

# Characteristics of Transgender Women Living with HIV Receiving Medical Care in the United States

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## Abstract

**Purpose:** Little has been reported from population-based surveys on the characteristics of transgender persons living with HIV. Using Medical Monitoring Project (MMP) data, we describe the characteristics of HIV-infected transgender women and examine their care and treatment needs.

**Methods:** We used combined data from the 2009 to 2011 cycles of MMP, an HIV surveillance system designed to produce nationally representative estimates of the characteristics of HIV-infected adults receiving medical care in the United States, to compare demographic, behavioral, and clinical characteristics, and met and unmet needs for supportive services of transgender women with those of non-transgender persons using Rao-Scott chi-square tests.

**Results:** An estimated 1.3% of HIV-infected persons receiving care in the United States self-identified as transgender women. Transgender women were socioeconomically more marginalized than non-transgender men and women. We found no differences between transgender women and non-transgender men and women in the percentages prescribed antiretroviral therapy (ART). However, a significantly lower percentage of transgender women compared to non-transgender men had 100% ART dose adherence (78.4% vs. 87.4%) and durable viral suppression (50.8% vs. 61.4%). Higher percentages of transgender women needed supportive services. No differences were observed in receipt of most of supportive services, but transgender women had higher unmet needs than non-transgender men for basic services such as food and housing.

**Conclusion:** We found little difference between transgender women and non-transgender persons in regards to receipt of care, treatment, and most of supportive services. However, the noted disparities in durable viral suppression and unmet needs for basic services should be explored further.

**Key words:** HIV, Medical Monitoring Project (MMP), transgender women.

## Introduction

TRANSGENDER PERSONS ARE AT HIGH RISK for HIV infection. According to one systematic review, the prevalence of HIV among transgender women was 27.7% based on four U.S. studies in which the diagnosis was established using HIV testing.<sup>1</sup> Another systematic review that included international studies found that the pooled HIV prevalence was 19.1% in transgender women worldwide and their odds of HIV infection compared with all adults of reproductive age was 48.8.<sup>2</sup> Despite the concern that transgender women living with HIV may not engage in or adhere to HIV care and treatment due to stigma and discrimination or concerns about interaction between antiretroviral therapy (ART) and hormone therapy,<sup>3-5</sup> Yehia and colleagues<sup>6</sup> found that rates

of retention in care, ART prescription and HIV suppression among transgender persons living with HIV were not significantly different from their non-transgender counterparts in a retrospective cohort study of HIV-infected adults who initiated care at 13 HIV clinics in the HIV Research Network between 2001 and 2011.

Little has been reported on the characteristics of transgender persons living with HIV from population-based surveys. The Medical Monitoring Project (MMP) is a cross-sectional, population-based surveillance system that assesses clinical and behavioral characteristics among adults with HIV infection receiving outpatient medical care in the United States and Puerto Rico.<sup>7,8</sup> Using data from MMP, we provide nationally representative estimates of the characteristics of HIV-infected transgender women (male-to-female transgender

TABLE 1. DEMOGRAPHIC, BEHAVIORAL, AND CLINICAL CHARACTERISTICS OF HIV-INFECTED ADULTS RECEIVING MEDICAL CARE, BY TRANSGENDER STATUS — MEDICAL MONITORING PROJECT, UNITED STATES, 2009–2011

Characteristics <sup>1</sup>	Transgender Women (n = 166)		Non-Transgender Men (n = 9489)		Non-Transgender Women (n = 3512)		P Value <sup>2</sup>	P Value <sup>3</sup>
	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)		
<b>Mean Age in Years (95% CI)</b>		41.94 (39.77–44.12)		46.93 (46.58–47.27)		45.69 (45.16–46.22)	<b>.0000</b>	<b>.0016</b>
<b>Age (in years)</b>							<b>.0038</b>	<b>.0569</b>
18–24	6	5.7 (0.7–10.7)	243	2.7 (2.1–3.3)	108	3.1 (2.2–3.9)		
25–34	31	21.7 (14.5–28.9)	1006	10.9 (10.2–11.7)	455	13.0 (11.6–14.4)		
35–44	50	28.5 (20.9–36.0)	2263	23.9 (23.0–24.8)	973	27.6 (26.0–29.3)		
45–54	57	31.1 (23.4–38.7)	3790	39.5 (38.4–40.6)	1280	35.8 (33.9–37.7)		
55 +	22	13.0 (6.4–19.7)	2187	23.0 (21.9–24.0)	696	20.5 (19.0–22.0)		
<b>Race/Ethnicity</b>							<.0001	<.0001
White	23	13.0 (8.0–18.0)	3730	40.6 (34.7–46.5)	575	17.7 (14.9–20.4)		
Black or African American	70	44.9 (36.5–53.2)	3209	34.1 (27.6–40.6)	2113	60.5 (54.0–67.0)		
Hispanic or Latino	54	29.6 (22.6–36.5)	2064	20.0 (16.0–24.0)	703	18.0 (12.3–23.8)		
Other	19	12.6 (6.5–18.6)	486	5.3 (4.5–6.1)	121	3.8 (2.7–4.8)		
<b>Education</b>							<.0001	<b>.7664</b>
<High school	59	35.2 (26.4–44.0)	1682	17.0 (15.2–18.8)	1188	32.9 (31.0–34.8)		
High school diploma or equivalent	46	27.8 (20.2–35.4)	2408	25.2 (23.2–27.1)	1102	30.5 (28.7–32.4)		
>High school	61	37.0 (30.2–43.8)	5399	57.8 (54.5–61.1)	1219	36.6 (34.0–39.2)		
<b>Household Income (in \$)</b>							<.0001	<b>.0498</b>
<20,000	137	84.9 (78.3–91.4)	5693	59.9 (56.8–62.9)	2681	77.6 (75.1–80.0)		
20,000 to 39,999	12	7.7 (3.6–11.7)	1694	19.1 (17.5–20.8)	471	15.1 (13.4–16.7)		
≥40,000	10	7.5 (2.4–12.5)	1863	21.0 (18.9–23.1)	220	7.4 (5.8–8.9)		
<b>Poverty Level</b>							<.0001	<b>.4251</b>
Income above poverty level	56	33.1 (25.5–40.7)	5684	62.9 (60.0–65.8)	1131	36.4 (33.6–39.2)		
Income at or below poverty level	103	66.9 (59.3–74.5)	3566	37.1 (34.2–40.0)	2241	63.6 (60.8–66.4)		
<b>Homeless</b>							<b>.0004</b>	<b>.0005</b>
No	132	78.5 (71.4–85.6)	8700	91.9 (91.1–92.6)	3215	92.1 (91.1–93.2)		
Yes	34	21.5 (14.4–28.6)	788	8.1 (7.4–8.9)	296	7.9 (6.8–8.9)		
<b>Incarcerated</b>							<b>.3624</b>	<b>.1963</b>
No	153	92.0 (86.7–97.3)	8972	94.5 (93.7–95.2)	3353	95.5 (94.6–96.4)		
Yes	13	8.0 (2.7–13.3)	512	5.5 (4.8–6.3)	157	4.5 (3.6–5.4)		
<b>Had Health Insurance Coverage</b>							<b>.0303</b>	<b>.0073</b>
Uninsured	39	23.0 (16.5–29.4)	1423	15.2 (12.5–18.0)	457	13.7 (11.0–16.3)		
Insured	117	69.7 (62.3–77.1)	7640	79.8 (76.9–82.7)	2917	82.0 (79.2–84.9)		
Uninsured (Ryan White only)	10	7.3 (3.2–11.5)	409	4.9 (4.0–5.9)	135	4.3 (3.3–5.3)		
<b>Continuous Health Insurance Coverage</b>							<b>.0180</b>	<b>.0034</b>
Had continuous insurance	101	60.4 (53.0–67.8)	6767	70.7 (67.4–74.1)	2562	72.6 (69.4–75.8)		
Lapsed insurance	15	9.1 (4.1–14.2)	868	9.1 (8.1–10.0)	349	9.4 (8.2–10.6)		
No insurance	49	30.5 (23.1–37.9)	1832	20.2 (17.3–23.1)	592	18.0 (15.1–20.8)		

(continued)

TABLE 1. (CONTINUED)

Characteristics <sup>1</sup>	Transgender Women (n = 166)	Non-Transgender Men (n = 9489)	Non-Transgender Women (n = 3512)	P Value <sup>2</sup>	P Value <sup>3</sup>
<b>Current Smoker</b>					
No	91 52.4 (44.4–60.4)	5559 58.9 (57.2–60.6)	2071 59.4 (57.1–61.7)		<b>.1154</b>
Yes	75 47.6 (39.6–55.6)	3899 41.1 (39.4–42.8)	1421 40.6 (38.3–42.9)		<b>.1003</b>
<b>Binge Drinking Past 30 Days</b>					
No	135 82.4 (75.2–89.6)	7723 82.3 (81.5–83.2)	3109 89.6 (88.5–90.7)		<b>.0583</b>
Yes	29 17.6 (10.4–24.8)	1689 17.7 (16.8–18.5)	376 10.4 (9.3–11.5)		<b>.0004</b>
<b>Used Any Non-Injection or Injection Drug</b>					
No	113 67.1 (59.3–74.8)	6612 69.5 (67.7–71.4)	2874 82.0 (80.4–83.6)		<b>.0558</b>
Yes	53 32.9 (25.2–40.7)	2843 30.5 (28.6–32.3)	622 18.0 (16.4–19.6)		<b>.8966</b>
<b>Used Any Stimulant Drug<sup>4</sup></b>					
No	145 88.3 (83.5–93.1)	8350 88.7 (87.5–89.8)	3257 93.3 (92.3–94.3)		<b>&lt;.0001</b>
Yes	21 11.7 (6.9–16.5)	1102 11.3 (10.2–12.5)	238 6.7 (5.7–7.7)		<b>.0170</b>
<b>Had Oral, Vaginal or Anal Sex</b>					
No	86 56.8 (49.1–64.5)	3136 33.9 (32.3–35.4)	1617 47.3 (45.4–49.2)		<b>.1566</b>
Yes	77 43.2 (35.5–50.9)	6296 66.1 (64.6–67.7)	1867 52.7 (50.8–54.6)		<b>.9386</b>
<b>Had Condomless Vaginal or Anal Sex<sup>5</sup></b>					
No	119 74.3 (66.7–81.9)	6776 74.0 (72.0–76.0)	2766 80.0 (78.7–81.8)		<b>.2626</b>
Yes	40 25.7 (18.1–33.3)	2397 26.0 (24.0–28.0)	695 20.0 (18.2–21.7)		<b>.1343</b>
<b>Had Condomless Vaginal or Anal Sex with HIV-Negative or Unknown Status Partner<sup>6</sup></b>					
No	131 82.5 (74.6–90.4)	8084 88.6 (87.7–89.5)	3005 87.1 (85.7–88.6)		<b>.2511</b>
Yes	28 17.5 (9.6–25.4)	1055 11.4 (10.5–12.3)	454 12.9 (11.4–14.3)		<b>.1261</b>
<b>Depression in Past 2 Weeks</b>					
No depression	120 74.4 (67.1–81.6)	7362 77.9 (76.5–79.4)	2441 70.2 (67.9–72.4)		<b>.1290</b>
Other depression	17 9.6 (4.3–15.0)	1081 11.9 (11.1–12.7)	487 14.6 (13.3–16.0)		<b>.0649</b>
Major depression	28 16.0 (10.0–22.0)	943 10.2 (9.1–11.3)	525 15.2 (13.5–16.9)		<b>.7647</b>
<b>Time Since HIV Diagnosis</b>					
<5 years	39 28.6 (20.8–36.4)	2053 22.6 (21.3–23.9)	731 21.2 (19.4–23.0)		<b>.3750</b>
5–9 years	44 25.8 (18.0–33.6)	1973 20.5 (19.5–21.6)	874 25.5 (23.8–27.1)		
10+ years	83 45.6 (36.3–54.9)	5456 56.8 (55.0–58.6)	1904 53.3 (51.2–55.5)		
<b>Stage of Disease</b>					
AIDS or nadir CD4 0–199 or CD4 % < 14	113 67.8 (59.5–76.1)	6620 69.3 (68.3–70.3)	2362 66.8 (65.0–68.7)		
No AIDS and (nadir CD4 200–500 or CD4% 14– <29)	43 27.2 (19.3–35.1)	2272 24.7 (23.5–25.8)	870 24.9 (23.0–26.7)		
No AIDS and (nadir CD4 > 500 or CD4% ≥ 29)	10 5.0 (1.1–8.9)	561 6.0 (5.3–6.8)	269 8.3 (7.2–9.4)		
<b>Geometric Mean CD4 Count (cells/mm<sup>3</sup>)</b>					
0–199	24 16.4 (9.2–23.6)	1168 12.7 (11.8–13.6)	440 12.3 (11.0–13.6)		<b>.6670</b>
200–349	28 17.5 (10.9–24.0)	1637 17.8 (16.8–18.9)	516 15.2 (14.0–16.5)		
350–499	40 24.1 (17.6–30.7)	2153 24.0 (23.1–24.9)	744 22.1 (20.5–23.7)		
≥ 500	68 42.0 (34.0–50.1)	4121 45.5 (44.0–47.0)	1661 50.4 (48.4–52.4)		<b>.3252</b>

TABLE 1. (CONTINUED)

Characteristics <sup>1</sup>	Transgender Women (n = 166)		Non-Transgender Men (n = 9489)		Non-Transgender Women (n = 3512)		P Value <sup>2</sup>	P Value <sup>3</sup>
<b>Prescribed ART in Past 12 Months</b>								
No	13	6.9 (2.9–10.9)	818	8.9 (8.1–9.7)	395	11.2 (9.9–12.4)	<b>.3412</b>	<b>.0552</b>
Yes	153	93.1 (89.1–97.1)	8671	91.1 (90.3–91.9)	3117	88.8 (87.6–90.1)		
<b>ART Adherence in Past 3 Days</b>								
Not 100% adherent	29	21.6 (14.7–28.6)	1092	12.6 (11.8–13.5)	533	17.5 (15.8–19.2)	<b>.0143</b>	<b>.2813</b>
100% adherent	111	78.4 (71.4–85.3)	7397	87.4 (86.5–88.2)	2451	82.5 (80.8–84.2)		
<b>Most Recent HIV Viral Load Suppressed<sup>7</sup></b>								
No	53	31.9 (24.0–39.7)	2318	24.6 (23.0–26.1)	1075	30.2 (28.0–32.3)	<b>.0678</b>	<b>.6685</b>
Yes	113	68.1 (60.3–76.0)	7171	75.4 (73.9–77.0)	2437	69.8 (67.7–72.0)		
<b>All HIV Viral Loads Suppressed<sup>7</sup> (Durable Viral Suppression)</b>								
No	79	49.2 (40.9–57.5)	3621	38.6 (37.0–40.3)	1535	43.1 (40.7–45.5)	<b>.7568</b>	<b>.6202</b>
Yes	87	50.8 (42.5–59.1)	5868	61.4 (59.7–63.0)	1977	56.9 (54.5–59.3)		
<b>At Least One HIV Viral Load Test Every 6 Months</b>								
No	40	23.0 (15.2–30.8)	2268	24.2 (22.6–25.7)	848	24.8 (22.6–27.1)	<b>.4213</b>	<b>.7709</b>
Yes	126	77.0 (69.2–84.8)	7158	75.8 (74.3–77.4)	2644	75.2 (72.9–77.4)		
<b>Screened for Gonorrhea</b>								
No	119	73.0 (64.6–81.3)	6994	76.0 (72.8–79.2)	2456	71.8 (68.2–75.3)	<b>.1879</b>	<b>.8495</b>
Yes	47	27.0 (18.7–35.4)	2432	24.0 (20.8–27.2)	1036	28.2 (24.7–31.8)		
<b>Screened for Chlamydia</b>								
No	115	70.5 (62.1–78.9)	6933	75.4 (72.1–78.6)	2396	69.7 (66.4–73.1)	<b>.1028</b>	<b>.0023</b>
Yes	51	29.5 (21.1–37.9)	2493	24.6 (21.4–27.9)	1096	30.3 (26.9–33.6)		
<b>Screened for Syphilis</b>								
No	51	36.3 (27.3–45.2)	3831	43.5 (40.3–46.8)	1658	51.6 (47.2–56.0)	<b>.1454</b>	<b>.7038</b>
Yes	115	63.7 (54.8–72.7)	5595	56.5 (53.2–59.7)	1834	48.4 (44.0–52.8)		
<b>Emergency Department or Urgent Care Use</b>								
No	144	86.3 (79.5–93.0)	8580	91.4 (90.3–92.4)	3043	87.6 (85.7–89.5)	<b>.3058</b>	<b>.6021</b>
Yes	22	13.7 (7.0–20.5)	885	8.6 (7.6–9.7)	454	12.4 (10.5–14.3)		
<b>Hospital Use</b>								
No	152	90.8 (85.6–96.1)	8834	93.7 (93.0–94.4)	3216	92.3 (91.1–93.5)		
Yes	14	9.2 (3.9–14.4)	626	6.3 (5.6–7.0)	285	7.7 (6.5–8.9)		

<sup>1</sup>Excludes data for characteristics with any missing or unknown values. Totals in the specific characteristics may not sum up to total sample in the column. Reference period is past 12 months unless otherwise noted.

<sup>2</sup>P-value for comparison between transgender women and non-transgender men.

<sup>3</sup>P-value for comparison between transgender women and non-transgender women.

<sup>4</sup>Drugs including crack, cocaine, or methamphetamine.

<sup>5</sup>Excludes persons with missing data needed to determine if they had any sex with a condom.

<sup>6</sup>Excludes persons whose partner HIV status was unknown or missing.

<sup>7</sup>Suppressed viral load defined as undetectable or <200 copies/mL.

ART, antiretroviral therapy; CD4, CD4 + T-lymphocyte cell; AIDS, acquired immunodeficiency syndrome.

persons) in care and examine whether the findings of Yehia et al. can be replicated in a population-based survey to better inform us of the care and treatment needs of transgender women.

## Methods

We analyzed combined data from the 2009, 2010, and 2011 data collection cycles of MMP. For all data collection cycles, 16 U.S. states and one territory were sampled (California, Delaware, Florida, Georgia, Illinois, Indiana, Michigan, Mississippi, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Puerto Rico, Texas, Virginia, and Washington). Data were collected on adults aged 18 years or older receiving at least one HIV-related medical care visit in participating facilities between January and April of each data collection cycle year. Data were collected through face-to-face interviews and medical record abstractions from June 2009 to May 2012. The data were weighted for probability of selection and nonresponse to be representative of adults receiving outpatient medical care for HIV infection in the United States and Puerto Rico. Prevalence estimates are presented as weighted percentages. The reference period is the 12 months before the patient interview unless otherwise noted. The entire sample includes information on 13,194 participants, who, after weighting for probability of selection and non-response, are estimated to represent an average population of 447,421 HIV-infected adults receiving medical care in the United States between January and April in 2009, 2010, and 2011. MMP methods are described in detail elsewhere.<sup>7,8</sup>

In accordance with the Code of Federal Regulations Title 45 Part 46 Subsections 46.101c and 46.102d<sup>9</sup> and the Guidelines for Distinguishing Public Health Research and Public Health Nonresearch,<sup>10</sup> MMP was determined by the Centers for Disease Control and Prevention (CDC) to be a non-research, public health surveillance activity. However, some participating sites obtained local Institutional Review Board (IRB) approval to conduct MMP as required locally.

In face-to-face interviews, respondents were asked to report their sex at birth and their current self-identified gender. Those who self-identified as transgender or had discordant sex at birth and gender were categorized as transgender. Persons whose sex at birth and current gender was male were categorized as non-transgender men and persons whose sex at birth and current gender was female were categorized as non-transgender women. Transgender persons were further categorized into transgender women (male-to-female transgender, i.e., sex at birth equals male and current gender equals transgender or female) and transgender men (female-to-male transgender, i.e., sex at birth equals female and current gender equals transgender or male). Five persons were excluded because information was missing to classify into one of the above categories. Further, because the number of transgender men was too small ( $n=22$ ) to conduct comparative analyses, we focused on transgender women and compared their demographic, behavioral, and clinical characteristics, as well as needs for and met/unmet needs for supportive services with those of non-transgender men and non-transgender women (analytic sample size = 13,167) using Rao-Scott chi-square tests.<sup>11</sup> Statistical significance was defined at an alpha level of 0.05.

## Results

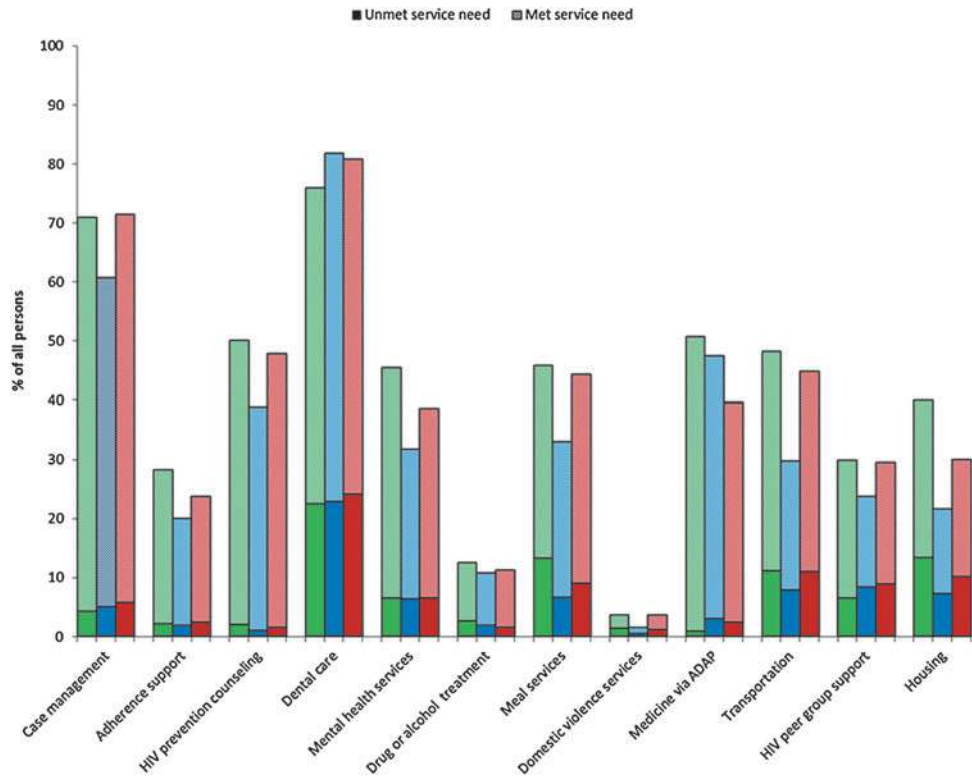
In all, 1.3%, or an estimated 5,729 HIV-infected adults receiving medical care in the United States, self-identified as transgender women. Table 1 shows the demographic, behavioral, and clinical characteristics of transgender women compared to non-transgender men and non-transgender women. Mean age among transgender women was 41.9 years (median 42.9 years). More than 80% of transgender women were of non-white race/ethnicity and had an annual income less than \$20,000. Moreover, more than 20% of transgender women reported homelessness and over 30% did not have any health insurance. About one-third of transgender women reported injection or non-injection drug use, less than 50% reported being sexually active, and 17.5% reported having condomless vaginal or anal sex with an HIV-negative or unknown status partner. More than 90% were prescribed ART in the past 12 months, more than three-quarters reported 100% adherence to all ART doses in the past 3 days, and almost 70% had a suppressed viral load (defined as undetectable or <200 copies/mL) at the most recent test, but only about half had a suppressed viral load at all tests during the past year (i.e., durable viral suppression). Almost one-third was screened for gonorrhea and chlamydia respectively, and almost two-thirds were screened for syphilis.

Compared to both non-transgender men and women, significantly higher percentages of transgender women had incomes less \$20,000 per year, were homeless, and did not have health insurance. Compared to non-transgender men, a significantly higher percentage of transgender women were of non-white race/ethnicity, had less than a high school education, and had income at or below the poverty level. Compared to non-transgender women, a significantly lower percentage of transgender women were of black or African American race/ethnicity and a higher percentage were Hispanic or Latino.

Compared to non-transgender women, a significantly higher percentage of transgender women reported use of non-injection and injection drugs in the past 12 months. A significantly lower percentage of transgender women reported any sexual activity compared to non-transgender men and women, but no significant differences in the percentage engaging in any condomless sex or condomless sex with an HIV-negative or unknown status partner were noted.

Also no significant differences were observed in time since HIV diagnosis, stage of disease, geometric mean CD4+ T-lymphocyte cell (CD4) count in the past year between transgender women and non-transgender men and women. Moreover, no significant differences were observed between the percentages of transgender women and non-transgender men and women who were prescribed ART and the percentages who achieved viral suppression at their most recent viral load test. However, compared to non-transgender men, a significantly lower percentage of transgender women reported 100% adherence to all ART doses in the past 3 days. Also, a significantly lower percentage of transgender women, compared to non-transgender men, had a suppressed viral load on all viral load tests in the past year (i.e., durable viral load suppression). There were no significant differences in the percentages of transgender women compared to non-transgender men and women receiving gonorrhea and chlamydia testing, but a significantly higher percentage of

**FIG. 1.** Comparison of met and unmet supportive service needs among HIV-infected transgender women (green bars), non-transgender men (blue bars), and non-transgender women (red bars), Medical Monitoring Project (MMP), United States, 2009–2011. Met supportive service need is defined as needing and receiving service. Unmet supportive service need is defined as needing, but not receiving, service. ADAP, AIDS Drug Assistance Program. Color images available online at [www.liebertpub.com/lgbt](http://www.liebertpub.com/lgbt)



transgender women than non-transgender women were tested for syphilis. No significant differences were observed in use of emergency room or urgent care and hospital admission between transgender women and non-transgender persons.

Figure 1 compares the percentages of transgender women versus non-transgender men and women who needed supportive services, whose supportive service needs were met, and whose supportive service needs were unmet (Supplemental Table 1; Supplementary Data are available online at [www.liebertpub.com/lgbt](http://www.liebertpub.com/lgbt)). Significantly higher percentages of transgender women, compared to non-transgender men ( $P < .05$ ), needed services including HIV case management (70.9% vs. 60.7%), ART adherence support (28.3% vs. 20.0%), HIV prevention counseling (50.1% vs. 38.9%), mental health services (45.5% vs. 31.8%), meal services (45.8% vs. 33.0%), domestic violence services (3.7% vs. 1.6%), transportation services (48.2% vs. 29.8%), and housing services (40.0% vs. 21.7%). Compared to non-transgender women ( $P < .05$ ), transgender women had significantly higher percentages needing medicine through the AIDS Drug Assistance Program [ADAP] (50.7% vs. 39.6%) and needing housing services (40.0% vs. 30.0%). No differences were observed in percentages of those whose needs were unmet for most supportive services examined. However, significantly higher percentages of transgender women than non-transgender men ( $P < .01$ ) had unmet needs for meal services (13.3% vs. 6.7%) and housing services (13.4% vs. 7.3%).

## Discussion

In a nationally representative sample of HIV-infected persons receiving medical care, an estimated 1.3% self-identified as transgender women. Transgender women in care were socioeconomically more marginalized than non-

transgender men and women; higher percentages of transgender women had lower income, were homeless, and did not have health insurance. Similar to findings by Yehia et al.,<sup>6</sup> a similar percentage of transgender women compared to non-transgender persons were prescribed ART and achieved viral suppression at their most recent viral load test. However, similar to findings by Sevelius et al.,<sup>3</sup> a lower percentage of transgender women compared to non-transgender men reported adherence to ART regimen, and the equity in ART prescription was not translated into equity in durable viral suppression, the treatment outcome that uses more stringent criteria (i.e., achieving viral suppression in all tests). These findings suggest a need to investigate what happens to transgender women after they are prescribed ART to better understand what might interfere with their medication adherence and long-term viral suppression. One possibility is a residual need for supportive services given that transgender women are more likely to be socioeconomically marginalized. We found that higher percentages of transgender women needed supportive services. Although we observed little difference between transgender women and non-transgender persons in regards to receipt of most supportive services, a higher percentage of transgender women compared to non-transgender men had unmet needs for basic services such as meal and housing. These unmet basic needs could interfere with medication adherence behaviors<sup>12,13</sup> that might have resulted in the observed disparities in treatment outcomes. Future research might explore the associations among these factors to explain the disparities between transgender and non-transgender persons, which could further inform programs aiming to reduce such disparities.

Limitations of our study are as follows: MMP collects data from HIV-infected persons receiving medical care, and just like Yehia et al., our findings cannot be generalized to all

persons living with HIV. To the extent that transgender HIV-infected persons avoid accessing healthcare due to stigma and past negative experiences,<sup>5</sup> there may be significant disparities in how they access HIV care in the first place. We also did not have data on specific needs of transgender women such as hormone therapy and other transgender-specific health care services, thus our findings on met and unmet needs for supportive services need to be interpreted with caution. Finally, relative to transgender women very little is known in the field of HIV prevention about HIV risk and needs of transgender men (female-to-male transgender persons).<sup>14</sup> Yet, we were not able to investigate the unique characteristics and needs of transgender men due to small sample size.

### Conclusion

We found few differences between HIV-infected transgender women and non-transgender persons in care with respect to receipt of most care, treatment, and supportive services; however, the noted disparities in durable viral suppression and unmet needs for basic services should be explored further. Because MMP is conducted annually, CDC will monitor progress towards the goal of reducing health disparities among transgender persons living with HIV.

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### Disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

### Author Disclosure Statement

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