 6 months. Participants who answered "don't know" or "refuse to answer" were considered missing.

HIV Care and ART Adherence Measures

Participants who were identified as HIV-positive were assessed for linkage to HIV medical care. The participants were asked: *Have you ever been seen by a doctor, nurse, or other health care provider for a medical evaluation or care related to your HIV infection?* Retention in HIV medical care was assessed by asking participants: *Are you currently being seen by a doctor, nurse, or other health care provider for a medical evaluation or care related to your HIV infection?* Prescription of ART was assessed with the question: *Are you currently taking antiretroviral medicines to treat your HIV infection?* The possible answer choices to this question were "yes," "no," "don't know," or "refuse to answer." Participants who answered "don't know" or "refuse to answer" were considered missing.

Participants who reported taking ART were also asked a series of follow-up questions. To assess difficulty taking ART, participants were asked*: In the past month, how often did you have difficulty taking HIV medications on time (no more than two hours before or two hours after the time your doctor told you to take it)?* The response options were "never," "rarely," "most of the time" or "all of the time." The responses were dichotomized into "no difficulty" (never or rarely) or "difficulty" (most of the time or all of the time). To assess adherence, participants were asked: *In the past month, what is the average number of days per week you missed at least one dose of HIV medications?* Response options included "never," "less than once a week," "once a week," "2–3 times per week," or "4–7 times per week." Lastly, participants were asked: *When was the last time you missed a dose of HIV medications?* Responses included "never," "over 3 months ago," "1–3 months ago," "3–4 weeks ago," "1–2 weeks ago," or "within the week."

Independent Variable

Homelessness

The key independent variable of interest was homelessness status. Homelessness status was ascertained by asking participants: *In the past 12 months have you been homeless at any time? By homeless, I mean you were living on the street, in a shelter, in a Single Room Occupancy hotel (SRO), or in a car?* Participants who answered "yes" were categorized as homeless and those who answered "no" were categorized as not homeless; participants who answered "don't know" or "refuse to answer" were categorized as missing.

Covariates

Sociodemographic Characteristics

Additional sociodemographic information included in this study were age (in years), sexual orientation (gay or same gender loving, bisexual, heterosexual, other sexual identity), relationship status (married or partnered, single), highest level of education completed (less than high school, high school or GED, some college, Bachelor's degree or more), employment status (employed, out of workforce, unemployed), and annual income ($29,999 or less, $30,000 or more). City and year were treated as covariates in multivariable models.

Health Care Factors

Participants were also asked whether they had current health care coverage (yes/no), if they were able to afford healthcare (yes/no), and whether they had a place to go when sick (yes/no).

Statistical Analysis

We first conducted bivariate analyses to assess differences in sociodemographics, healthcare access, and HIV status between BMSM who self-reported homelessness within the past 12 months and those who had not. For participants who were HIV-negative or HIV-positive undiagnosed, we compared HIV testing history by homelessness status. Data were analyzed using Chi-square tests of association for categorical variables, and t-tests for normally-distributed continuous variables. Next, we examined frequencies of the location of the most recent HIV testing site by homelessness status. For participants who were HIV-negative or HIV-positive undiagnosed, we performed a multivariable logistic regression to assess differences in HIV testing in the past 6 months between BMSM who self-reported homelessness within the past 12 months and those who had not, adjusting for sampling differences (e.g., city and year), and sociodemographic characteristics (e.g., income). For participants who were HIV-positive, we conducted bivariate analyses to assess differences in HIV care and adherence outcomes between BMSM who self-reported homelessness within the past 12 months and those who had not. Chi square tests of association were used for categorical variables, and Wilcoxon rank sum tests for ordinal variables. Finally, we conducted a series of multivariable logistic regressions to assess differences in HIV care and adherence outcomes, adjusting for sampling differences and sociodemographic characteristics. Significance for all analyses was set at ($p < 0.05$) and all analyses were conducted using SAS System version 9.4 (SAS Institute Inc., Cary, North Carolina).

Results

A total of 615 (12.1%) participants reported homelessness in the past 12 months. There were differences between participants who reported homelessness and those who did not in all variables demographic variables except age. There were also differences in HIV status and reporting a financial barrier to healthcare (Table 1).

Of participants who self-reported homelessness, 315 (65.4%) indicated they had received an HIV test in the past 6 months, which was not significantly different from those who were stably housed, of whom 2272 (62.3%, p = 0.188) reported HIV testing (Table 1.) However, when controlling for sociodemographic and sampling differences, BMSM reporting homelessness had higher odds of receiving an HIV test in the past 6 months (aOR 1.73, 95% CI 1.34, 2.21, p < .0001) (Table 2). In Table 3 we describe the most recent HIV testing locations by homelessness status. Participants

Table 1 Sociodemographic, healthcare access, HIV status and testing by homeless status among BMSM attending Black Pride events, 2014–2017

	Homeless N = 615	Non-homeless N = 4479	*t* or $\chi 2$	*p* Value
Age, m (SD)	30.9 (11.1)	31.2 (10.5)	0.65	0.513
HIV status				
Positive	131 (18.3)	819 (21.3)	**22.69**	**<.0001**
Positive, undiagnosed	119 (13.4)	600 (19.4)		
Negative	365 (68.3)	3,060 (59.4)		
Sexual identity [N (%)]				
Gay/same gender loving	438 (71.3)	3,614 (80.7)	**55.40**	**<.0001**
Bisexual	143 (23.3)	755 (16.9)		
Other sexual identity	9 (1.5)	68 (1.5)		
Heterosexual	24 (3.9)	42 (0.9)		
Education [N (%)]				
Less than high school	144 (23.5)	216 (4.8)	**330.21**	**<.0001**
High school or GED	168 (27.4)	902 (20.2)		
Some college	161 (26.3)	1,680 (37.5)		
Bachelor's degree or more	140 (22.8)	1,677 (37.5)		
Employment status [N (%)]				
Employed	362 (59.1)	3,593 (80.3)	**158.54**	**<.0001**
Out of workforce	122 (19.9)	534 (11.9)		
Unemployed	129 (21.0)	349 (7.8)		
Income [N (%)]				
0-$29,999	410 (66.9)	1,959 (44.1)	**113.39**	**<.0001**
$30,000 or more	202 (33.1)	2,485 (55.9)		
Relationship status [N (%)]				
Married or partnered	161 (26.2)	1,003 (22.4)	**4.45**	**0.035**
Single or other	453 (73.8)	3,473 (77.6)		
Health insurance [N (%)]				
Yes	474 (77.1)	3,820 (85.3)	**27.86**	**<.0001**
No	141 (22.9)	657 (14.7)		
Usual place for care [N (%)]				
Yes	466 (89.3)	3,634 (89.9)	0.18	0.675
No	56 (10.7)	410 (10.1)		
Financial barrier to healthcare [N (%)]				
Yes	263 (43.4)	769 (17.3)	**222.81**	**<.0001**
No	343 (56.6)	3,670 (82.7)		
HIV test in past 6 months[a] [N (%)]				
Yes	315 (65.4)	2,272 (62.3)	1.74	0.188
No	167 (34.7)	1,377 (37.7)		

Bold values indicate statistical significant at the alpha 0.05 level

[a]HIV-negative or HIV-positive undiagnosed only

Table 2 Results of the multivariable logistic regression analysis of the association between homelessness and HIV testing in past 6 months among self-reported HIV-negative BMSM, adjusting for sociodemographic and healthcare differences (N = 4186)

	HIV test in past 6 months aOR[a] (95% CI)	*p*-Value
Experience of homelessness[b]		
Yes	**1.73 (1.34, 2.21)**	**<.0001**
No	Reference	
Covariates		
Age group	**0.97 (0.96, 0.98)**	**<.0001**
Sexual Identity		
Gay/same gender loving	1.14 (0.67, 1.95)	0.302
Bisexual	1.18 (0.68, 2.06)	0.211
Heterosexual	0.79 (0.35, 1.78)	0.312
Other sexual identity	Reference	
Education		
Less than high school	**0.60 (0.44, 0.82)**	**0.004**
High school or GED	**0.79 (0.64, 0.98)**	**0.005**
Some college	0.99 (0.83, 1.18)	0.564
Bachelor's degree or more	Reference	
Employment status		
Employed	1.23 (0.94, 1.62)	0.310
Out of workforce	1.00 (0.73, 1.37)	0.385
Unemployed	Reference	
Income		
0–$29,999	**0.84 (0.71, 0.99)**	**0.045**
$30,000 or more	Reference	
Relationship status		
Married or partnered	0.91 (0.77, 1.08)	0.273
Single or other	Reference	
Health insurance		
Yes	Reference	0.249
No	0.83 (0.60, 1.14)	
Usual place for care	Reference	**<.0001**
Yes		
No	**0.59 (0.48, 0.75)**	
Financial barrier to healthcare		
Yes	Reference	0.367
No	1.09 (0.90, 1.32)	

Bold values indicate statistical significant at the alpha 0.05 level

[a]Model is also adjusted for sampling differences (city and year of survey distribution)

[b]Past 12 months

who reported homelessness most frequently reported receiving their last HIV test through an HIV counseling and testing site (34.7%), followed by the hospital (11.6%) and HIV/AIDS street outreach/mobile unit (11.6%). Stably housed participants most frequently received their last HIV test through an HIV counseling and testing site (29.9%), followed by a private doctor's office (22.9%).

In comparing engagement in care among homeless and stably housed participants (Table 4), there were no significant differences in lifetime HIV care (93.9% vs. 96.0%, p = 0.279) or current HIV care (96.8% vs. 97.2%, p = 0.783). Both homeless and stably housed participants reported similar rates of current ART regimens, 88.6% and 92.3% respectively (p = 0.168). However, participants with self-reports of homelessness were more likely to report difficulty taking ART (31.2% vs. 15.7%, p < .001) and miss a dose within the past week (27.5% vs. 18.3%, p < .001). In our multivariable models (Table 5), those self-reporting homelessness had higher odds of reporting difficulty taking ART (aOR 2.11, 95% CI 1.19, 3.73, p = 0.010).

Discussion

In this study, the crude estimates of HIV testing were not significantly different among self-reported HIV-negative BMSM who reported they had experienced homelessness compared to those who did not report homelessness. However, after adjusting for sociodemographic and sampling differences, BMSM who experienced homelessness were more likely to be tested for HIV in the past 6 months. These findings are consistent with Noska et al. [13], who demonstrated that among veterans in care, unstably housed men were more likely to have been tested than those who were stably housed. While unstably housed veterans likely differ from our sample of BMSM, the fact remains that both of these samples were comprised of vulnerable, unstably housed individuals who demonstrated higher testing rates than their stably housed counterparts. Our data suggest that, despite challenges that would predict lower

Table 3 Location of last HIV testing site among self-reported HIV-negative BMSM who have been tested in the past 6 months

	Homeless	Non-homeless
Location of last HIV test [N (%)]		
HIV counseling and testing site	108 (34.7)	676 (29.9)
HIV/AIDS street outreach/mobile unit	36 (11.6)	202 (8.9)
Drug treatment program	6 (1.9)	18 (0.8)
Needle exchange program	1 (0.3)	2 (0.1)
Correctional facility (jail or prison)	11 (3.5)	17 (0.8)
Family planning or obstetrics clinic	15 (4.8)	69 (3.1)
Health clinic/community health center	25 (8.0)	348 (15.4)
Private doctor's office	34 (10.9)	518 (22.9)
Emergency room	16 (5.1)	41 (1.8)
Hospital	36 (11.6)	220 (9.7)
At home	5 (1.6)	61 (2.7)
Other	18 (5.8)	191 (4.0)
Missing	4 (0.01)	9 (0.003)

Table 4 HIV care and adherence among HIV-positive BMSM (N = 957)

	Homeless N = 131	Non-homeless N = 818	*W* or $\chi 2$	*p*-Value
HIV care – ever [N (%)]				
Yes	123 (93.9)	785 (96.0)	1.17	0.279
No	8 (6.1)	33 (4.0)		
HIV care – current [N (%)]				
Yes	119 (96.8)	762 (97.2)	0.08	0.783
No	4 (3.2)	22 (2.8)		
Currently taking ART [N (%)]				
Yes	109 (88.6)	718 (92.3)	1.89	0.168
No	14 (11.4)	60 (7.1)		
Difficulty taking ART [N (%)]				
No	75 (68.8)	606 (84.3)	**15.53**	**<.001**
Yes	34 (31.2)	113 (15.7)		
Days/week missed dose [N (%)]				
4–7	4 (7.1)	14 (5.8)	7792.0	0.282
2–3	13 (23.2)	41 (16.9)		
Once	12 (21.4)	43 (17.7)		
< once/week	9 (16.1)	63 (25.9)		
Never	18 (32.1)	82 (33.7)		
Last missed dose [N (%)]				
Within the week	30 (27.5)	132 (18.3)	**38113.0**	**<.001**
1–2 weeks ago	15 (13.8)	74 (10.3)		
3–4 weeks ago	2 (1.8)	24 (3.3)		
1–3 months ago	12 (11.0)	48 (6.7)		
> 3 months ago	11 (10.1)	64 (8.9)		
Never	39 (35.8)	378 (52.5)		

Bold values indicate statistical significant at the alpha 0.05 level

rates of HIV testing, BMSM who experience homelessness have higher rates of HIV testing than expected. It is important to understand the factors that explain these findings, especially given the overall dearth of information on the relationship between housing and HIV testing.

In our study, the most common testing locations for participants who reported homelessness in the past 12 months were community testing sites, hospitals, street outreach, and clinics. A higher percentage of these participants were tested in substance use treatment programs, correctional facilities, and emergency rooms compared to stably housed men. These results are consistent with previous research demonstrating that homeless individuals often do not have stable sources of primary healthcare and are likely to access services through clinics or emergency departments [21]. Our findings may suggest that outreach and other services specifically targeting unstably housed and often-marginalized populations are successful, though further research is needed to fully understand the influence of testing locations on HIV status awareness among BMSM.

We also found that a large proportion of BMSM reporting homelessness were linked to and retained in HIV-related care, and found no differences in ART uptake among these participants compared to stably housed BMSM. However, those reporting homelessness were more likely to report difficulty taking ART and report missing a dose. These findings suggest that reducing barriers to ART adherence is a key area for future research and intervention.

Limitations

Our study is among the first to gather HIV testing data among BMSM including those who report recent homelessness. Despite the strengths of this study, caution must be used when interpreting these findings due to several limitations. First, participants were recruited via Black Pride events in urban locations, which limits generalizability of results. Additionally, participants were asked to self-report on HIV testing in the 6 months prior to survey completion and on homelessness status for the 12 months prior. This means that HIV testing may not have occurred during periods of homelessness experienced by study participants.

Despite higher rates of testing than might be expected among unstably housed BMSM in our study, the single question used to report homelessness provided limited insight

Table 5 Association of homelessness and HIV care and adherence among HIV-positive BMSM (N = 957)

	Ever received care for HIV		Currently in care for HIV		Currently taking ART		Difficulty taking ART	
	aOR[a] (95% CI)	*p*-Value	aOR[a] (95% CI)	*p*-Value	aOR[a] (95% CI)	*p*-Value	aOR[a] (95% CI)	*p*-Value
Experience of homelessness[b]								
Yes	1.34 (0.39, 4.61)	0.641	1.09 (0.22, 5.33)	0.919	0.81 (0.34, 1.92)	0.630	**2.11 (1.19, 3.73)**	**0.010**
No	Reference		Reference		Reference		Reference	

Bold values indicate statistical significant at the alpha 0.05 level

ART antiretroviral therapy

[a]Models adjusted for sexual identity, education, employment, income, insurance, financial barrier, city, year

[b]Past 12 months

into the housing status of participants. Unfortunately, there are no validated measures of homelessness by which to quantify housing instability. Housing instability is a fluid state in which people typically move along a continuum that may include street homelessness, shelter care, transitional housing, and "flopping" or living off-lease in the homes of acquaintances [13]. Studies measuring housing instability use a range of methods, including use of homeless services, and difficulty meeting monthly housing costs [13, 22]. Measurements of homelessness in public health research often differ from standard definitions of housing stability and instability by US Department of Housing and Urban Development (HUD), the Social Security Administration, and community-based programs. Without universally-agreed upon characterizations of homelessness, housing instability, chronic homelessness, and risk of homelessness, it is difficult to capture both the risk and outcomes for vulnerable populations who are unstably housed. Furthermore, targeted testing only of individuals meeting specific requirements of homelessness could create testing programs that miss many individuals who are not considered "street homeless" but who are experiencing chronic housing instability or risk of homelessness. In order to measure this construct effectively and better inform interventions targeting unstably housed populations, a validated measure of homelessness that reflects the lived experiences of housing stability is crucial. Nonetheless, it is likely that BMSM who reported homelessness are likely to be among the most vulnerable in our study due to the chronic nature of housing instability [8, 10, 13].

HIV status and ART adherence were self-reported and were not able to be confirmed via biological testing. Not all participants who took the survey agreed to subsequent HIV testing. The accuracy of self-reported HIV status in prior studies has been unreliable [23]. Social desirability bias may lead to an under-reporting of HIV-positive status and an over-reporting of ART adherence. However, responses to these questions were gathered anonymously and confidentially, which may mitigate the threat introduced by self-report data.

Finally, while our models adjusted for individual-level factors (e.g., age, sexual identity, employment, etc.) we did not include additional household-level, neighborhood or community-level (e.g., supportive services, built environment) or societal-level (e.g., housing policies, racism) factors that may affect HIV-related outcomes among unstably housing BMSM. For example, the higher rates of testing among BMSM in unstable housing situations may be explained by increased contact with supportive services such as hospitalizations, incarceration, or efforts to reduce drug use. These variables were not included in the surveys; as such, we were unable to include them in our models. Additionally, the surveys collected participant zip code, but given the participants' history or homelessness and unstable housing, zip code could not reliably be used to measure additional community-level covariates. Future research using multilevel modeling techniques is needed to understand why HIV testing was successful in this sample.

Conclusion

To our knowledge, our study is the first to explore HIV testing, engagement in HIV-related care, and ART adherence among the vulnerable population of BMSM reporting recent homelessness. Though our findings are promising, gaps remain in our knowledge of how to effectively support this population on a broader scale. It will be important to tease out why our results differ from those of previous studies and locations. For BMSM living with HIV and experiencing homelessness, it is unknown what structural and social barriers contribute to difficulty taking ART, and what methods might mitigate the negative effects of these barriers. Nonetheless, the fact that BMSM in this sample who reported recent homelessness demonstrated higher rates of HIV testing than other study participants suggests the importance of further research to better understand the depth and mechanisms of testing success. Such studies would yield valuable information regarding interventions to promote HIV testing and engagement in care and ultimately reduce HIV health disparities for BMSM.

Acknowledgements The authors thank the Center for Black Equity and local Black Pride organizations for partnering with us to implement POWER, the community-based organizations who performed onsite HIV testing on the study's behalf, the thousands of study participants who volunteered their time to contribute to this research, and members of the POWER Study Team who made data collection possible. The local Black Pride organizations are as follows: D.C. Black Pride, Detroit's Hotter than July, Houston Splash, In the Life Atlanta, Memphis Black Pride, and Philadelphia Black Pride. The community-based organizations that performed onsite HIV testing are as follows: Atlanta: AID Atlanta, AIDS Health Care Foundation, NAESM; Detroit: Community Health Awareness Group, Horizons Project, Unified; Houston: Avenue 360, Houston AIDS Foundation, Positive Efforts; Memphis: Friends for Life; Philadelphia: Access Matters, Philadelphia FIGHT; Washington, D.C.: Us Helping Us. The members of POWER study team are as follows: Center for Black Equity: Earl D. Fowlkes, Jr., Michael S. Hinson, Jr.; Columbia University: Patrick A. Wilson; University of Connecticut: Lisa A. Eaton; Rutgers University: Henry Fisher-Raymond; University of Pittsburgh: Leigh A. Bukowski, Cristian J. Chandler, Derrick D. Matthews, Steven P. Meanley, Jordan M. Sang, and Ronald D. Stall.

Funding Supported in part by the National Institute for Nursing Research (Grant No. R01NR013865). The authors have no other financial disclosures. ERH is supported by the National Institute of Mental Health (Grant No. T32MH094174).

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