

Transgender Women Experiencing Homelessness — National HIV Behavioral Surveillance Among Transgender Women, Seven Urban Areas, United States, 2019–2020

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Abstract

Transgender women experience high prevalence of homelessness, which can affect their likelihood of acquiring HIV infection and can lead to poor medical outcomes. CDC analyzed data from the National HIV Behavioral Surveillance Among Transgender Women to identify whether personal characteristics and social factors affecting transgender women were associated with duration of homelessness during the past 12 months. Longer duration and chronic homelessness might indicate greater unmet needs, which increases their likelihood for acquiring HIV infection. Ordinal logistic regression was conducted to calculate adjusted prevalence odds ratios and 95% CIs for transgender women from seven urban areas in the United States experiencing homelessness 30–365 nights, 1–29 nights, and zero nights during the past 12 months. Among 1,566 transgender women, 9% reported 1–29 nights homeless and 31% reported 30–365 nights homeless during the past 12 months. Among participants who reported physical intimate partner violence or forced sex, 50% and 47%, respectively, reported experiencing 30–365 nights homeless. Furthermore, 55% who had been evicted or denied housing because of their gender identity and 58% who had been incarcerated during the past year experienced 30–365 nights homeless. The odds of transgender women experiencing longer duration of homelessness was associated with being younger and having a disability; higher psychological distress scores were associated with longer duration of homelessness. Analysis of social determinants of health found transgender women experiencing longer homelessness to be less educated, living below the Federal poverty level, and having lower social support. Therefore, focusing on HIV prevention and interventions addressing housing instability to reduce the duration of homelessness among transgender women is important. Further, integrating housing services with behavioral health services and clinical care, specifically designed for transgender women, could reduce HIV acquisition risk and improve HIV infection outcomes.

Introduction

Persons experiencing homelessness have increased risk for acquiring HIV infection and subsequent poor HIV outcomes (1). Transgender women account for <1% of the U.S. population (2), yet among transgender women, HIV prevalence rates up to 42% have been reported (3,4). Moreover, 39% of transgender women participating in the National HIV Behavioral Surveillance Among Transgender Women (NHBS-Trans) during 2019–2020 reported experiencing homelessness during the past 12 months (3,5). Housing instability, including homelessness, among transgender persons is often associated with poor medical outcomes (e.g., HIV and other viral infections), adverse mental health outcomes (6,7), psychological stressors (8), and lack of social support (8). A qualitative study of transgender persons found

financial insecurity and interpersonal rejection by family and friends to be key factors associated with housing instability (8). These stressors often resulted in psychological strain and subsequent drug and sexual behaviors that increase the risk for HIV acquisition, including exchanging sex for money or drugs. Laws that discriminate against (9) and marginalize (10) transgender women further affect housing status and health outcomes. These policies are often fueled by societal transphobia (11,12). The duration of homelessness is associated with factors (e.g., substance use) that increase HIV risk among adults experiencing homelessness (13).

Housing instability can be dynamic, and definitions of homelessness vary, often related to duration of instability such as short-term or episodic (e.g., couch surfing, evictions, and frequent moves) versus longer-term or chronic homelessness (14). Although previous studies provided important information on factors associated with housing instability among transgender women, they involved limited samples in one location or specific subpopulations and did not assess associations between duration of homelessness during the past

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12 months and the personal characteristics (e.g., age, race and ethnicity, HIV status, disability, and psychological distress) or social factors (e.g., education, insurance status, poverty level, experiences of abuse, eviction, being denied housing access, perceived social support, incarceration, and exchange sex) experienced by transgender women (7,15). The focus of this report is to identify specific personal characteristics and social factors associated with duration of homelessness defined as the number of nights spent homeless during the past 12 months among transgender women from seven urban areas in the United States. These findings can be used by housing services and health care providers to guide tailored HIV prevention and housing services for transgender women.

Methods

Data Source

This report analyzes survey data from the National HIV Behavioral Surveillance Among Transgender Women (NHBS-Trans) conducted by CDC during June 2019–February 2020 to assess behavioral risks, prevention usage, and HIV prevalence. Eligible participants completed an interviewer-administered questionnaire and were offered HIV testing. Additional information about NHBS-Trans eligibility criteria, data collection, and biologic testing is available in the overview and methodology report of this supplement (16). The NHBS-Trans protocol questionnaire and documentation are available at <https://www.cdc.gov/hiv/statistics/systems/nhbs/methods-questionnaires.html#trans>.

Applicable local institutional review boards in each participating project area approved NHBS-Trans activities. The NHBS-Trans sample included 1,608 transgender women in seven urban areas in the United States (Atlanta, Georgia; Los Angeles, California; New Orleans, Louisiana; New York City, New York; Philadelphia, Pennsylvania; San Francisco, California; and Seattle, Washington) recruited using respondent-driven sampling. This analysis is restricted to 1,566 participants with no missing information on homelessness during the past 12 months. This activity was reviewed by CDC, deemed not research, and was conducted consistent with applicable federal law and CDC policy.*

Measures

Homelessness was defined as living on the street, in a shelter, in a single room occupancy hotel, or in a car during the past 12 months; participants who reported experiencing

homelessness during the past 12 months were asked the number of nights they were homeless (Table 1). Participants were categorized as homeless 1–29 nights or 30–365 nights, or not homeless during the past 12 months; the number of nights did not need to be consecutive. These cut-offs were established to examine short-term or episodic homelessness and longer-term or chronic homelessness (14). Participants were asked about their personal characteristics and social factors.

Personal characteristics included demographics (age and race and ethnicity) and health status (HIV status based on National HIV Behavioral Surveillance HIV test result, disability status, and psychological distress). (Persons of Hispanic or Latina [Hispanic] origin might be of any race but are categorized as Hispanic; all racial groups are non-Hispanic.) Disability status was measured using the U.S. Department of Health and Human Services data standard for disability status (17). Psychological distress was measured with the Kessler Psychological Distress Scale (Kessler-6) (18). The Kessler-6 is a screening tool used to assess the prevalence of serious mental illness during the past 30 days, as defined by meeting criteria in the *Diagnostic and Statistical Manual IV*. Each question used a five-item Likert scale (4 = all of the time, 3 = most of the time, 2 = some of the time, 1 = a little of the time, and 0 = none of the time); responses were summed to an overall psychological distress score (range = 0–24).

Social factors were defined as education, health insurance status, and poverty level. Experience of abuse included experience of physical intimate partner violence, forced sex, or physical violence or harassment because of gender identity or presentation during the past 12 months. Social support was collected using the Multidimensional Scale of Perceived Social Support (MSPSS) (19), a 12-item scale used to measure social support of family, friends, and other special persons in the women's lives. The scale uses a five-item Likert scale (5 = strongly agree to 1 = strongly disagree) for each question. Question scores were summed and averaged to calculate the overall social support score and SD. The MSPSS has demonstrated good internal validity among transgender women (20).

Additional social factors included whether the participant had been denied housing or been evicted during the past 12 months because they were transgender or gender nonconforming, had a history of incarceration, and had a history of exchanging sex for money or drugs (i.e., sex work). Housing discrimination was defined as being denied housing or being evicted during the past 12 months because they are transgender or gender nonconforming. Definitions of demographics and social determinants of health are available in the overview and methodology report in this supplement (16).

* 45 C.F.R. part 46, 21 C.F.R. part 56; 42 U.S.C. Sect. 241(d); 5 U.S.C. Sect. 552a; 44 U.S.C. Sect. 3501 et seq.

TABLE 1. Variables, survey questions, measures, and analytic codings for personal and social variables among transgender women experiencing homelessness — National HIV Behavioral Surveillance Among Transgender Women, seven urban areas,* United States, 2019–2020

Variable	Question or measure	Analytic coding
Personal characteristic		
Age at interview, yrs	What is your date of birth?	18–24, 25–29, 30–39, 40–49, or ≥50
Race and ethnicity [†]	Do you consider yourself to be of Hispanic, Latino/a, or Spanish origin? Which racial group or groups do you consider yourself to be in? You may choose more than one option.	American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latina, Native Hawaiian or other Pacific Islander, White, or multiple races or ethnicities
Disability status [§]	Are you deaf or do you have serious difficulty hearing? Are you blind or have serious difficulty seeing, even when wearing glasses? Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions? Do you have serious difficulty walking or climbing stairs? Do you have difficulty dressing or bathing? Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone, such as visiting a doctor's office or shopping?	Yes to at least one of these six questions or no to all questions
Psychological distress [¶]	About how often during the past 30 days did you feel nervous? During the past 30 days, about how often did you feel hopeless? During the past 30 days, about how often did you feel restless or fidgety? How often did you feel so sad or depressed that nothing could cheer you up? During the past 30 days, about how often did you feel that everything was an effort? During the past 30 days, about how often did you feel down on yourself, no good, or worthless?	For respondents with nonmissing values on all six items, responses to all items were summed to create a psychological distress score (range = 0–24). Respondents with missing values for any of the six items were set to missing.
HIV status ^{**}	NHBS biologic HIV test result	Positive or negative
Social factor		
Education	What is the highest level of education you completed?	<High school, high school diploma or equivalent, some college or technical degree, college degree or more
Social support ^{††}	MSPSS — social support scale	Mean social support score (SD). Social support was calculated from 12 questions from three subscales of family support, friend support, and significant other support. Each item of the 12 questions had a five-point response option ranging from “strongly agree” (5) to “strongly disagree” (1).
Housing discrimination	In the past 12 months, have you been denied housing or been evicted because you are transgender or gender nonconforming?	Yes or no
Incarceration	During the past 12 months, that is, since [interview month] of last year, have you been held in a detention center, jail, or prison for more than 24 hours? Have you ever been held in a detention center, jail, or prison for more than 24 hours?	Incarcerated in the past 12 months; incarcerated, but not in the past 12 months; or never incarcerated
Outcome variable		
Homelessness	In the past 12 months, that is, since [interview month] of last year, 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, or in a car. If yes, about how many total nights were you homeless?	1–29, 30–365, or 0

Abbreviations: MSPSS = Multidimensional Scale of Perceived Social Support; NHBS = National HIV Behavioral Surveillance.

* Atlanta, GA; Los Angeles, CA; New Orleans, LA; New York City, NY; Philadelphia, PA; San Francisco, CA; and Seattle, WA.

† Persons of Hispanic or Latina (Hispanic) origin might be of any race but are categorized as Hispanic; all racial groups are non-Hispanic.

§ Serious difficulty hearing, seeing, doing cognitive tasks, walking or climbing stairs, dressing or bathing, or doing errands alone. Adjusted for age. Based on U.S. Department of Health and Human Services disability data standard (<https://aspe.hhs.gov/reports/hhs-implementation-guidance-data-collection-standards-race-ethnicity-sex-primary-language-disability-0>).

¶ **Source:** Kessler RC, Barker PR, Colpe LJ, et al. Screening for serious mental illness in the general population. *Arch Gen Psychiatry* 2003;60:184–9.

** Determined based on NHBS rapid HIV test results.

†† **Source:** Zimet GD, Powell SS, Farley GK, Werkman S, Berkoff KA. Psychometric characteristics of the Multidimensional Scale of Perceived Social Support. *J Pers Assess* 1990;55:610–7.

Analysis

Univariate distribution of nights of homelessness was examined to determine appropriate cut-offs to classify short-term or episodic (1–29 nights) and longer-term or chronic

homelessness (30–365 nights). Descriptive statistics of personal characteristics and social factors were conducted by the three-level outcome variable of duration of homelessness. The association between duration of homelessness and personal characteristics and social factors was evaluated through ordinal

logistic regression analysis by using a proportional odds model. This approach was taken to evaluate the associations based on the ordinal outcome variable of nights of homelessness, on the basis of the assumption that these associations are homogeneous. The assumption of proportionality of the odds of the outcome was evaluated using the proportional odds score test, which tests the null hypothesis of no difference between the coefficients associated with the levels of duration of homelessness for transgender women. This method generated adjusted prevalence odds ratios and 95% CIs; models were adjusted for city of residence and network size and clustered on recruitment chain. Results were considered statistically significant if the 95% CI range did not overlap with the null (null = 1). Cronbach's alpha was calculated to assess internal consistency of the MSPSS. Analyses were conducted using SAS software (version 9.4; SAS Institute).

Results

Of the 1,608 NHBS participants, 42 were excluded from the analysis due to missing data on homelessness. Among these, 1,566 transgender women, 936 (60%) had not experienced homelessness during the past 12 months, 140 (9%) were homeless 1–29 nights, and 490 (31%) were homeless 30–365 nights (Table 2). Among those who were homeless 1–29 nights, the median number of nights homeless was seven, and the median number of nights homeless among those who were homeless 30–365 nights was 180. Experiencing 30–365 nights of homelessness was more prevalent among transgender women who were younger, had a disability, and were living at or below the Federal poverty level. Transgender women who had experienced any form of abuse (physical intimate partner violence: 49.8%; forced sex: 47.0%; physical violence: 42.9%) experienced 30–365 nights homeless. Transgender women who reported being evicted or denied housing because they are transgender or gender nonconforming (55.3%) experienced 30–365 nights homeless. Transgender women who had been incarcerated during the past 12 months (58.4%) and who had exchanged sex for money or drugs (43.6%) experienced 30–365 nights homeless.

The odds of being homeless for a longer duration were higher for younger age groups of transgender women than the corresponding odds of longer duration of homelessness among transgender women aged ≥ 50 years (Table 3). The odds of longer duration of homelessness for transgender women with a disability were 1.24 times the corresponding odds among those without a disability. The odds of longer duration of homelessness for transgender women with less education were higher than the corresponding odds among transgender

women having a college degree or more. Transgender women reporting an income at or below the Federal poverty level had 1.29 times the corresponding odds of experiencing longer duration of homelessness among transgender women having income above the Federal poverty level.

Transgender women who experienced certain types of abuse had higher odds of longer duration of homelessness than transgender women who did not experience abuse (Table 3). Social support was negatively associated with longer duration of homelessness among transgender women. Transgender women who were evicted or denied housing because they are transgender or gender nonconforming during the past 12 months had 1.37 times the odds of longer duration of homelessness compared with those who were not evicted or denied housing because they were transgender or gender nonconforming. Ever being incarcerated, whether before the past 12 months or during the past 12 months, was associated with longer duration of homelessness than for transgender women who had never been incarcerated. The odds of longer duration of homelessness among transgender women who exchanged sex for money or drugs during the past 12 months were 1.24 times the corresponding odds among those who did not exchange sex.

Discussion

During 2019–2020, transgender women participating in NHBS-Trans reported high prevalence of homelessness. Numerous personal characteristics and social factors were associated with longer duration of homelessness, with four out of 10 transgender women experiencing homelessness during the past 12 months (4), approximately three out of 10 experiencing 30–365 nights homeless, and approximately one out of 10 experiencing 1–29 nights homeless. Longer duration of homelessness was positively associated with younger age groups, lower educational attainment, income at or below the Federal poverty level, having a disability, experiences of abuse during the past 12 months, incarceration, eviction or denial of housing because they are transgender or gender nonconforming, and exchange sex. Longer duration of homelessness was negatively associated with social support. Efforts to prevent HIV transmission and to address housing instability for transgender women are urgently needed. These efforts should focus on systemic problems of economic instability, housing discrimination, and antitransgender discrimination that affect transgender women's ability to access safe and affordable housing.

The proportion of younger transgender women experiencing homelessness, especially those aged < 40 years, is of concern

TABLE 2. Number and percentage of transgender women experiencing homelessness,* by duration of homelessness during the past 12 months and selected characteristics — National HIV Behavioral Surveillance Among Transgender Women, seven urban areas,[†] United States, 2019–2020[§]

Characteristic	Duration of homelessness, nights			Total no. (row)
	30–365	1–29	0	
	No. (row %)	No. (row %)	No. (row %)	
Overall	490 (31.3)	140 (8.9)	936 (59.8)	
No. of nights homeless, median (IQR)	180.0 (60.0–365.0)	7.0 (4.0–14.0)	0.0 (—)	1,566
Demographic				
Age group, yrs				
18–24	82 (43.6)	22 (11.7)	84 (44.7)	188
25–29	102 (33.9)	36 (12.0)	163 (54.2)	301
30–39	153 (33.6)	44 (9.6)	259 (56.8)	456
40–49	80 (27.1)	23 (7.8)	192 (65.1)	295
≥50	73 (22.4)	15 (4.6)	238 (73.0)	326
Race and ethnicity[¶]				
American Indian or Alaska Native	6 (42.9)	0 (0.0)	8 (57.1)	14
Asian	6 (20.7)	3 (10.3)	20 (69.0)	29
Black or African American	187 (33.5)	51 (9.1)	321 (57.4)	559
Native Hawaiian or other Pacific Islander	7 (16.7)	3 (7.1)	32 (76.2)	42
White	64 (36.6)	13 (7.4)	98 (56.0)	175
Multiple races	47 (40.5)	9 (7.8)	60 (51.7)	116
Hispanic or Latina	171 (27.2)	61 (9.7)	396 (63.1)	628
Health status				
NHBS HIV test result^{**}				
Positive	213 (33.1)	57 (8.9)	373 (58.0)	643
Negative	262 (29.9)	82 (9.4)	532 (60.7)	876
Disability status^{††}				
Has a disability	328 (39.6)	72 (8.7)	428 (51.7)	828
No disability	158 (21.6)	67 (9.1)	506 (69.2)	731
Mental health				
Psychological distress^{§§}				
Score (mean [SD])	10.62 (5.59)	10.54 (5.44)	8.01 (5.11)	9.05 (5.44)
Social factors				
Education				
<High school	110 (32.8)	33 (9.9)	192 (57.3)	335
High school or equivalent	200 (34.1)	61 (10.4)	326 (55.5)	587
Some college or technical degree	145 (31.0)	33 (7.1)	290 (62.0)	468
College degree or more	34 (19.5)	12 (6.9)	128 (73.6)	174
Health insurance status				
Uninsured	88 (33.1)	36 (13.5)	142 (53.4)	266
Insured	401 (30.9)	104 (8.0)	794 (61.1)	1,299
Poverty level^{¶¶}				
At or below Federal poverty level	374 (38.1)	101 (10.3)	506 (51.6)	981
Above Federal poverty level	110 (19.3)	38 (6.7)	423 (74.1)	571
Experience of abuse past 12 months				
Physical intimate partner violence^{***}				
Yes	119 (49.8)	31 (13.0)	89 (37.2)	239
No	370 (27.9)	109 (8.2)	846 (63.8)	1,325
Forced sex^{†††}				
Yes	109 (47.0)	29 (12.5)	94 (40.5)	232
No	378 (28.4)	110 (8.3)	841 (63.3)	1,329
Physical violence^{§§§}				
Yes	179 (42.9)	61 (14.6)	177 (42.4)	417
No	310 (27.0)	79 (6.9)	758 (66.1)	1,147
Social support scale^{¶¶¶}				
Score (mean [SD])	3.47 (0.90)	3.70 (0.79)	3.85 (0.82)	3.72 (0.86)
Evicted or denied housing because they are transgender or gender nonconforming past 12 mos				
Yes	121 (55.3)	30 (13.7)	68 (31.1)	219
No	364 (27.2)	109 (8.1)	867 (64.7)	1,340

See table footnotes on the next page.

TABLE 2. (Continued) Number and percentage of transgender women experiencing homelessness,* by duration of homelessness during the past 12 months and selected characteristics — National HIV Behavioral Surveillance Among Transgender Women, seven urban areas,† United States, 2019–2020[§]

Characteristic	Duration of homelessness, nights			Total no. (row)
	30–365	1–29	0	
	No. (row %)	No. (row %)	No. (row %)	
Incarceration****				
Never incarcerated	147 (22.5)	47 (7.2)	459 (70.3)	653
Incarcerated, not in past 12 months	186 (29.0)	57 (8.9)	398 (62.1)	641
Incarcerated in past 12 months	157 (58.4)	36 (13.4)	76 (28.3)	269
Exchange sex for money or drugs†††				
Yes	235 (43.6)	54 (10.0)	250 (46.4)	539
No	254 (24.8)	86 (8.4)	686 (66.9)	1,026

Abbreviations: IQR = interquartile range; NHBS = National HIV Behavioral Surveillance.

* N = 1,566 participants with no missing information on homelessness during the past 12 months.

† Atlanta, GA; Los Angeles, CA; New Orleans, LA; New York City, NY; Philadelphia, PA; San Francisco, CA; and Seattle, WA.

§ Numbers might not add to total because of missing data. Percentages might not add to 100 because of rounding.

¶ Persons of Hispanic or Latina (Hispanic) origin might be of any race but are categorized as Hispanic; all racial groups are non-Hispanic.

** Participants with a reactive rapid NHBS HIV test result supported by a second rapid test or supplemental laboratory-based testing.

†† Serious difficulty hearing, seeing, doing cognitive tasks, walking or climbing stairs, dressing or bathing, or doing errands alone. Adjusted for age. Based on U.S. Department of Health and Human Services disability data standard (<https://aspe.hhs.gov/reports/hhs-implementation-guidance-data-collection-standards-race-ethnicity-sex-primary-language-disability-0>).

§§ Psychological distress was measured by the Kessler Psychological Distress Scale (range = 0–24) (Cronbach's alpha = 0.85).

¶¶ 2019 Federal poverty level thresholds were calculated on the basis of U.S. Department of Health and Human Services Federal poverty level guidelines (<https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references/2019-poverty-guidelines>).

*** Physically abused or harassed by a sexual partner.

††† Physically forced or verbally threatened to have sex when they did not want to.

§§§ Physically abused or harassed because of gender identity or presentation.

¶¶¶ Measured by 12-item Multidimensional Scale of Perceived Social Support. Responses to the five questions were summed and averaged (range = 1–5) (Cronbach's alpha = 0.92).

**** Incarceration was defined as having been held in a detention center, jail, or prison for >24 hours.

†††† Sex work was defined as receiving money or goods in exchange for sex during the past 12 months.

and is consistent with previous studies (21,22). Younger transgender women might experience a lack of familial support (23,24) and economic marginalization because of fewer employment opportunities and employment discrimination (21). Transgender youths experience higher rates of violence victimization, substance use, suicide risk, and sexual risk than their cisgender counterparts (25), which affect options for housing and employment. Transgender youths are also more likely to engage in survival sex, which is associated with homelessness (26).

Psychological distress was associated with longer duration of homelessness among transgender women. Multiple studies, including a systematic review that applied the minority stress model as a framework for reviewing 77 studies of mental health conditions among transgender or gender nonconforming persons (27), found mental health conditions and psychological distress to be higher among transgender women than among their heterosexual counterparts (28). Other researchers have found psychological distress, as identified in this study, to be associated with experiences of housing instability (27).

Social factors (e.g., low educational attainment) were associated with longer duration of homelessness, supporting the findings of a study that reported that young transgender women who had dropped out of school because of stigma

or harassment for being transgender were more likely to experience negative consequences, including incarceration (29). Higher educational attainment directly affects employment opportunities and poverty status. Requiring training for teachers and administrators that focuses on strategies to reduce stigma, discrimination, and bullying in school systems could improve retention in school for young transgender women (25).

Social support was lower among transgender women experiencing longer duration of homelessness than among those not experiencing homelessness. A lack of social support for transgender women can increase depression and anxiety (30) and affect resilience (31), which are associated with housing instability. Further, social isolation can affect engagement and retention in HIV care and viral suppression for transgender women with diagnosed HIV infection (32). Family members, friends, health providers, and community members can access resources to self-educate and learn how to express support for their transgender loved ones (e.g., through resources for parents from the Trans Youth Equality Foundation [<http://www.transyouthequality.org/for-parents>] and PFLAG [https://pflag.org/glossary_term/transgender/]).

Experiences of violence and abuse also were associated with longer duration of homelessness, indicating another layer of

TABLE 3. Comparison of duration of homelessness among transgender women who have experienced homelessness,* by selected characteristics — National HIV Behavioral Surveillance Among Transgender Women, seven urban areas,† United States, 2019–2020

Characteristic	Longer duration of homelessness [§]
	aPOR [¶] (95% CI)
Demographics	
Age group, yrs	
18–24	3.11 (1.80–5.36)
25–29	2.12 (1.41–3.17)
30–39	1.97 (1.29–3.01)
40–49	1.42 (0.99–2.03)
≥50	Ref
Health status	
NHBS HIV test result**	
Positive	1.03 (0.97–1.10)
Negative	Ref
Disability status^{††}	
Has a disability	1.24 (1.17–1.31)
No disability	Ref
Mental health	
Psychological distress ^{§§}	1.02 (1.02–1.03)
Social factors	
Education	
<High school	2.04 (1.22–3.44)
High school or equivalent	2.20 (1.40–3.44)
Some college or technical degree	1.75 (1.13–2.71)
College degree or more	Ref
Health insurance status	
Uninsured	1.03 (0.95–1.12)
Insured	Ref
Poverty level^{¶¶}	
At or below Federal poverty level	1.29 (1.18–1.40)
Above Federal poverty level	Ref
Experience of abuse past 12 months	
Physical intimate partner violence^{***}	
Yes	1.29 (1.22–1.36)
No	Ref
Forced sex^{†††}	
Yes	1.25 (1.16–1.35)
No	Ref
Social support scale ^{§§§}	0.89 (0.86–0.92)
Evicted or denied housing because they are transgender or gender nonconforming past 12 months	
Yes	1.37 (1.29–1.46)
No	Ref

harm that can interfere with access to basic needs for transgender women. In this analysis, transgender women experiencing various forms of abuse, either physical intimate partner violence or forced sex, experienced longer duration of homelessness. More than half of transgender women who experienced any form of abuse during the past 12 months reported experiencing homelessness. These findings are supported by an analysis that reported rates of lifetime homelessness in the 2015 U.S. Transgender Survey were associated with all forms of interpersonal violence, including physical and psychological violence, and experiencing forced sex during

TABLE 3. (Continued) Comparison of duration of homelessness among transgender women who have experienced homelessness,* by selected characteristics — National HIV Behavioral Surveillance Among Transgender Women, seven urban areas,† United States, 2019–2020

Characteristic	Longer duration of homelessness [§]
	aPOR [¶] (95% CI)
Incarceration^{¶¶¶}	
Never incarcerated	Ref
Incarcerated, not in past 12 months	1.42 (1.05–1.91)
Incarcerated in past 12 months	5.13 (3.66–7.20)
Exchange sex for money or drugs^{****}	
Yes	1.24 (1.18–1.30)
No	Ref

Abbreviations: aPOR = adjusted prevalence odds ratio; NHBS = National HIV Behavioral Surveillance; Ref = referent group.

* Adjusted prevalence odds ratios and confidence intervals from ordinal logistic regression of N = 1,566 participants with no missing information on homelessness during the past 12 months.

† Atlanta, GA; Los Angeles, CA; New Orleans, LA; New York City, NY; Philadelphia, PA; San Francisco, CA; and Seattle, WA.

§ All models presented were separate; each was adjusted for urban area and network size and clustered on recruitment chains; longer duration of homelessness was defined as a three-level ordinal variable of 0, 1–29, and 30–365 nights homeless during the past 12 months.

¶ All models satisfied the proportional odds assumption score test.

** Participants with a reactive rapid NHBS HIV test result supported by a second rapid test or supplemental laboratory-based testing.

†† Serious difficulty hearing, seeing, doing cognitive tasks, walking or climbing stairs, dressing or bathing, or doing errands alone. Adjusted for age. Based on U.S. Department of Health and Human Services disability data standard (<https://aspe.hhs.gov/reports/hhs-implementation-guidance-data-collection-standards-race-ethnicity-sex-primary-language-disability-0>).

§§ Psychological distress was measured by the Kessler Psychological Distress Scale (range = 0–24).

¶¶ 2019 Federal poverty level thresholds were calculated on the basis of U.S. Department of Health and Human Services Federal poverty level guidelines. (<https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references/2019-poverty-guidelines>).

*** Physically abused or harassed by a sexual partner.

††† Physically forced or verbally threatened to have sex when they did not want to.

§§§ Measured by the 12-item Multidimensional Scale of Perceived Social Support. Responses to the five questions were summed and averaged (range = 1–5) (Cronbach’s alpha = 0.92).

¶¶¶ Incarceration was defined as having been held in a detention center, jail, or prison for >24 hours.

**** Sex work was defined as receiving money or goods in exchange for sex during the past 12 months.

the past 12 months (33). Certain transgender women might experience housing instability because of abusive partners (34). Transgender women who have experienced intimate partner violence might be deterred from seeking or have difficulty accessing intimate partner violence services because of transphobic discrimination or rigidly gender-segregated services (34). Further, transgender women often experience physical or sexual violence in homeless shelters; unsafe shelters can force them out on the street (35).

Another social determinant, housing discrimination, was prevalent in the sample; transgender women who were

evicted or denied housing because they are transgender or gender-nonconforming had higher odds of experiencing longer duration of homelessness. These results are consistent with previous findings (9,26) illustrating that systemic factors driving housing instability (e.g., economic insecurity, housing discrimination, and antitransgender discrimination) are known barriers to housing for transgender women (36). The Fair Housing Act prohibits discrimination on the basis of gender identity (https://www.hud.gov/program_offices/fair_housing_equal_opp/fair_housing_act_overview); transgender women who have experienced housing discrimination can file a complaint with the U.S. Department of Housing and Urban Development (https://www.hud.gov/program_offices/fair_housing_equal_opp/online-complaint). Further, homeless shelters and domestic violence shelters and services can consider expanding services for transgender clients, ensure shelters and services are safe, and provide cultural competency training to staff members to better support transgender clients.

Incarceration was associated with longer duration of homelessness among the transgender women participating in this study. Incarceration among transgender women has been found to affect mental health (e.g., anxiety and depression) and substance use, and has been associated with homelessness, sex work, school dropout, and multiple incarcerations (29). Transgender women who are incarcerated experience victimization, harassment, and violence at very high rates (37). They are often misgendered, denied health care, punished for expressing their gender identity, and susceptible to sexual violence (<https://www.aclu.org/news/lgbtq-rights/sex-work-is-real-work-and-its-time-to-treat-it-that-way>). Additionally, the majority of NHBS-Trans participants were Black or Hispanic transgender women, who are targeted by law enforcement and incarcerated at high rates (38). Law enforcement policies and priorities that criminalize homelessness make transgender women experiencing homelessness, especially transgender women of color, vulnerable to harassment, policing, and incarceration (38). Addressing violence toward transgender women through education and training, public awareness, and policies that criminalize discrimination of transgender persons in schools, the workplace, and housing can positively affect housing stability and quality of life for transgender women.

Approximately half of transgender women who had exchanged sex for money or drugs had experienced 30–365 nights homeless. Discrimination and stigma in the workplace are often barriers to employment for transgender women, limiting options for income and encouraging engagement in sex work (39). Because of the illegality of sex work in the United States, sex work and incarceration are highly correlated, and both are associated with mental health conditions and sexual

behaviors associated with HIV transmission (40). A cyclical relation between sex work and housing instability can exist if transgender women engage in sex work to generate income for housing. This type of survival sex for income interferes with housing stability and can affect mental and physical health outcomes and can increase chances of acquiring HIV infection (26,41). Another study found that transgender women who participated in sex work experienced lower social support and higher rates of violence, stigma, and HIV than their non-sex-working peers (42,43). Decriminalizing sex work and decreasing stigma and victimization could reduce criminal justice involvement among transgender women and facilitate employment and housing opportunities.

The findings in this study demonstrated that multiple personal characteristics and social factors are associated with longer duration of homelessness; providing stable housing for transgender women could improve physical and mental health outcomes and safety. Specific housing interventions could address different durations of homelessness, either short-term or episodic or longer-term or chronic homelessness. Transgender women who experience less than 30 days homeless could benefit from emergency assistance programs that provide support and services for rent or utilities to prevent eviction, the need to move frequently, couch surfing, and other circumstances that could lead to longer-term homelessness. Despite being illegal, stigma and discrimination in housing and employment based on transphobia (11) limit options for transgender women, decreasing opportunities for engagement in the licit economy. Stable housing, using the Housing First model that prioritizes safe and affordable housing with wrap-around social services for mental health and substance use, can improve quality of life and HIV outcomes (44). Approaches to treatment using a trauma-informed care model (<https://store.samhsa.gov/sites/default/files/d7/priv/sma14-4884.pdf>) specifically designed for transgender women can also be implemented to address a history of abuse and violence often experienced by transgender women. Structural interventions that address HIV prevention among transgender women need to focus on stigma, discrimination, and poverty (45). Forty-two percent of the participants in NHBS-Trans were HIV-positive and might qualify for the Housing Opportunities for Persons with AIDS (HOPWA) program (https://www.hud.gov/program_offices/comm_planning/hopwa). CDC funded a toolkit, developed by community partners, for providing HIV Prevention Services to Transgender Women of Color (<https://www.cdc.gov/hiv/effective-interventions/prevent/toolkit-transgender-women-of-color/index.html>). This toolkit, for use by community organizations, health departments, clinics,

and other organizations that provide services for transgender women of color, outlines services and interventions to address important topics (e.g., healthy partner relationships, sexual risk behaviors, stress, social support, gender affirmation, HIV or STI knowledge, and engagement in care). Employing these varied evidence-based interventions could address certain social factors and personal characteristics affecting housing stability among transgender women.

Limitations

General limitations for the NHBS-Trans are available in the overview and methodology report of this supplement (16). The findings in this report are subject to at least five additional limitations. First, the sample is not representative of transgender women residing outside of the seven urban areas. Because of the hard-to-reach nature of transgender women, the data might not be representative of all transgender women residing in the seven urban areas. Second, the data are self-reported and certain measures, such as psychological distress, exchange sex, or experience of abuse, might be subject to social desirability biases resulting in underestimates of these factors (46,47). Third, the sample size of transgender women experiencing 1–29 days homeless was limited, thus, inferences from this group to all transgender women cannot be made. Fourth, the question assessing homelessness is limited and does not include transitory instances of housing instability (e.g., couch surfing) or information on participants experiencing homelessness for longer than 12 months. To address this limitation, data on homelessness were stratified by duration of homelessness to identify differences possibly related to transitional or episodic homelessness (14). Finally, the cross-sectional study design limits the ability to establish causality and prohibits analysis of the dynamic nature of housing instability.

Conclusions

Transgender women experience housing instability associated with personal characteristics and social factors; these factors increase behavioral risk factors for HIV infection and poor health outcomes. Specifically, social factors (e.g., living below the Federal poverty level, experiences with violence and abuse, and lack of social support) were associated with longer duration of housing instability and homelessness. Further, history of incarceration, exchanging sex for money or drugs, experience with being rejected from housing, or being evicted were all factors associated with housing instability and homelessness. These social factors are entwined in societal views of discrimination and stigma of transgender women.

Interventions that address personal characteristics and social factors and promote positive attitudes toward transgender women can help to achieve housing stability and can improve mental and physical health and HIV outcomes for transgender women. Further, integrating housing services, behavioral health services, employment, gender-affirming medical care, and clinical care are important to improve the living circumstances and quality of life for transgender women.

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Conflicts of Interest

All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. No potential conflicts of interest were disclosed.

References

1. Aidal AA, Wilson MG, Shubert V, et al. Housing status, medical care, and health outcomes among people living with HIV/AIDS: a systematic review. *Am J Public Health* 2016;106:e1–23. PMID:26562123 <https://doi.org/10.2105/AJPH.2015.302905>
2. Herman JL, Flores AR, O'Neill KK. How many adults and youth identify as transgender in the United States? [Internet] Los Angeles, CA: UCLA School of Law, Williams Institute; 2022. <https://williamsinstitute.law.ucla.edu/publications/trans-adults-united-states/>
3. CDC. HIV infection, risk, prevention, and testing behaviors among transgender women—National HIV Behavioral Surveillance, 7 U.S. cities, 2019–2020. Atlanta, GA: US Department of Health and Human Services, CDC; 2021. <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-special-report-number-27.pdf>

4. Becasen JS, Denard CL, Mullins MM, Higa DH, Sipe TA. Estimating the prevalence of HIV and sexual behaviors among the U.S. transgender population: a systematic review and meta-analysis, 2006–2017. *Am J Public Health* 2019;109:e1–8. PMID:30496000 <https://doi.org/10.2105/AJPH.2018.304727>
5. Lee K, Trujillo L, Olansky E, et al.; National HIV Behavioral Surveillance among Transgender Women Study Group; National HIV Behavioral Surveillance among Transgender Women Study Group. Factors associated with use of HIV prevention and health care among transgender women—Seven Urban Areas, 2019–2020. *MMWR Morb Mortal Wkly Rep* 2022;71:673–9. PMID:35588092 <https://doi.org/10.15585/mmwr.mm7120a1>
6. Blossnich JR, Marsiglio MC, Dichter ME, et al. Impact of social determinants of health on medical conditions among transgender veterans. *Am J Prev Med* 2017;52:491–8. PMID:28161034 <https://doi.org/10.1016/j.amepre.2016.12.019>
7. Fletcher JB, Kisler KA, Reback CJ. Housing status and HIV risk behaviors among transgender women in Los Angeles. *Arch Sex Behav* 2014;43:1651–61. PMID:25190499 <https://doi.org/10.1007/s10508-014-0368-1>
8. Glick JL, Lopez A, Pollock M, Theall KP. Housing insecurity and intersecting social determinants of health among transgender people in the USA: a targeted ethnography. *Int J Transgend Health* 2020;21:337–49. PMID:34993513 <https://doi.org/10.1080/26895269.2020.1780661>
9. Kattari SK, Whitfield DL, Walls NE, Langenderfer-Magruder L, Ramos D. Policing gender through housing and employment discrimination: comparison of discrimination experiences of transgender and cisgender LGBTQ individuals. *J Soc Social Work Res* 2016;7:427–47. <https://doi.org/10.1086/686920>
10. Barbee H, Deal C, Gonzales G. Anti-transgender legislation—a public health concern for transgender youth. *JAMA Pediatr* 2022;176:125–6. PMID:34747979 <https://doi.org/10.1001/jamapediatrics.2021.4483>
11. Lewis DC, Flores AR, Haider-Markel DP, Miller PR, Tadlock BL, Taylor JK. Degrees of acceptance: variation in public attitudes toward segments of the LGBT community. *Polit Res Q* 2017;70:861–75. <https://doi.org/10.1177/1065912917717352>
12. Parker K, Horowitz J, Brown A. Americans' complex views on gender identity and transgender issues. Washington, DC: Pew Research Center; 2022. <https://www.pewresearch.org/social-trends/2022/06/28/americans-complex-views-on-gender-identity-and-transgender-issues/>
13. Forney JC, Lombardo S, Toro PA. Diagnostic and other correlates of HIV risk behaviors in a probability sample of homeless adults. *Psychiatr Serv* 2007;58:92–9. PMID:17215418 <https://doi.org/10.1176/ps.2007.58.1.92>
14. Kuhn R, Culhane DP. Applying cluster analysis to test a typology of homelessness by pattern of shelter utilization: results from the analysis of administrative data. *Am J Community Psychol* 1998;26:207–32. PMID:9693690 <https://doi.org/10.1023/A:1022176402357>
15. Carter SP, Montgomery AE, Henderson ER, et al. Housing instability characteristics among transgender veterans cared for in the Veterans Health Administration, 2013–2016. *Am J Public Health* 2019;109:1413–8. PMID:31415197 <https://doi.org/10.2105/AJPH.2019.305219>
16. Kanny D, Lee K, Olansky E, et al. Overview and methodology of the National HIV Behavioral Surveillance Among Transgender Women—seven urban areas, United States, 2019–2020. In: National HIV Behavioral Surveillance Among Transgender Women—seven urban areas, United States, 2019–2020. *MMWR Suppl* 2024;73(No. Suppl-1)1–8.
17. US Department of Health and Human Services. Data collection standards for race, ethnicity, primary language, sex, and disability status. Washington, DC: US Department of Health and Human Services, Office of Minority Health; 2018. <https://minorityhealth.hhs.gov/data-collection-standards-race-ethnicity-primary-language-sex-and-disability-status>
18. Kessler RC, Barker PR, Colpe LJ, et al. Screening for serious mental illness in the general population. *Arch Gen Psychiatry* 2003;60:184–9. PMID:12578436 <https://doi.org/10.1001/archpsyc.60.2.184>
19. Zimet GD, Powell SS, Farley GK, Werkman S, Berkoff KA. Psychometric characteristics of the Multidimensional Scale of Perceived Social Support. *J Pers Assess* 1990;55:610–7. PMID:2280326 https://doi.org/10.1207/s15327752jpa5503&t4_17
20. Trujillo MA, Perrin PB, Sutter M, Tabaac A, Benotsch EG. The buffering role of social support on the associations among discrimination, mental health, and suicidality in a transgender sample. *Int J Transgenderism* 2017;18:39–52. PMID:29904324 <https://doi.org/10.1080/15532739.2016.1247405>
21. Eastwood EA, Nace AJ, Hirshfield S, Birnbaum JM. Young transgender women of color: homelessness, poverty, childhood sexual abuse and implications for HIV care. *AIDS Behav* 2021;25(Suppl 1):96–106. PMID:31865517 <https://doi.org/10.1007/s10461-019-02753-9>
22. Wilson EC, Chen YH, Arayasirikul S, et al. Differential HIV risk for racial/ethnic minority trans*female youths and socioeconomic disparities in housing, residential stability, and education. *Am J Public Health* 2015;105(Suppl 3):e41–7. PMID:25905826 <https://doi.org/10.2105/AJPH.2014.302443>
23. Aparicio-García ME, Díaz-Ramiro EM, Rubio-Valdehita S, López-Núñez MI, García-Nieto I. Health and well-being of cisgender, transgender and non-binary young people. *Int J Environ Res Public Health* 2018;15:2133. PMID:30274141 <https://doi.org/10.3390/ijerph15102133>
24. Garofalo R, Johnson AK, Kuhns LM, Cotten C, Joseph H, Margolis A. Life skills: evaluation of a theory-driven behavioral HIV prevention intervention for young transgender women. *J Urban Health* 2012;89:419–31. PMID:22223033 <https://doi.org/10.1007/s11524-011-9638-6>
25. Johns MM, Lowry R, Andrzejewski J, et al. Transgender identity and experiences of violence victimization, substance use, suicide risk, and sexual risk behaviors among high school students—19 states and large urban school districts, 2017. *MMWR Morb Mortal Wkly Rep* 2019;68:67–71. PMID:30677012 <https://doi.org/10.15585/mmwr.mm6803a3>
26. Kattari SK, Begun S. On the margins of marginalized: transgender homelessness and survival sex. *Affilia* 2017;32:92–103. <https://doi.org/10.1177/0886109916651904>
27. Valentine SE, Shepherd JC. A systematic review of social stress and mental health among transgender and gender non-conforming people in the United States. *Clin Psychol Rev* 2018;66:24–38. PMID:29627104 <https://doi.org/10.1016/j.cpr.2018.03.003>
28. Flentje A, Leon A, Carrico A, Zheng D, Dilley J. Mental and physical health among homeless sexual and gender minorities in a major urban U.S. city. *J Urban Health* 2016;93:997–1009. PMID:27699581 <https://doi.org/10.1007/s11524-016-0084-3>
29. Hughto JMW, Reisner SL, Kershaw TS, et al. A multisite, longitudinal study of risk factors for incarceration and impact on mental health and substance use among young transgender women in the USA. *J Public Health (Oxf)* 2019;41:100–9. PMID:29474682 <https://doi.org/10.1093/pubmed/fdy031>
30. Budge SL, Adelson JL, Howard KA. Anxiety and depression in transgender individuals: the roles of transition status, loss, social support, and coping. *J Consult Clin Psychol* 2013;81:545–57. PMID:23398495 <https://doi.org/10.1037/a0031774>
31. Durbin A, Nisenbaum R, Kopp B, O'Campo P, Hwang SW, Stergiopoulos V. Are resilience and perceived stress related to social support and housing stability among homeless adults with mental illness? *Health Soc Care Community* 2019;27:1053–62. PMID:30734374 <https://doi.org/10.1111/hsc.12722>

32. Hotton AL, Perloff J, Paul J, et al. Patterns of exposure to socio-structural stressors and HIV care engagement among transgender women of color. *AIDS Behav* 2020;24:3155–63. PMID:32335760 <https://doi.org/10.1007/s10461-020-02874-6>
33. King WM, Restar A, Operario D. Exploring multiple forms of intimate partner violence in a gender and racially/ethnically diverse sample of transgender adults. *J Interpers Violence* 2021;36:NP10477–98. PMID:31526070 <https://doi.org/10.1177/0886260519876024>
34. Messenger AM, Kurdyla V, Guadalupe-Diaz XL. Intimate partner violence help-seeking in the U.S. transgender survey. *J Homosex* 2022;69:1042–65. PMID:33871317 <https://doi.org/10.1080/00918369.2021.1901506>
35. Mottet L, Ohle JM. Transitioning our shelters: making homeless shelters safe for transgender people. *J Poverty* 2006;10:77–101. https://doi.org/10.1300/J134v10n02_05
36. Beltran T, Allen AM, Lin J, Turner C, Ozer EJ, Wilson EC. Intersectional discrimination is associated with housing instability among trans women living in the San Francisco Bay area. *Int J Environ Res Public Health* 2019;16:4521. PMID:31731739 <https://doi.org/10.3390/ijerph16224521>
37. Reisner SL, Bailey Z, Sevelius J. Racial/ethnic disparities in history of incarceration, experiences of victimization, and associated health indicators among transgender women in the U.S. *Women Health* 2014;54:750–67. PMID:25190135 <https://doi.org/10.1080/03630242.2014.932891>
38. Yarbrough D. The carceral production of transgender poverty: how racialized gender policing deprives transgender women of housing and safety. *Punishm Soc* 2023;25:141–61. <https://doi.org/10.1177/14624745211017818>
39. Grant JM, Mottet LA, Tanis J, Harrison J, Herman JL, Keisling M. Injustice at every turn: a report of the National Transgender Discrimination Survey. Washington, DC: National Center for Transgender Equality and National Gay and Lesbian Task Force; 2011. https://transequality.org/sites/default/files/docs/resources/NTDS_Report.pdf
40. Brennan J, Kuhns LM, Johnson AK, Belzer M, Wilson EC, Garofalo R; Adolescent Medicine Trials Network for HIV/AIDS Interventions. Syndemic theory and HIV-related risk among young transgender women: the role of multiple, co-occurring health problems and social marginalization. *Am J Public Health* 2012;102:1751–7. PMID:22873480 <https://doi.org/10.2105/AJPH.2011.300433>
41. Operario D, Soma T, Underhill K. Sex work and HIV status among transgender women: systematic review and meta-analysis. *J Acquir Immune Defic Syndr* 2008;48:97–103. PMID:18344875 <https://doi.org/10.1097/QAI.0b013e31816e3971>
42. Budhwani H, Hearld KR, Butame SA, Naar S, Tapia L, Paulino-Ramírez R. Transgender women in Dominican Republic: HIV, stigma, substances, and sex work. *AIDS Patient Care STDS* 2021;35:488–94. PMID:34762515 <https://doi.org/10.1089/apc.2021.0127>
43. Milner AN, Hearld KR, Abreau N, Budhwani H, Mayra Rodriguez-Lauzurique R, Paulino-Ramírez R. Sex work, social support, and stigma: experiences of transgender women in the Dominican Republic. *Int J Transgenderism* 2019;20:403–12. PMID:32999625 <https://doi.org/10.1080/15532739.2019.1596862>
44. Padgett DK, Henwood B, Tsemberis S. *Housing first: ending homelessness, transforming systems, and changing lives*. Oxford University Press; 2015.
45. Poteat T, Malik M, Scheim A, Elliott A. HIV prevention among transgender populations: knowledge gaps and evidence for action. *Curr HIV/AIDS Rep* 2017;14:141–52. PMID:28752285 <https://doi.org/10.1007/s11904-017-0360-1>
46. Latkin CA, Edwards C, Davey-Rothwell MA, Tobin KE. The relationship between social desirability bias and self-reports of health, substance use, and social network factors among urban substance users in Baltimore, Maryland. *Addict Behav* 2017;73:133–6. PMID:28511097 <https://doi.org/10.1016/j.addbeh.2017.05.005>
47. Rao A, Tobin K, Davey-Rothwell M, Latkin CA. Social desirability bias and prevalence of sexual HIV risk behaviors among people who use drugs in Baltimore, Maryland: implications for identifying individuals prone to underreporting sexual risk behaviors. *AIDS Behav* 2017;21:2207–14. PMID:28509997 <https://doi.org/10.1007/s10461-017-1792-8>