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## Unmet Needs for Ancillary Services and Associations with Clinical Outcomes Among Transgender Women with Diagnosed HIV: Medical Monitoring Project, United States, 2015–2020

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### Abstract

**Purpose:** Access to ancillary services—including HIV support services, non-HIV clinical services, and subsistence services—can support care engagement and viral suppression and reduce disparities among people with HIV (PWH). We used representative U.S. data to assess differences in unmet needs for ancillary services between transgender women with HIV and other PWH. In addition, we examined associations between unmet needs and clinical outcomes among transgender women.

**Methods:** We analyzed 2015–2020 Medical Monitoring Project data among transgender women ( $N = 362$ ), cis-gender men ( $N = 17,319$ ), and cisgender women ( $N = 6016$ ) with HIV. We reported weighted percentages for characteristics, and reported adjusted prevalence ratios (aPRs) controlling for race/ethnicity and age, and 95% confidence intervals (CI) using logistic regression with predicted marginal means to assess differences between groups.

**Results:** Among transgender women, unmet needs were highest for dental care (24.9%), shelter or housing (13.9%), and transportation assistance (12.6%). Transgender women were more likely than cisgender men to have unmet subsistence needs. Among transgender women, unmet needs for ancillary services were negatively associated with many clinical outcomes after adjusting for age and race/ethnicity. Unmet needs for subsistence services were associated with higher levels of antiretroviral therapy nonadherence (aPR: 1.39; 95% CI: 1.13–1.70) and detectable viral loads

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#### Authors' Contributions

S.D. and C.C.E. conceptualized the analysis and drafted the article. S.M.C. and T.C. conducted data analysis. C.C.E. and S.D. interpreted the data. C.C.E., S.M.C., S.D., and T.C. edited drafts and contributed to the intellectual content. All authors reviewed and approved this article before submission.

#### Author Disclosure Statement

No competing financial interests exist.

#### Disclaimer

The findings and conclusions in this article are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Supplementary Material  
Supplementary Table S1

(aPR: 1.47; 1.09–1.98), emergency room visits (aPR: 1.42; 1.06–1.90), and depression (aPR: 2.74; 1.83–4.10) or anxiety (aPR: 3.20; 2.05–5.00) symptoms.

**Conclusions:** Transgender women with HIV were more likely than cisgender men with HIV to experience unmet needs for subsistence services—likely a reflection of substantial socioeconomic disadvantage. Addressing unmet needs is an essential step for improving care outcomes among transgender women with HIV.

### Keywords

ancillary services; HIV; Ryan White HIV/AIDS Program; transgender women; unmet needs

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## Introduction

Transgender women—particularly those of color—are disproportionately affected by HIV.<sup>1,2</sup> Socioeconomic challenges, stigma and discrimination, experiences with violence, and institutional distrust could complicate care access, thus affecting health and well-being and driving disparities among transgender women.<sup>3–5</sup> To address these disparities, the National HIV/AIDS Strategy for the United States prioritizes efforts to address barriers to care and viral suppression among transgender women with HIV.<sup>6</sup>

Ancillary services refer to the “constellation of services” that support retention in HIV care and viral suppression by addressing social and medical conditions experienced by people with HIV (PWH).<sup>7–10</sup> Ancillary services may be related to HIV support services (e.g., case management), non-HIV clinical services (e.g., mental health services, substance use disorder treatment), or subsistence services (e.g., food or housing assistance). The Ryan White HIV/AIDS Program (RWHAP) provides comprehensive services for low-income persons with HIV related to medical care, medications, and essential ancillary, or support, services. Nearly half of adults with diagnosed HIV receive assistance through the RWHAP<sup>11</sup>; in 2020, 1.8% (or 10,174 persons) of these Ryan White clients were transgender women.<sup>12</sup>

Unmet needs for ancillary services, defined as needing but not receiving services, have been found to be associated with adverse clinical outcomes among PWH, including antiretroviral therapy (ART) dose nonadherence and lack of viral suppression.<sup>10</sup> Previous studies have demonstrated the extent of unmet needs for transgender women, but were limited to specific urban areas or demographic groups and were not nationally representative.<sup>3</sup> Recent, nationally representative estimates on unmet needs for ancillary services among transgender women with diagnosed HIV are needed to improve access to care and outcomes in this population. Using representative data on adults with diagnosed HIV from the Centers for Disease Control and Prevention’s Medical Monitoring Project (MMP), we compared the prevalence of unmet needs for ancillary services among transgender women with cisgender women and cisgender men. Among transgender women, we also assessed associations between unmet needs for ancillary services and key clinical outcomes.

## Methods

### Population

MMP is a national HIV surveillance system that reports representative estimates of experiences and needs of adults with diagnosed HIV in the United States. Data are collected through interviews by phone or in-person, and medical records are abstracted at the most frequent source of HIV care during the past 12 months. MMP data collection cycles begin in June of each year and end the following May. MMP uses complex sample survey methodology with a two-stage sampling design. In the first stage, 16 states and Puerto Rico were sampled from all states in the United States, the District of Columbia, and Puerto Rico.

In the second stage, simple random samples of persons aged ≥ 18 years with diagnosed HIV were drawn for each state and territory from the National HIV Surveillance System. During the 2015–2020 data cycles, the response rate at the state and territory level was 100%, and at the person level ranged from 40% to 46% by cycle year. Additional details on MMP's methodology have been previously described.<sup>11,13</sup>

### Nonresearch determination, institutional review board approval, and respondent consent

MMP data collection is considered nonresearch as it is part of routine public health surveillance activities (45 CFR 46). Where necessary, jurisdictions obtain institutional review board (IRB) approval to collect data. Informed consent was obtained in either verbal or written form from all respondents. Respondents received a \$50 token of appreciation for their time and effort.

### Measures

Respondents were interviewed about demographic characteristics, social determinants of health (SDOH), and selected clinical outcomes. Medical records were abstracted for additional clinical outcomes.

Self-reported data on sex at birth and current gender identity were used to categorize respondents as transgender women, cisgender men, and cisgender women. Transgender women were defined as those whose gender identity was either transgender or female and who reported their sex at birth as male. Cisgender men were defined as those whose gender identity was male and who reported their sex at birth as male. Cisgender women were defined as those whose gender identity was female and who reported their sex at birth as female. Even with multiple years of combined data, the number of transgender men was too small with which we could conduct comparative analysis. For this reason, and because the prevalence of HIV among transgender women is particularly high compared with all other populations, we have focused on transgender women for this analysis.

Respondents were asked if they have received a variety of ancillary services over the past 12 months. Respondents who reported not receiving a service were then asked if they needed that service. An unmet need was defined as needing but not receiving a service.

We categorized ancillary services into three groups: HIV support services, non-HIV clinical services, and subsistence services based on previous work.<sup>10</sup> HIV support services included HIV case management services, ART adherence support services, medicines provided through the AIDS Drug Assistance Program (ADAP), patient navigation services, and HIV peer group support. Non-HIV clinical services included dental care, drug or alcohol counseling or treatment, mental health services, and domestic violence services. Subsistence services included transportation assistance, shelter or housing services, the Supplemental Nutrition Assistance Program (SNAP) or the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and meal or food services.

Retention in care was defined as having 2 elements of outpatient HIV care at least 90 days apart in the past 12 months.<sup>11</sup> ART dose adherence was dichotomized as not being 100% dose adherent (including those who were not currently taking ART) versus 100% dose adherent in the past 30 days. Viral load measurements abstracted from the medical records were used to assess viral suppression at last test (i.e., most recent viral load in the past 12 months was <200 copies/mL or undetectable) and sustained viral suppression (i.e., all viral loads in the past 12 months were <200 copies/mL or undetectable).

Generalized anxiety disorder (GAD) and depression symptoms from the past 2 weeks were captured using validated scales (Patient Health Questionnaire-8 and GAD-7) and categorized based on clinically meaningful cut points.<sup>14,15</sup>

Binge drinking was defined as 5 alcoholic beverages for cisgender men and transgender women, and 4 alcoholic beverages for cisgender women in one sitting during the 30 days before the interview. Household poverty threshold was based upon Department of Health and Human Services poverty guidelines.<sup>16</sup>

Supplementary Table S1 includes additional information on variable definitions. Unless otherwise indicated, all characteristics were based on the past 12 months.

## Analytic methods

Using data on adults with diagnosed HIV from the 2015 to 2020 MMP data cycles, we compared demographic characteristics, SDOH, behavioral characteristics, and clinical outcomes between those who identified as transgender women ( $N=362$ ) versus cisgender women ( $N=6016$ ), and transgender women versus cisgender men ( $N=17,319$ ). Then, we assessed the prevalence of unmet needs for specific ancillary services between these groups. Finally, among transgender women with diagnosed HIV, we examined associations between unmet needs for ancillary services and key outcomes of interest.

Data were weighted based on probabilities of selection, were adjusted for person nonresponse, and poststratified to population totals from the National HIV Surveillance System by age, race/ethnicity, and sex, based on a previously described standard methodology.<sup>13</sup> We reported weighted percentages with 95% confidence intervals (CIs) for all characteristics. We calculated prevalence ratios (PRs) with predicted marginal means and accompanying 95% CIs to compare differences in characteristics and outcomes between transgender women and cisgender men, as well as between transgender women and

cisgender women. We highlighted differences for which the 95% CI does not cross the null and  $p$  values were  $<0.05$ . Among transgender women, associations between unmet needs for ancillary services and outcomes were reported using adjusted prevalence ratios (aPRs) controlling for race/ethnicity and age. We used SAS 9.4 (SAS Institute Inc., Cary, NC) and SAS-callable SUDAAN, version 11.0.3 (RTI International) for all analyses.

## Results

### Demographic characteristics and SDOH

Overall, 44.0% of transgender women with HIV were younger than 40 years (Table 1). Half of transgender women were Black (47.9%), and a third were Hispanic or Latino/a (32.1%). A quarter of transgender women had less than a high-school diploma (24.1%), and half of transgender women were currently unemployed (49.2%). Transgender women with diagnosed HIV were more likely to be younger or Hispanic/Latino than cisgender men or women with HIV (Table 1). Transgender women were also more likely to be Black than cisgender men, and less likely to be Black than cisgender women. Compared with cisgender men and women, transgender women were more likely to identify with a sexual orientation other than lesbian/gay, straight, or bisexual. Cisgender men were more likely to identify as gay, and cisgender women were significantly more likely to identify as straight, compared with transgender women.

Transgender women were more likely than cisgender men or women to receive assistance through the RWHAP or ADAP only or have no insurance coverage (18.2% vs. 10.5% and 10.0%, respectively), and have recent experiences with homelessness (21.3% vs. 8.7% and 8.0%), incarceration (10.0% vs. 5.0% and 2.8%), food insecurity (34.7% vs. 19.1% and 21.5%), or intimate partner violence (10.7% vs. 4.3% and 4.2%) or forced sex (4.4% vs. 1.1% and 1.3%; Table 1).

In addition, transgender women were more likely than cisgender men to be unemployed (PR: 1.26, 95% CI: 1.11–1.43) or live in a household at or below the federal poverty level (PR: 1.70, 95% CI: 1.53–1.90), and less likely to have more than a high school education (PR: 0.64; 95% CI: 0.55–0.75).

### Behavioral characteristics and clinical outcomes

Transgender women were significantly more likely to engage in binge drinking (PR: 1.51; 95% CI: 1.11–2.06) and noninjection drug use (PR: 1.87; 95% CI: 1.57–2.23) than cisgender women (Table 2). Transgender women were less likely to be 100% ART dose adherent, compared with cisgender men and cisgender women. Retention in care, viral suppression, and the prevalence of emergency room (ER) visits and hospitalizations were similar between groups. Transgender women were more likely to experience symptoms of moderate or severe GAD (PR: 1.47; 95% CI: 1.18–1.83) or major or other depression (PR: 1.38; 95% CI: 1.12–1.71) than cisgender men.

### Unmet needs for ancillary services

Overall, 51.3% of transgender women with HIV had 1 unmet need for an ancillary service; 15.2% had 1 unmet need for an HIV support service, 32.1% had 1 unmet need for a non-HIV clinical service, and 34.3% had 1 unmet need for a subsistence service (Table 3). Among transgender women, the most reported unmet need for ancillary services was for dental care (24.9%), followed by shelter or housing (13.9%), transportation assistance (12.6%), SNAP or WIC services (11.9%), and meal or food services (11.3%).

There were no significant differences between transgender women, cisgender women, or cisgender men in need for HIV support services or non-HIV clinical services. However, unmet needs for 1 subsistence service were higher among transgender women than for cisgender men (PR: 1.46; 95% CI: 1.23–1.73), including for transportation (12.6% vs. 7.4%), shelter or housing services (13.9% vs. 9.6%), and meal or food services (11.3% vs. 7.1%; Table 3).

### Unmet needs for ancillary services and associations with clinical outcomes among transgender women

Even after adjusting for race/ethnicity and age, transgender women with HIV who had unmet needs for HIV support services were more likely to be ART nonadherent (adjusted prevalence ratios [aPR]: 1.28; 95% CI: 1.04–1.58; Table 4). Transgender women with unmet needs for subsistence needs were more likely to be ART nonadherent (aPR: 1.39; 95% CI: 1.13–1.70), not have sustained viral suppression (aPR: 1.47; 95% CI: 1.09–1.98), and more likely to have 1 ER visit (aPR: 1.42; 95% CI: 1.06–1.90). People with unmet needs for HIV support services, non-HIV clinical services, or subsistence services were more likely to have symptoms of moderate to severe GAD (aPR range: 2.35–3.20) or major or other depression (aPR range: 1.53–3.10).

## Discussion

Over half of transgender women with HIV had 1 unmet need for ancillary services, and transgender women with HIV were more likely to have unmet needs for subsistence services than cisgender men—likely a reflection of greater socioeconomic disadvantage. Unmet needs for subsistence services were strongly associated with clinical outcomes, including ART nonadherence, not achieving sustained viral suppression, and having 1 ER visit.

Food insecurity is significantly associated with suboptimal ART adherence, lower CD4 cell counts, and not achieving viral suppression.<sup>17–19</sup> Unemployment and underemployment drive food insecurity stress for transgender women; a qualitative study conducted with 20 transgender and gender-nonconforming individuals in the southeastern United States described barriers to food insecurity such as difficulty in finding and maintaining employment.<sup>20</sup>

Employment programs that help transgender women navigate all aspects of job-seeking, from identification and documentation support to salary negotiations, can assist transgender women in finding gainful employment. The San Francisco LGBT Center's Trans Employment Program offers employer services that include policy and medical benefit

reviews, trainings and panels, access to hiring, and network events. This type of technical assistance can help foster inclusive, supportive work environments, in turn helping transgender women maintain employment. Communities that invest in such employment programs may subsequently contribute to improvements in food security.

Spaces that provide safe access to nutritional food are also important, as transgender women's experiences with trauma and physical violence are known barriers to accessing food.<sup>20</sup> Transgender women have described the stress of having to choose between paying for food and paying for gender-affirming hormone treatment (GAHT),<sup>20</sup> and when forced to choose will prioritize GAHT over other unmet needs, including HIV care.<sup>21</sup> The absence of gender-affirming health care can also lead to culturally insensitive interactions, medical mistrust, and avoidance of engaging in the health care system, which in turn can diminish viral suppression and mental health.<sup>21</sup> Transgender women have expressed support for microeconomic interventions that provide unrestricted vouchers that could be used on unmet needs, including gender-affirming care.<sup>22</sup>

Housing and transportation both emerged as unmet subsistence needs that were particularly prevalent among transgender women with HIV. Housing instability is associated with poor physical and mental health outcomes, including chronic conditions, stress, and sleeplessness.<sup>23,24</sup> Among PWH specifically, unstable housing is associated with lower levels of retention in HIV care, ART dose adherence, and viral suppression.<sup>25</sup> Transgender women living with HIV experience particularly high levels of housing instability, complicated by housing discrimination and harassment.<sup>26–28</sup>

Transportation can be a substantial barrier to attending HIV care appointments.<sup>29–31</sup> In recent qualitative findings among MMP respondents who were out of HIV care, transportation emerged as the “most salient” facilitator in attending one's HIV care appointments.<sup>32</sup> Socioeconomic disadvantage lies at the heart of all of these subsistence barriers, further complicated by lack of employment and mental health issues. Addressing these disadvantages by ensuring funding for safety-net programs is directed appropriately according to local needs and involving transgender women in the design of solutions for subsistence needs may help improve health outcomes and well-being among transgender women with HIV.

One in 4 transgender women with HIV had an unmet need for dental care, the most prevalent unmet need for all PWH.<sup>11</sup> For PWH, routine dental care reduces the risk of opportunistic infections in this immunocompromised population and ensures ease when swallowing ART medications, improving the chance for treatment adherence.<sup>33</sup> Barriers to dental care include anxiety and fear around receiving dental care, cumbersome administrative procedures, long wait times, transportation challenges, and provider discrimination and reluctance to treat PWH.<sup>33,34</sup>

Among transgender people, fear and anxiety around receiving dental care were associated with fear and experiences of maltreatment and discrimination.<sup>35</sup> Substantial room for improvement exists in dental care, which may be achieved through antidiscrimination and cultural sensitivity trainings, and engaging with local LGBTQ+ advocacy organizations.

Quality patient–provider relationships can improve care experiences for PWH and clinical outcomes such as ART adherence and viral suppression.<sup>36</sup>

Although transgender women with HIV were disproportionately affected by SDOH and less likely to be ART adherent than cisgender persons, retention in care and both recent and sustained viral suppressions were comparable between groups. Much of the narrative surrounding transgender women’s health often focuses on obstacles and negative health outcomes; the lack of disparity in outcomes despite differences in SDOH should be highlighted and may, in part, be attributed to transgender women’s resilience.<sup>37</sup>

The National HIV/AIDS Strategy calls for the development of “whole-person systems of care” that go beyond a focus on viral load management and address intersecting SDOH so that full potential for health and well-being can be achieved.<sup>6,38</sup> A group of nine RWHAP-funded demonstration projects aimed at improving HIV care engagement among transgender women had promising outcomes such as viral suppression and engagement in HIV care. Notably, these interventions often addressed SDOH, going beyond addressing HIV care alone.<sup>39</sup>

### Limitations

Our findings are subject to at least five limitations. First, self-reported data collected during MMP interviews are subject to recall and social desirability bias, particularly around sensitive topics such as sexual behavior, substance use, physical violence by an intimate partner, and forced sex, and may be subject to underreporting. Second, not all sampled persons participated in MMP; however, standard methodology adjusts results for nonresponse.<sup>13</sup> Also, MMP’s response rate dropped from 45% in the 2019 cycle to 40% in the 2020 cycle; this decrease was, in part, due to the COVID-19 pandemic; however, data were adjusted for nonresponse and poststratified to totals from the National HIV Surveillance System by age, race/ethnicity, and sex at birth, which should reduce nonresponse bias.

The definition for binge drinking used by MMP is useful for measuring binge drinking across a group as a whole and may not be an appropriate cutoff for an individual depending on physiological changes due to GAHT. More studies are needed to explore this further.<sup>40</sup> Finally, causal associations and directionality between unmet needs for ancillary services and clinical outcomes cannot be assessed due to the cross-sectional study design.

### Conclusions

Unmet needs for ancillary services among transgender women living with HIV were associated with adverse clinical outcomes. Addressing unmet needs is an essential step for improving care outcomes among transgender women with HIV. Involving transgender women in the design and implementation of interventions that address SDOH may improve retention in care, viral suppression, and overall health and well-being for transgender women living with HIV.



## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

COMPARISON OF DEMOGRAPHIC CHARACTERISTICS AND SOCIAL DETERMINANTS OF HEALTH AMONG ADULTS WITH DIAGNOSED HIV BETWEEN THOSE WHO IDENTIFIED AS TRANSGENDER WOMEN VERSUS CISGENDER MEN OR CISGENDER WOMEN—MEDICAL MONITORING PROJECT, UNITED STATES, 2015–2020 (N= 23,697)

	Transgender women (n = 362)		Cisgender men (n = 17,319)		Cisgender women (n = 6016)		Comparison of transgender women with cisgender men		Comparison of transgender women with cisgender women	
	n	col % (95% CI)	n	col % (95% CI)	n	col % (95% CI)	Prevalence ratio (95% CI)	p	Prevalence ratio (95% CI)	p
Age, in years										
18–29	63	19.0 (14.0–24.1)	1483	9.0 (8.3–9.8)	370	6.6 (5.8–7.4)	2.11 (1.61–2.76)	<0.001	2.89 (2.16–3.88)	<0.001
30–39	89	25.0 (19.8–30.2)	2860	17.0 (16.4–17.7)	872	16.3 (15.1–17.5)	1.47 (1.19–1.81)	0.003	1.53 (1.24–1.91)	0.001
40–49	83	25.1 (19.7–30.5)	3624	21.5 (20.6–22.3)	1493	26.6 (25.3–27.9)	1.17 (0.94–1.46)	0.200	0.94 (0.76–1.18)	0.594
50	127	30.9 (25.1–36.7)	9352	52.5 (51.3–53.6)	3281	50.6 (49.1–52.0)	0.59 (0.49–0.71)	<0.001	0.61 (0.51–0.74)	<0.001
Race/ethnicity										
Black, non-Hispanic	173	47.9 (41.1–54.7)	6126	35.5 (31.9–39.1)	3580	59.0 (55.0–63.0)	1.35 (1.18–1.54)	<0.001	0.81 (0.72–0.92)	<0.001
Hispanic/Latino/a <sup>a</sup>	111	32.1 (25.7–38.6)	3973	23.6 (20.6–26.6)	1183	18.8 (15.0–22.6)	1.36 (1.13–1.64)	0.004	1.71 (1.38–2.12)	<0.001
White, non-Hispanic	38	9.6 (5.9–13.4)	6054	33.9 (31.4–36.4)	885	16.1 (14.3–17.9)	0.28 (0.20–0.41)	<0.001	0.60 (0.41–0.87)	<0.001
Other	40	10.3 (7.1–13.6)	1166	7.0 (6.3–7.8)	368	6.1 (5.2–6.9)	1.47 (1.08–2.01)	0.041	1.69 (1.21–2.37)	0.012
Sexual orientation										
Lesbian or gay	107	32.5 (25.9–39.1)	9698	55.7 (54.2–57.2)	95	1.4 (1.1–1.7)	0.58 (0.48–0.72)	<0.001	23.31 (17.26–31.47)	<0.001
Straight (i.e., not gay)	136	37.0 (30.8–43.2)	5267	31.2 (29.7–32.6)	5580	93.7 (93.0–94.4)	1.19 (0.99–1.41)	0.078	0.39 (0.33–0.47)	<0.001
Bisexual	29	7.9 (4.0–11.8)	1720	10.3 (9.7–10.9)	249	4.2 (3.6–4.8)	0.77 (0.47–1.26)	0.231	1.89 (1.12–3.20)	0.067
Something else	83	22.6 (17.5–27.8)	466	2.8 (2.5–3.2)	44	0.7 (0.4–1.0)	8.01 (6.22–10.32)	<0.001	31.75 (19.65–51.32)	<0.001
Education										
Less than high school	89	24.1 (19.1–29.2)	2294	13.3 (12.6–14.1)	1689	27.5 (26.2–28.9)	1.81 (1.46–2.24)	<0.001	0.88 (0.71–1.08)	0.194
High school diploma or equivalent	134	35.8 (30.3–41.2)	4141	24.2 (23.3–25.2)	1850	30.8 (29.3–32.2)	1.48 (1.25–1.73)	<0.001	1.16 (0.99–1.36)	0.083
More than high school	137	40.1 (34.2–46.1)	10,816	62.4 (61.2–63.7)	2456	41.7 (40.1–43.3)	0.64 (0.55–0.75)	<0.001	0.96 (0.83–1.12)	0.616
Employment status										
Employed	156	44.7 (38.5–50.8)	8410	49.1 (48.2–50.0)	2413	41.8 (40.3–43.4)	0.91 (0.79–1.05)	0.161	1.07 (0.92–1.23)	0.384
Unemployed	179	49.2 (43.0–55.4)	6774	39.1 (38.2–40.1)	3092	50.8 (49.1–52.4)	1.26 (1.11–1.43)	0.001	0.97 (0.85–1.10)	0.634
Student <sup>b</sup>	—	—	275	1.7 (1.5–2.0)	87	1.5 (1.1–1.9)	1.37 (0.66–2.85)	0.464	1.56 (0.73–3.32)	0.343

	Transgender women (n = 362)			Cisgender men (n = 17,319)			Cisgender women (n = 6016)			Comparison of transgender women with cisgender men		Comparison of transgender women with cisgender women	
	n	col % (95% CI)	n	col % (95% CI)	n	col % (95% CI)	n	col % (95% CI)	Prevalence ratio (95% CI)	p	Prevalence ratio (95% CI)	p	
Retired	17	3.8 (1.9–5.6)	1778	10.0 (9.4–10.7)	394	5.9 (5.2–6.6)	0.38 (0.23–0.62)	<0.001	0.64 (0.39–1.05)	0.031			
Health insurance coverage, past 12 months													
Private	79	24.5 (18.8–30.1)	6807	39.4 (38.1–40.7)	1420	24.7 (23.1–26.3)	0.62 (0.50–0.78)	<0.001	0.99 (0.79–1.25)	0.938			
Any public, excluding RWHAP/ADAP only	223	57.4 (50.1–64.6)	8745	50.1 (48.4–51.8)	4032	65.3 (63.3–67.4)	1.15 (1.02–1.29)	0.035	0.88 (0.78–0.99)	0.027			
RWHAP/ADAP only or no coverage	56	18.2 (12.5–23.8)	1543	10.5 (9.3–11.7)	483	10.0 (8.4–11.5)	1.73 (1.30–2.30)	0.004	1.82 (1.33–2.49)	0.003			
Poverty threshold (based on DHHS Poverty Guidelines), past 12 months													
Above poverty threshold	117	39.3 (32.8–45.8)	10,308	64.3 (62.9–65.8)	2138	40.4 (38.0–42.7)	—	—	—	—			
At or below poverty threshold	210	60.7 (54.2–67.2)	5782	35.7 (34.2–37.1)	3307	59.6 (57.3–62.0)	1.70 (1.53–1.90)	<0.001	1.02 (0.91–1.14)	0.746			
Homelessness, past 12 months													
Yes	80	21.3 (16.6–26.0)	1555	8.7 (8.2–9.3)	480	8.0 (7.1–8.8)	2.44 (1.95–3.05)	<0.001	2.67 (2.10–3.41)	<0.001			
No	280	78.7 (74.0–83.4)	15,709	91.3 (90.7–91.8)	5519	92.0 (91.2–92.9)	—	—	—	—			
Incarcerated 1 time for >24 hours, past 12 months													
Yes	38	10.0 (6.8–13.2)	833	5.0 (4.6–5.5)	156	2.8 (2.2–3.4)	2.00 (1.44–2.76)	0.002	3.55 (2.45–5.14)	<0.001			
No	322	90.0 (86.8–93.2)	16,424	95.0 (94.5–95.4)	5838	97.2 (96.6–97.8)	—	—	—	—			
Experienced food insecurity, past 12 months													
Yes	130	34.7 (28.5–40.9)	3257	19.1 (18.3–19.9)	1273	21.5 (20.2–22.7)	1.82 (1.51–2.18)	<0.001	1.62 (1.34–1.94)	<0.001			
No	229	65.3 (59.1–71.5)	14,004	80.9 (80.1–81.7)	4716	78.5 (77.3–79.8)	—	—	—	—			
Lifetime intimate partner violence <sup>c</sup>													
Yes	123	31.9 (26.5–37.3)	3955	23.2 (22.1–24.3)	2053	35.2 (33.5–36.9)	1.38 (1.16–1.64)	0.002	0.91 (0.77–1.07)	0.237			
No	230	68.1 (62.7–73.5)	13,137	76.8 (75.7–77.9)	3853	64.8 (63.1–66.5)	—	—	—	—			
Intimate partner violence, past 12 months													
Yes	37	10.7 (7.1–14.4)	709	4.3 (3.9–4.6)	237	4.2 (3.5–4.9)	2.52 (1.77–3.59)	<0.001	2.56 (1.74–3.76)	<0.001			
No	316	89.3 (85.6–92.9)	16,381	95.7 (95.4–96.1)	5667	95.8 (95.1–96.5)	—	—	—	—			
Lifetime forced sex <sup>d</sup>													
Yes	109	29.7 (24.5–34.8)	2411	13.8 (13.0–14.7)	1445	25.0 (23.4–26.6)	2.15 (1.80–2.56)	<0.001	1.19 (0.99–1.42)	0.079			
No	240	70.3 (65.2–75.5)	14,668	86.2 (85.3–87.0)	4446	75.0 (73.4–76.6)	—	—	—	—			

	Transgender women (n = 362)		Cisgender men (n = 17,319)		Cisgender women (n = 6016)		Comparison of transgender women with cisgender men		Comparison of transgender women with cisgender women	
	n	col % (95% CI)	n	col % (95% CI)	n	col % (95% CI)	Prevalence ratio (95% CI)	p	Prevalence ratio (95% CI)	p
Forced sex, past 12 months										
Yes	16	4.4 (1.9–6.9)	189	1.1 (0.9–1.3)	76	1.3 (0.9–1.6)	3.90 (2.15–7.10)	0.011	3.49 (1.84–6.63)	0.016
No	332	95.6 (93.1–98.1)	16,887	98.9 (98.7–99.1)	5815	98.7 (98.4–99.1)	—	—	—	—

Frequencies are unweighted. Percentages are weighted. Confidence intervals incorporate weighted percentages.

<sup>a</sup>Hispanics or Latino/as can be of any race. Respondents are classified in only one race/ethnicity category.

<sup>b</sup>The estimate for students was excluded for transgender women due to a coefficient of variation 0.30.

<sup>c</sup>Intimate partner violence is defined as having been “slapped, punched, shoved, kicked, choked, or otherwise physically hurt by a romantic or sexual partner”.

<sup>d</sup>Forced sex is defined as “threatened with harm or forced to have unwanted vaginal, anal, or oral sex.”

ADAP, AIDS Drug Assistance Program; CI, confidence interval; RWHAP, Ryan White HIV/AIDS Program.

**Table 2.**

COMPARISON OF SUBSTANCE USE AND CLINICAL OUTCOMES AMONG ADULTS WITH DIAGNOSED HIV BETWEEN THOSE WHO IDENTIFIED AS TRANSGENDER WOMEN VERSUS CISGENDER MEN OR CISGENDER WOMEN—MEDICAL MONITORING PROJECT, UNITED STATES, 2015–2020 (N= 23,697)

	Transgender women (n = 362)		Cisgender men (n = 17,319)		Cisgender women (n = 6016)		Comparison of transgender women with cisgender men		Comparison of transgender women with cisgender women	
	n	col % (95% CI)	n	col % (95% CI)	n	col % (95% CI)	Prevalence ratio (95% CI)	p	Prevalence ratio (95% CI)	p
Substance use										
Binge drinking										
Yes	52	15.3 (10.8–19.8)	2991	17.4 (16.5–18.3)	604	10.1 (9.2–11.1)	0.88 (0.65–1.19)	0.374	1.51 (1.11–2.06)	0.028
No	298	84.7 (80.2–89.2)	14,108	82.6 (81.7–83.5)	5326	89.9 (88.9–90.8)	1.03 (0.97–1.08)	—	—	—
Noninjection drug use										
Yes	135	35.6 (30.0–41.3)	6115	35.0 (33.7–36.2)	1111	19.0 (17.6–20.5)	1.02 (0.87–1.20)	0.821	1.87 (1.57–2.23)	<0.001
No	222	64.4 (58.7–70.0)	11,030	65.0 (63.8–66.3)	4839	81.0 (79.5–82.4)	0.99 (0.90–1.08)	—	—	—
Clinical outcomes										
Retention in care										
Yes	292	79.3 (73.6–85.0)	13,875	77.8 (76.6–78.9)	4882	78.1 (76.5–79.8)	1.02 (0.95–1.10)	—	—	—
No	53	20.7 (15.0–26.4)	2695	22.2 (21.1–23.4)	930	21.9 (20.2–23.5)	0.93 (0.71–1.23)	0.608	0.95 (0.72–1.25)	0.697
ART use and adherence										
Not currently taking ART or not 100% adherent	203	57.2 (51.5–63.0)	7192	43.3 (42.3–44.3)	2555	45.1 (43.5–46.7)	1.32 (1.19–1.46)	<0.001	1.27 (1.14–1.41)	<0.001
100% adherent to ART	154	42.8 (37.0–48.5)	9977	56.7 (55.7–57.7)	3397	54.9 (53.3–56.5)	0.75 (0.66–0.86)	—	—	—
Viral suppression at last test, past 12 months <sup>a</sup>										
Yes	259	66.8 (60.8–72.8)	12,974	69.0 (67.4–70.7)	4319	66.6 (64.7–68.6)	0.97 (0.89–1.06)	—	—	—
No	103	33.2 (27.2–39.2)	4345	31.0 (29.3–32.6)	1697	33.4 (31.4–35.3)	1.07 (0.90–1.28)	0.455	1.00 (0.83–1.20)	0.966
Sustained viral suppression, past 12 months <sup>b</sup>										
Yes	233	61.0 (55.0–67.1)	11,768	62.8 (61.3–64.4)	3854	60.0 (58.1–61.9)	0.97 (0.88–1.07)	—	—	—
No	129	39.0 (32.9–45.0)	5551	37.2 (35.6–38.7)	2162	40.0 (38.1–41.9)	1.05 (0.90–1.23)	0.565	0.97 (0.83–1.14)	0.738
1 Emergency room visit, past 12 months										
Yes	158	40.7 (34.7–46.6)	6475	37.6 (36.5–38.6)	2636	43.7 (41.8–45.6)	1.08 (0.93–1.26)	0.318	0.93 (0.80–1.08)	0.339
No	200	59.3 (53.4–65.3)	10,746	62.4 (61.4–63.5)	3327	56.3 (54.4–58.2)	0.95 (0.86–1.05)	—	—	—

	Transgender women (n = 362)		Cisgender men (n = 17,319)		Cisgender women (n = 6016)		Comparison of transgender women with cisgender men		Comparison of transgender women with cisgender women	
	n	col % (95% CI)	n	col % (95% CI)	n	col % (95% CI)	Prevalence ratio (95% CI)	p	Prevalence ratio (95% CI)	p
1 Hospitalization, past 12 months										
Yes	68	17.5 (12.8–22.2)	2942	16.4 (15.7–17.1)	1345	21.6 (20.3–22.9)	1.07 (0.81–1.40)	0.658	0.81 (0.62–1.07)	0.101
No	289	82.5 (77.8–87.2)	14,278	83.6 (82.9–84.3)	4617	78.4 (77.1–79.7)	0.99 (0.93–1.05)	—	—	—
Symptoms of moderate or severe GAD, past 2 weeks <sup>c</sup>										
Yes	86	22.4 (17.4–27.4)	2533	15.3 (14.4–16.1)	1139	19.2 (17.7–20.7)	1.47 (1.18–1.83)	0.004	1.17 (0.94–1.46)	0.202
No	268	77.6 (72.6–82.6)	14,603	84.7 (83.9–85.6)	4792	80.8 (79.3–82.3)	0.92 (0.86–0.98)	—	—	—
Symptoms of major/other depression, past 2 weeks <sup>d</sup>										
Yes	89	23.9 (18.8–29.1)	2913	17.3 (16.5–18.1)	1335	22.6 (21.1–24.0)	1.38 (1.12–1.71)	0.010	1.06 (0.87–1.30)	0.580
No	264	76.1 (70.9–81.2)	14,173	82.7 (81.9–83.5)	4577	77.4 (76.0–78.9)	0.92 (0.86–0.98)	—	—	—

Frequencies are unweighted. Percentages are weighted. Confidence intervals incorporate weighted percentages.

<sup>a</sup>Defined as the most recent viral load documented as undetectable or <200 copies/mL.

<sup>b</sup>Defined as all viral loads in the past 12 months documented as undetectable or <200 copies/mL.

<sup>c</sup>Responses to the GAD-7 were used to define “mild anxiety,” “moderate anxiety,” and “severe anxiety,” according to the criteria from the DSM-IV. “Severe anxiety” was defined as having a score of 15; “moderate anxiety” was defined as having a score of 10–14; and “mild anxiety” was defined as having a score of 5–9.

<sup>d</sup>Responses to the items on PHQ-8 were used to define “major depression” and “other depression” according to the criteria from the DSM-IV. “Major depression” was defined as having at least five symptoms of depression; “other depression” was defined as having two to four symptoms of depression. The PHQ-8 classification of “other depression” comprises the DSM-IV categories of dysthymia and depressive disorder, not otherwise specified, which include minor or subthreshold depression.

ART, antiretroviral therapy; GAD, generalized anxiety disorder; PHQ, Patient Health Questionnaire.



Table 3.

COMPARISON OF UNMET NEEDS FOR ANCILLARY SERVICES AMONG ADULTS WITH DIAGNOSED HIV BETWEEN THOSE WHO IDENTIFIED AS TRANSGENDER WOMEN VERSUS CISGENDER MEN OR CISGENDER WOMEN—MEDICAL MONITORING PROJECT, UNITED STATES, 2015–2020 (N=23,697)

	Transgender women (n = 362)			Cisgender men (n = 17,319)			Cisgender women (n = 6016)			Comparison of transgender women with cisgender men		Comparison of transgender women with cisgender women	
	n	col % (95% CI)	n	col % (95% CI)	n	col % (95% CI)	n	col % (95% CI)	Prevalence ratio (95% CI)	p	Prevalence ratio (95% CI)	p	
Any ancillary care services <sup>a</sup>													
Yes	190	51.3 (44.8–57.7)	7699	45.8 (44.7–46.9)	3038	52.6 (50.5–54.6)			1.12 (0.99–1.27)	0.095	0.98 (0.86–1.11)	0.695	
No	169	48.7 (42.3–55.2)	9506	54.2 (53.1–55.3)	2934	47.4 (45.4–49.5)			—	—	—	—	
HIV support services													
Any HIV support services													
Yes	58	15.2 (10.9–19.6)	2558	16.3 (15.5–17.1)	1037	18.6 (17.2–20.0)			0.94 (0.70–1.24)	0.635	0.82 (0.61–1.10)	0.144	
No	301	84.8 (80.4–89.1)	14,507	83.7 (82.9–84.5)	4885	81.4 (80.0–82.8)			—	—	—	—	
HIV case management services													
Yes	26	7.1 (4.0–10.1)	994	6.6 (6.1–7.2)	463	8.7 (7.6–9.7)			1.07 (0.69–1.66)	0.785	0.82 (0.52–1.29)	0.350	
No	331	92.9 (89.9–96.0)	16,156	93.4 (92.8–93.9)	5489	91.3 (90.3–92.4)			—	—	—	—	
Patient navigation services													
Yes	18	5.1 (2.4–7.8)	741	4.8 (4.3–5.3)	338	6.0 (5.3–6.8)			1.06 (0.63–1.79)	0.833	0.84 (0.50–1.42)	0.485	
No	338	94.9 (92.2–97.6)	16,400	95.2 (94.7–95.7)	5612	94.0 (93.2–94.7)			—	—	—	—	
HIV peer group support													
Yes	27	6.4 (3.6–9.3)	1148	6.9 (6.4–7.5)	452	7.8 (6.8–8.7)			0.92 (0.60–1.43)	0.707	0.83 (0.53–1.30)	0.371	
No	330	93.6 (90.7–96.4)	15,982	93.1 (92.5–93.6)	5495	92.2 (91.3–93.2)			—	—	—	—	
Non-HIV clinical services													
Any non-HIV support services													
Yes	123	32.1 (26.4–37.9)	4841	29.3 (28.3–30.3)	1730	30.2 (28.6–31.8)			1.10 (0.92–1.31)	0.338	1.06 (0.88–1.28)	0.521	
No	234	67.9 (62.1–73.6)	12,339	70.7 (69.7–71.7)	4234	69.8 (68.2–71.4)			—	—	—	—	
Dental care													
Yes	95	24.9 (19.5–30.3)	3719	22.9 (22.0–23.9)	1386	24.7 (23.2–26.1)			1.09 (0.87–1.35)	0.479	1.01 (0.80–1.27)	0.935	
No	262	75.1 (69.7–80.5)	13,466	77.1 (76.1–78.0)	577	75.3 (73.9–76.8)			—	—	—	—	
Mental health services													
Yes	26	6.5 (3.8–9.1)	1448	8.7 (8.1–9.3)	518	9.1 (8.1–10.0)			0.74 (0.49–1.13)	0.106	0.71 (0.47–1.07)	0.057	

	Transgender women (n = 362)			Cisgender men (n = 17,319)			Cisgender women (n = 6016)			Comparison of transgender women with cisgender men		Comparison of transgender women with cisgender women	
	n	col % (95% CI)	n	col % (95% CI)	n	col % (95% CI)	n	col % (95% CI)	Prevalence ratio (95% CI)	p	Prevalence ratio (95% CI)	p	
No	330	93.5 (90.9–96.2)	15,703	91.3 (90.7–91.9)	5433	90.9 (90.0–91.9)							
Subsistence services													
Any subsistence services													
Yes	128	34.3 (28.3–40.4)	3999	23.6 (22.5–24.6)	1821	31.5 (29.9–33.2)		1.46 (1.23–1.73)		<0.001		1.09 (0.92–1.29)	
No	229	65.7 (59.6–71.7)	13,174	76.4 (75.4–77.5)	4139	68.5 (66.8–70.1)							
Transportation assistance													
Yes	46	12.6 (8.7–16.4)	1237	7.4 (6.8–7.9)	521	8.9 (8.0–9.8)		1.71 (1.24–2.34)		0.009		1.41 (1.04–1.91)	
No	311	87.4 (83.6–91.3)	15,945	92.6 (92.1–93.2)	5445	91.1 (90.2–92.0)							
Shelter or housing services													
Yes	51	13.9 (9.9–18.0)	1632	9.6 (8.9–10.3)	812	14.0 (12.7–15.2)		1.46 (1.09–1.95)		0.033		1.00 (0.74–1.34)	
No	306	86.1 (82.0–90.1)	15,546	90.4 (89.7–91.1)	5145	86.0 (84.8–87.3)							
SNAP or WIC													
Yes	48	11.9 (7.6–16.2)	1915	11.4 (10.7–12.0)	689	12.0 (10.8–13.2)		1.05 (0.73–1.50)		0.809		0.99 (0.70–1.41)	
No	309	88.1 (83.8–92.4)	15,262	88.6 (88.0–89.3)	5271	88.0 (86.8–89.2)							
Meal or food services <sup>b</sup>													
Yes	47	11.3 (7.7–15.0)	1207	7.1 (6.6–7.7)	599	10.2 (9.3–11.1)		1.59 (1.14–2.20)		0.025		1.11 (0.81–1.53)	
No	310	88.7 (85.0–92.3)	15,968	92.9 (92.3–93.4)	5361	89.8 (88.9–90.7)							
Total unmet needs													
0 unmet needs	169	48.7 (42.3–55.2)	9506	54.2 (53.1–55.3)	2934	47.4 (45.4–49.5)		0.90 (0.79–1.03)		0.095		1.03 (0.90–1.17)	
1 unmet need	79	24.3 (18.7–29.9)	3952	23.0 (22.1–23.8)	1499	25.7 (24.3–27.2)		1.06 (0.84–1.33)		0.649		0.94 (0.74–1.20)	
2 unmet needs	53	12.8 (9.1–16.4)	1816	10.8 (10.3–11.4)	751	12.9 (11.8–14.1)		1.18 (0.89–1.57)		0.294		0.99 (0.74–1.32)	
3 unmet needs	58	14.2 (10.0–18.4)	1931	12.1 (11.3–12.8)	788	13.9 (12.7–15.1)		1.18 (0.88–1.59)		0.309		1.03 (0.76–1.39)	

Frequencies are unweighted. Percentages are weighted. Confidence intervals incorporate weighted percentages. HIV support services included HIV case management services, ART adherence support services, medicines provided through the ADAP, patient navigation services, and HIV peer group support. Non-HIV clinical services included dental care, drug or alcohol counseling or treatment, mental health services, and domestic violence services. Subsistence services included transportation assistance, shelter or housing services, the SNAP or the Special Supplemental Nutrition Program for Women, Infants, and Children, and meal or food services.

<sup>a</sup>Excluded are estimates with a coefficient of variation 0.30: Professional help remembering to take medications on time or correctly (adherence support services), medicine through ADAP, drug or alcohol counseling or treatment, and domestic violence services.

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Includes services such as soup kitchens, food pantries, food banks, church dinners, or food delivery services.<sup>g</sup>

SNAP, Supplemental Nutrition Assistance Program; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children.

**Table 4.**

ASSOCIATIONS BETWEEN UNMET NEEDS FOR ANCILLARY SERVICES AND CLINICAL OUTCOMES AMONG TRANSGENDER WOMEN WITH DIAGNOSED HIV—MEDICAL MONITORING PROJECT, UNITED STATES, 2015–2020 (N= 362)

	I Unmet HIV support service						I Unmet non-HIV clinical service						I Unmet subsistence services								
	Yes			No			Yes			No			Yes			No					
	n	col % (95% CI)	Adjusted prevalence ratio (95% CI)	p	n	col % (95% CI)	Adjusted prevalence ratio (95% CI)	p	n	col % (95% CI)	Adjusted prevalence ratio (95% CI)	p	n	col % (95% CI)	Adjusted prevalence ratio (95% CI)	p	n	col % (95% CI)	Adjusted prevalence ratio (95% CI)	p	
<b>Retention in care<sup>a</sup></b>																					
Yes	44	71.5 (56.7–86.3)	80.8 (74.5–87.1)	—	104	80.7 (70.0–91.3)	78.6 (71.6–85.6)	—	105	74.4 (64.2–84.5)	—	184	82.0 (75.2–88.8)	—	—	—	—	—	—	—	
No	12	28.5 (13.7–43.3)	1.34 (0.67–2.68)	0.451	14	19.3 (8.7–30.0)	21.4 (14.4–28.4)	0.499	20	25.6 (15.5–35.8)	0.81 (0.43–1.52)	31	18.0 (11.2–24.8)	1.36 (0.76–2.45)	0.316	—	—	—	—	—	—
<b>ART use and adherence</b>																					
Not currently taking ART or not 100% adherent	40	72.1 (59.6–84.6)	54.5 (48.2–60.9)	0.026	77	66.9 (56.9–77.0)	52.8 (45.9–59.7)	0.057	90	71.9 (63.1–80.6)	1.23 (1.00–1.50)	113	49.7 (42.1–57.3)	1.39 (1.13–1.70)	0.002	—	—	—	—	—	—
100% adherent to ART	18	27.9 (15.4–40.4)	45.5 (39.1–51.8)	—	45	33.1 (23.0–43.1)	47.2 (40.3–54.1)	—	38	28.1 (19.4–36.9)	—	115	50.3 (42.7–57.9)	—	—	—	—	—	—	—	—
<b>Viral suppression at last test, past 12 months<sup>b</sup></b>																					
Yes	34	55.0 (39.4–70.7)*	69.2 (62.4–76.1)	—	84	63.1 (52.5–73.7)	70.0 (62.8–77.2)	—	83	57.9 (48.1–67.7)	—	175	73.0 (65.7–80.2)	—	—	—	—	—	—	—	—
No	24	45.0 (29.3–60.6)*	30.8 (23.9–37.6)	0.223	39	36.9 (26.3–47.5)	30.0 (22.8–37.2)	0.583	45	42.1 (32.3–51.9)	1.11 (0.78–1.58)	54	27.0 (19.8–34.3)	1.50 (1.05–2.12)	0.028	—	—	—	—	—	—
<b>Sustained viral suppression, past 12 months<sup>c</sup></b>																					
Yes	29	47.5 (32.6–62.4)	63.7 (56.8–70.6)	—	73	55.8 (45.4–66.2)	64.9 (57.5–72.2)	—	70	50.6 (41.2–60.0)	—	162	67.9 (60.4–75.3)	—	—	—	—	—	—	—	—
No	29	52.5 (37.6–67.4)	36.3 (29.4–43.2)	0.145	50	44.2 (33.8–54.6)	35.1 (27.8–42.5)	0.450	58	49.4 (40.0–58.8)	1.13 (0.83–1.53)	67	32.1 (24.7–39.6)	1.47 (1.09–1.98)	0.011	—	—	—	—	—	—

	I Unmet HIV support service				I Unmet non-HIV clinical service				I Unmet subsistence services						
	Yes	No			Yes	No			Yes	No					
	n	col % (95% CI)	n	Adjusted prevalence ratio (95% CI)	p	n	col % (95% CI)	n	Adjusted prevalence ratio (95% CI)	p	n	col % (95% CI)	n	Adjusted prevalence ratio (95% CI)	p
I Emergency room visit, past 12 months															
Yes	32	54.5 (40.7–68.4)	126	38.2 (31.4–44.9)	0.059	63	47.9 (37.4–58.4)	95	37.9 (30.9–44.9)	0.115	65	50.9 (40.1–61.6)	93	36.0 (29.0–43.0)	0.024
No	26	45.5 (31.6–59.3)	174	61.8 (55.1–68.6)	—	60	52.1 (41.6–62.6)	138	62.1 (55.1–69.1)	—	63	49.1 (38.4–59.9)	135	64.0 (57.0–71.0)	—
Hospitalized overnight 1 time, past 12 months															
Yes	16	26.7 (14.7–38.7)	52	15.9 (11.1–20.7)	0.078	24	19.2 (11.5–26.9)	44	17.0 (11.1–22.9)	0.598	28	22.0 (12.9–31.2)	40	15.4 (10.3–20.6)	0.174
No	41	73.3 (61.3–85.3)	248	84.1 (79.3–88.9)	—	97	80.8 (73.1–88.5)	190	83.0 (77.1–88.9)	—	99	78.0 (68.8–87.1)	188	84.6 (79.4–89.7)	—
Symptoms of moderate or severe GAD, past 2 weeks <sup>d</sup>															
Yes	31	53.2 (37.9–68.5)*	55	16.8 (12.1–21.6)	<0.001	46	36.7 (25.6–47.8)	40	15.7 (10.8–20.7)	<0.001	53	40.7 (30.7–50.8)	33	12.9 (8.2–17.7)	<0.001
No	26	46.8 (31.5–62.1)*	242	83.2 (78.4–87.9)	—	75	63.3 (52.2–74.4)	193	84.3 (79.3–89.2)	—	73	59.3 (49.2–69.3)	195	87.1 (82.3–91.8)	—
Symptoms of major/other depression, past 2 weeks <sup>e</sup>															
Yes	31	55.5 (40.8–70.3)	58	18.1 (13.6–22.6)	<0.001	38	31.2 (20.8–41.6)	51	20.5 (14.9–26.1)	0.063	47	40.2 (30.0–50.3)	42	15.5 (10.5–20.5)	<0.001
No	27	44.5 (29.7–59.2)	237	81.9 (77.4–86.4)	—	83	68.8 (58.4–79.2)	181	79.5 (73.9–85.1)	—	79	59.8 (49.7–70.0)	185	84.5 (79.5–89.5)	—

Frequencies are unweighted. Percentages are weighted. Confidence intervals incorporate weighted percentages. Estimates with an absolute CI width 30 and a relative CI width >130%, and estimates of 0% or 100% are marked with an asterisk (\*) and should be interpreted with caution. Prevalence ratios are adjusted for age and race/ethnicity.

<sup>a</sup> Retention in care: Two elements of outpatient HIV care (encounter with an HIV care provider, viral load test result, CD4 test result, HIV resistance test or tropism assay, ART prescription, pneumocystis pneumonia prophylaxis, or mycobacterium avium complex prophylaxis) at least 90 days apart in each 12-month period.

<sup>b</sup> Most recent viral suppression at last test was an undetectable viral load or <200 copies/mL. Viral load measurements are from medical record abstraction.

<sup>c</sup> Sustained viral suppression: All viral load measurements documented undetectable or <200 copies/mL. Viral load measurements are from medical record abstraction.

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Moderate or severe GAD: Responses to the GAD-7 were used to define "mild anxiety," "moderate anxiety," and "severe anxiety" according to the criteria from the DSM-IV. "Severe anxiety" was defined as having a score of 15; "moderate anxiety" was defined as having a score of 10-14; and "mild anxiety" was defined as having a score of 5-9.

Major or other depression: Responses to the items on PHQ-8 were used to define "major depression" and "other depression" according to the criteria from DSM-IV. "Major depression" was defined as having at least five symptoms of depression; "other depression" was defined as having two to four symptoms of depression. The PHQ-8 classification of "other depression" comprises the DSM-IV categories of dysthymia and depressive disorder, not otherwise specified, which include minor or subthreshold depression.