HHS Public Access

Author manuscript

AIDS Behav. Author manuscript; available in PMC 2024 May 01.

Published in final edited form as:

AIDS Behav. 2023 May ; 27(5): 1523–1530. doi:10.1007/s10461-022-03944-7.

Exploring the association between gender affirmation and PrEP use among transgender women in New York City

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Abstract

Black and Hispanic/Latina transgender women are inequitably impacted by HIV; yet gaps in PrEP use exist. Among a sample of mostly Black and Hispanic/Latina transgender women in New York City, we aim to examine whether PrEP use was associated with gender affirmation and the use of gender-affirming health services. We found that PrEP use was more prevalent among those who used hormone therapy and those who had a provider they were comfortable speaking to about gender-related issues. In separate models, these associations were attenuated when adjusting for race/ethnicity, with those who use hormones being marginally more likely to report PrEP use and with Hispanic/Latina transgender women being more likely to have used PrEP, compared to Black transgender women. We found evidence of a potential association between medical gender affirmation and PrEP use. More research is needed to explore the social and structural contexts that are influenced by race/ethnicity that may serve to prevent PrEP uptake.

Keywords

PrEP; transgender women; gender affirmation; race/ethnicity

INTRODUCTION

Transgender women have been inequitably burdened with HIV. A global meta-analysis found that transgender women were 48.8 times more likely compared to other adults to have

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Authors' contributions: All authors contributed to study implementation and overseeing data collection. The analysis was performed by Alexis Rivera. The first draft of the manuscript was written by Alexis Rivera and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Conflicts of Interests: The authors have no competing interests to declare that are relevant to the content of this article.

Ethics approval: The study was approved by the Institutional Review Board of the New York City Department of Health and Mental Hygiene.

Consent to participate: All participate provided informed consent to participate.

Consent for publication: Not applicable.

Code availability: Custom code is available to be shared in concordance with disciplinary norms and expectations.

HIV [1]. Racial/ethnic inequities in HIV diagnoses among transgender women are common, with Black and Hispanic/Latina transgender women comprising 46% and 35% of all new cases among transgender women in the US in 2019 [2]. Pre-exposure prophylaxis for HIV (PrEP) can be an effective HIV prevention method and could have important impact for this population [3]; yet, two US studies have reported prevalence of PrEP use at only 26% and 35%, respectively, among transgender women who had indications for PrEP [4, 5]. In a recent clinic-based study from Baltimore, transgender people with PrEP indications were less likely than men who have sex with men (MSM) to have received a prescription for PrEP [6]. Identifying both individual-level and structural-level barriers to PrEP uptake that are specific to transgender women and their lived experiences has the potential impact to address the inequitable burden of HIV in this population and contribute to ending the HIV epidemic.

Gender affirmation can be defined as the processes whereby one is affirmed in their gender identity and expression [7]. Gender affirmation includes social gender affirmation (the use of one's preferred name and pronouns), psychological gender affirmation (being respected for one's gender identity), medical gender affirmation (hormone therapy, gender confirmation surgery), and legal gender affirmation (legal name change, legal gender marker change) [8]. Gender affirmation and access to gender-affirming health services have been associated with an array of positive health outcomes among transgender people [9–13].

Despite these findings, the literature examining gender affirmation and PrEP use among transgender women has been discordant. Although some data suggest that access to gender-affirming health services may serve as a facilitator to PrEP use [14–17], other data on the relationship between gender affirmation and PrEP use have been mixed. For example, in regards to medical gender affirmation, some qualitative data have suggested that hormone therapy may be a barrier to PrEP use given transgender women's concerns regarding PrEP's potential interaction with hormone therapy [14, 18, 19] and transgender women's prioritization of hormone therapy over PrEP has also been noted [17, 19]. However, in separate samples of transgender women, undergoing hormone therapy was not associated with willingness to use PrEP [20] or its uptake [4]. Yet, other forms of gender affirmation have been found to be associated with PrEP use. In a national study among transgender people, those who reported lower levels of having their gender identity understood or accepted by others were less likely to currently be taking PrEP [21]. Among Black and Latina transgender women in Baltimore and Washington D.C., although use of hormone therapy was not associated with willingness to use PrEP, those who had a legal name or gender marker change were less likely to be willing to use PrEP [20]. The association between gender affirmation and PrEP use may differ by type of gender affirmation, population assessed, and geography.

To further explore these dynamics, we explored the association between PrEP use and the use of gender-affirming health services and different types of gender affirmation among a sample of mostly Black and Hispanic/Latina transgender women in New York City (NYC).

METHODS

Study design

Data were drawn from the NYC site of the CDC-sponsored National HIV Behavioral Surveillance Study among transgender women (NHBS-Trans). Prior to data collection, formative research was conducted to gain community support and inform implementation of data collection. Transgender women were recruited using respondent-driven sampling (RDS). Participants completed an anonymous interviewer-administered survey and were offered optional HIV and STI testing. Participants were eligible if they were 18 years or older, spoke English or Spanish, were assigned male sex or intersex at birth, reported a gender identity of transgender woman or woman, and resided in the NYC metropolitan statistical area. To focus recruitment on Black and Hispanic/Latina transgender women, initial recruits ('seeds') were Black and Hispanic/Latina and were either identified in formative research or recruited through community outreach. After completion of the study, participants received 3–5 coupons to recruit other transgender women they knew into the study. The number of coupons given depended on the pace of recruitment. Participants received the following incentives immediately after completing the study in the form of a Visa gift card: $50 for completion of the survey, $25 for undergoing HIV testing, and $50 for providing samples for STI testing. Participants also received a $15 Visa gift card for each participant they recruited for who completed the study. Participants were able to come to the field site at any point after their recruits completed the survey to receive this recruiter incentive. Data were collected from July – December 2019. The Institutional Review Board of the NYC Department of Health and Mental Hygiene approved the study.

Measures

Outcome and exposure variables—The outcome of interest was PrEP use in the past 12 months. As primary exposure variables, we examined medical gender affirmation, psychological gender affirmation, and the use of gender-affirming health services. We examined two separate measures of medical gender affirmation: use of hormones for gender transition or affirmation in the past 12 months (yes vs. no) and ever undergoing surgery for gender transition or affirmation (yes vs. no). As a measure of psychological gender affirmation, we used the Transgender Congruence Scale [22]. This scale measures the degree to which transgender people feel comfortable with their gender identity and external appearance. Scores range from 1–5 with higher scores indicating higher comfort. We also calculated the scale's subscores for gender identity acceptance (the degree to which transgender people have accepted their gender identity) and appearance congruence (the degree to which transgender people feel their external appearance represents their gender identity), separately (range: 1–5). As measures of the use of gender-affirming health services we determined whether the participant: 1) had a provider with whom they were comfortable speaking about gender-related issues (yes vs. no); 2) had a provider for transgender-related care; and 3) had the same provider for both transgender-related care and primary care (yes vs. no).

Covariates—Socio-demographics included race/ethnicity (non-Hispanic Black, Hispanic/Latina, Other), age group (18–29, 30–39, 40–49, and 50 or older), education level (less

than high school vs. high school or greater), nativity (foreign-born vs. non-foreign born), federal poverty status (above vs. at or below the Federal Poverty Level), current health insurance coverage (yes vs. no), and having a usual source of care (yes vs. no). For 2019, the Federal Poverty Level for one person was $12,490. An additional $4,420 is added for each additional person in the household. Behavioral characteristics were ascertained within the past 12 months and included exchange sex for money or drugs (yes vs. no), injection drug use (yes vs. no), non-injection drug use (yes vs. no), any condomless vaginal or anal sex (yes vs. no) and having a main sex partner (yes vs. no). Respondents who reported any of the following in the past 12 months due to being transgender were categorized as experiencing transgender-related discrimination: being fired, having trouble getting a job, denied bathroom access, denied housing or being evicted, denied or given lower quality health care, and receiving poorer services than others in restaurants, stores or other businesses. Respondents were also asked if they experienced verbal or physical abuse in the past 12 months due to being transgender (yes vs. no). The Multidimensional Scale of Perceived Social Support [23] was used to measure participants' perceived levels of social support from significant others, family, and friends. The total score, as well as separate subscores for significant others, family, and friends were calculated separately. Scores range from 1–5 with higher levels indicating higher perceived social support.

Statistical analysis—We restricted the analysis to non-seed participants who self-reported a negative or unknown HIV status. Chi-square tests, Fisher's exact tests, and Wilcoxon tests were used to determine unadjusted differences by PrEP use. For exposure variables significantly associated with PrEP use at $p < 0.05$, we determined separate unadjusted and adjusted associations with PrEP use, using log-linked Poisson regression models with robust standard errors. For the adjusted models, covariates associated with PrEP use at $p < 0.10$ were added to the models using backward-selection while keeping the main exposure variable forced in. We found no evidence of multicollinearity between the exposures and covariates of interest. All analyses were conducted using SAS 9.4 (Cary, NC).

RESULTS

A total of 10 seeds and 269 non-seed participants were enrolled. Of the non-seed participants (51%) self-reported a negative or unknown HIV status. The analytical sample consisted of 135 participants who had non-missing values for PrEP use, of which 39% reported taking PrEP in the past 12 months. Sample characteristics are shown in Table I. Black and Hispanic/Latina transgender women comprised 92% of the sample. Most of the sample had at least a high school level education (74%) and lived at or below the federal poverty level (66%). In terms of age group, 34% were between the ages of 18–29, 23% were aged 30–39, 22% were aged 40–49, and 20% were 50 years or older. In terms of behavioral characteristics in the past 12 months, a majority reported non-injection drug use (61%), condomless vaginal or anal sex (60%), and having a main sex partner (53%). Most participants also reported experiencing trans-related discrimination (59%) or verbal or physical abuse (56%) in the past 12 months. Medical gender affirmation was high, with 84% reporting the use of hormones for gender transition or affirmation in the past 12 months and 39% having undergone surgery for gender transition or affirmation. The median

transgender congruence score was 4.0; appearance congruence (median = 3.9) was lower than gender identity acceptance (median = 4.3). The use of gender-affirming health services was also high: 73% had a provider in with whom they were comfortable speaking about gender-related issues; 81% had a provider for transgender-related care; and 74% had the same provider for both transgender-related and primary care.

In unadjusted analyses (Table I), transgender women who were Hispanic/Latina (x^2 = 9.62; p = 0.01), took hormones for gender transition or affirmation (x^2 = 6.17; p = 0.01), or had a provider with whom they were comfortable speaking about gender-related issues (x^2 = 4.34; p = 0.04) were more likely to have used PrEP in the past 12 months. Those who reported condomless vaginal or anal sex (x^2 = 3.0; p = 0.08), experiencing transgender-related discrimination (x^2 = 3.40; p = 0.07), having a provider for transgender-related care (x^2 = 2.95; p = 0.09), and having the same provider for both transgender-related and primary care (x^2 = 3.06; p = 0.08) were marginally more likely to have used PrEP in the past 12 months.

We found positive unadjusted associations between PrEP use and hormone use (Model 1: PR: 3.01; 95% CI: 1.03, 8.76; Z = 2.02; p = 0.04) and having a provider with whom one was comfortable speaking about gender-related issues (Model 3: PR: 1.80; 95% CI: 0.98, 3.32; Z = 1.89; p = 0.06) (Table II). In adjusted models (Table II), the association between hormone use and PrEP use was attenuated after adjusted for race/ethnicity, yet there was a positive association between hormone use and PrEP use with those who took hormones for gender transition or affirmation being nearly three times as likely to report PrEP use (Model 2: aPR: 2.74; 95% CI: 0.92, 8.19; Z = 1.81; p = 0.07). The association between having a provider with whom one was comfortable speaking about gender-related issues and PrEP use, was non-significant after adjustment for race/ethnicity (Model 4). In both adjusted models, there was a significant association between race/ethnicity and PrEP use, with Hispanic/Latina transgender women being more than twice as likely to report PrEP use, compared to Black transgender women (Model 2: aPR: 2.25; 95% CI: 1.21, 4.19; Z = 2.56; p = 0.01 and Model 4: aPR: 2.24; 95% CI: 1.20, 4.20; Z = 2.53; p = 0.01).

DISCUSSION

In this sample of mostly Black and Hispanic/Latina transgender women from NYC, we found a gap between sexual risk and PrEP uptake with 61% reporting condomless vaginal or anal sex in the past 12 months and only 39% reporting PrEP use. Although we found that the associations between our exposures of interest and PrEP use were attenuated after adjustment for race/ethnicity, there was a marginal positive association between using hormones for gender affirmation or transition and PrEP use, which suggests a potential association between hormone use and PrEP use. Given that we did not find associations between PrEP use and the other measures of gender affirmation, these findings provide preliminary evidence that the relationship between gender affirmation and PrEP use may depend by the type of gender affirmation and may also be related to social contexts and experiences influenced by race/ethnicity. These findings underscore the need for intersectional approaches to ending the HIV epidemic.

Although not the main focus of the analysis, we found that race/ethnicity was the only variable significantly associated with PrEP after adjustment in both of our models, with Hispanic/Latina transgender women being more likely than Black transgender women to report PrEP use. It is possible that a significant association between transgender women of 'other' race/ethnicity and Black transgender women could not be detected due to the small sample of transgender women in the former category. In post-hoc analyses (data not shown), although Hispanic/Latina transgender women had higher uptake of PrEP, compared to Black transgender women, Black transgender women were just as likely to be aware of PrEP and to have had a discussion with a provider about PrEP. Disproportionately lower rates of PrEP use among Black people have been documented in community-based [24, 25], clinic-based [6, 26], and prescription data [27]. We recognize that, as a variable, race/ethnicity serves as a proxy for social and structural contexts related to one's race/ethnicity that are more difficult to measure directly, for example racism [28, 29]. Black transgender women, specifically, experience multiple forms of oppression in addition to anti-Black racism, such as transphobia, sexism, and homophobia, that, when combined, can worsen inequities [30]. For example, in a sample of transgender women from San Francisco, experiencing racial discrimination or transgender-related discrimination, alone, was not associated with housing instability; but experiencing both forms of discrimination was [31]. In regard to PrEP use, these forms of oppressions may intersect to influence PrEP use through pathways that were not measured in our study but may explain the lower use we identified among Black transgender women. Medical mistrust has been shown to negatively influence willingness to take PrEP [32, 33] and Black transgender women may have higher levels of medical mistrust due to potentially experiencing or anticipating both transphobia and anti-Black racism in healthcare settings [17, 19, 34, 35]. In addition to experiences within healthcare settings, anti-Black racism and transphobia can influence societal norms surrounding PrEP use. For example, a recent qualitative investigation suggested that societal preconceptions that Black transgender women who take PrEP will engage in risk compensation serve as a barrier to PrEP uptake [34], a similar finding was found in a separate study among among Black MSM [36]. This preconception that Black people on PrEP are more likely to engage in risk compensation was observed among medical students and was linked to their decreased willingness to prescribe PrEP to Black patients [37]. Provider willingness to prescribe PrEP may also be influenced by transphobia as transgender gender identity has been linked to a lower likelihood of receiving a PrEP prescription [14]. Additional research with large samples of Black transgender women is needed to elucidate the specific pathways through which anti-Black racism and transphobia act independently and synergistically to influence PrEP use.

In addition to the importance of providers discussing and prescribing PrEP widely, these findings underscore the need for intersectional approaches to HIV prevention among transgender women that incorporate both gender-affirming and anti-racist practices. For example, PrEP services for transgender women can be coupled with provision of hormone therapy and could be tailored to be culturally competent and delivered in a gender-affirming setting. A shared-decision making model that incorporates both patient need and provider recommendation was found as a promising cultural-competent method to promote PrEP use among Black transgender women [34]. Additionally, the framing and normalization of PrEP

as an HIV prevention tool for anyone who may be vulnerable to HIV, both within clinical and non-clinical settings and in PrEP marketing can aide in dismantling PrEP-related stigma. Changes to PrEP marketing campaigns and PrEP promotion efforts to focus on women, including transgender women, may also increase PrEP uptake. As an example, in 2018, the NYC Department of Health and Mental Hygiene released its 'Living Sure' campaign, aimed to promote PrEP use among women [38]. The sex-positive campaign portrayed mostly Black and Hispanic/Latina cisgender and transgender women alongside each other, affirming that transgender women are women. The campaign also addressed concerns specific to transgender women by stating that PrEP will not interfere with hormone therapy.

Our findings are subject to limitations. First, a temporal relationship between the main exposures of interest and PrEP use cannot be inferred. Second, the small sample of transgender women reporting 'other' race/ethnicity limit the ability to detect additional racial/ethnic differences. Third, findings are only generalizable to transgender women in NYC, where laws and policies protecting transgender people are present. Fourth, due to the small sample size of those who used PrEP, we were not able to examine PrEP adherence as an outcome. Such an analysis would have been beneficial as PrEP's effectiveness depends on adherence to PrEP. However, we feel examining PrEP use as an outcome is important as it is a necessary step in the PrEP care continuum [39]. Despite limitations, this is one of the few quantitative analyses examining the potential association between gender affirmation and PrEP use in a sample of mostly Black and Hispanic/Latina transgender women.

CONCLUSIONS

We found a marginal positive association between hormone use and PrEP use, providing some evidence that medical gender affirmation may be associated with PrEP use among transgender women. Adjustment for race/ethnicity attenuated the associations examined with Black transgender women being less likely to report PrEP use compared to Hispanic/Latina transgender women. The association between gender affirmation and PrEP use may vary depending on the type of gender affirmation. More research is needed to explore the social and structural contexts that are influenced by race/ethnicity to prevent PrEP uptake among Black transgender women, such as anti-Black racism and transphobia. In addition to additional research among Black transgender women, including qualitative research, intersectional approaches to increasing PrEP use among Black transgender women are needed.

Acknowledgements:

This study was funded by CDC grant 1U62PS005086. We thank all our participants and staff (Aneesha Andrews, Charm Jones, Alisha King, Pablo Martinez, Jaime Santana-Rivera, Sofia Song, and Ash Tebar) as well as the members of our Collaborative Board (Carrie Davis, MSW; Octavia Lewis, MPA; Monique Mackey, and Nala Toussaint). We thank Destination Tomorrow and the OASIS Wellness Center of the Latino Commission on AIDS for providing space to conduct data collection activities. We also thank the MAC AIDS Foundation for a generous donation.

Availability of data and material:

Data and materials may be available to be shared in concordance with disciplinary norms and expectations.

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Table I.

PrEP use in the past 12 months by selected characteristics among transgender women (n=135); National HIV Behavioral Surveillance Study, New York City, 2019.

	Total	Did not use PrEP (n=83)	Used PrEP (n=52)	Test statistic	*p*-value
	n (%)				
Socio-demographics					
Race/ethnicity				9.62	0.01
Non-Hispanic Black	44 (33%)	35 (42%)	9 (17%)		
Hispanic/Latina	80 (59%)	41 (49%)	39 (75%)		
Other	11 (8%)	7 (8%)	4 (8%)		
Age group				6.0	0.11
18–29	46 (34%)	28 (34%)	18 (35%)		
30–39	31 (23%)	17 (20%)	14 (27%)		
40–49	30 (22%)	16 (19%)	14 (27%)		
≥ 50	27 (20%)	22 (27%)	5 (10%)		
Education level				1.0	0.32
Less than high school	35 (26%)	24 (29%)	11 (21%)		
High school or greater	100 (74%)	59 (71%)	41 (79%)		
Foreign-born				0.08	0.77
No	110 (81%)	67 (81%)	43 (83%)		
Yes	25 (19%)	16 (19%)	9 (17%)		
Homeless [a]				0.21	0.64
No	85 (63%)	51 (61%)	34 (65%)		
Yes	50 (37%)	32 (39%)	18 (35%)		
Federal poverty status				2.01	0.16
Above	44 (34%)	23 (29%)	21 (41%)		
At or below	86 (66%)	56 (71%)	30 (59%)		
Has health insurance				1.43	0.23
No	25 (19%)	18 (22%)	7 (13%)		
Yes	110 (81%)	65 (78%)	45 (87%)		
Has a usual source of care				1.40	0.24
No	22 (16%)	16 (19%)	6 (12%)		
Yes	113 (84%)	67 (81%)	46 (88%)		
Behavioral characteristics [a]					
Exchanged sex for money or drugs				1.06	0.30
No	81 (60%)	53 (64%)	28 (55%)		
Yes	53 (40%)	30 (36%)	23 (45%)		
Injection drug use				--	1.0 [b]

	Total	Did not use PrEP (n=83)	Used PrEP (n=52)	Test statistic	*p*-value
	n (%)				
No	128 (96%)	78 (95%)	50 (96%)		
Yes	6 (4%)	4 (5%)	2 (4%)		
Non-injection drug use				0.12	0.72
No	52 (39%)	31 (37%)	21 (40%)		
Yes	83 (61%)	52 (63%)	31 (60%)		
Condomless vaginal or anal sex				3.0	0.08
No	54 (40%)	38 (46%)	16 (31%)		
Yes	81 (60%)	45 (54%)	36 (69%)		
Main sex partner				0.98	0.32
No	62 (47%)	41 (50%)	21 (41%)		
Yes	71 (53%)	41 (50%)	30 (59%)		
Discrimination[1]					
Experienced trans-related discrimination				3.40	0.07
No	55 (41%)	39 (48%)	16 (31%)		
Yes	78 (59%)	43 (52%)	35 (69%)		
Experienced verbal or physical abuse due to being transgender				0.94	0.33
No	59 (44%)	39 (47%)	20 (38%)		
Yes	76 (56%)	44 (53%)	32 (62%)		
Social support (median, range)					
Total perceived social support score	3.6 (1.3 – 5.0)	3.7 (1.3 – 5.0)	3.5 (1.5 – 5.0)	−0.90	0.37
Perceived social support from significant other subscore	4.0 (1.0 – 5.0)	4.0 (1.0 – 5.0)	4.0 (1.0 – 5.0)	−0.97	0.33
Perceived social support from family subscore	2.8 (1.0 – 5.0)	2.5 (1.0 – 5.0)	3.0 (1.0 – 5.0)	0.05	0.96
Perceived social support from friends subscore	4.0 (1.5 – 5.0)	4.0 (1.5 – 5.0)	4.0 (1.8 – 5.0)	−1.07	0.29
Gender affirmation					
Took hormones for gender transition or affirmation [a]				6.17	0.01
No	21 (16%)	18 (22%)	3 (6%)		
Yes	114 (84%)	65 (78%)	49 (94%)		
Ever underwent surgery for gender transition or affirmation				1.17	0.28
No	83 (61%)	54 (65%)	29 (56%)		
Yes	52 (39%)	29 (35%)	23 (44%)		
Total transgender congruence score (median, range)	4.0 (2.0 – 5.0)	4.0 (2.0 – 5.0)	3.8 (2.3 – 4.8)	−1.58	0.11
Appearance congruence subscore (median, range)	3.9 (1.3 – 5.0)	4.0 (1.3 – 5.0)	3.7 (1.8 – 4.9)	−1.63	0.10
Gender identity acceptance subscore (median, range)	4.3 (1.0 – 5.0)	4.3 (1.0 – 5.0)	4.0 (2.3 – 5.0)	−1.01	0.31
Has a provider in which comfortable speaking to about gender-related issues				4.34	0.04
No	37 (27%)	28 (34%)	9 (17%)		

	Total	Did not use PrEP (n=83)	Used PrEP (n=52)	Test statistic	*p*-value
	n (%)				
Yes	98 (73%)	55 (66%)	43 (83%)		
Has a provider for transgender-related care				2.95	0.09
No	25 (19%)	19 (23%)	6 (12%)		
Yes	108 (81%)	62 (77%)	46 (88%)		
Has the same provider for transgender-related care and primary care				3.06	0.08
No	34 (26%)	25 (31%)	9 (17%)		
Yes	99 (74%)	56 (69%)	43 (83%)		

[a] In the past 12 months

[b] Fisher's exact test used, test statistic not applicable.

Table II.

Unadjusted and adjusted associations between medical gender affirmation and use of gender-affirming health services and PrEP use in the past 12 months among transgender women (n=135); National HIV Behavioral Surveillance Study, New York City, 2019.

	Model 1			Model 2			Model 3			Model 4		
	PR (95% CI)	**Z**	***p*-value**	**aPR (95% CI)**	**Z**	***p*-value**	**PR (95% CI)**	**Z**	***p*-value**	**aPR (95% CI)**	**Z**	***p*-value**
Race/ethnicity												
Non-Hispanic Black	--	--	--	*ref.*			--	--	--	*ref.*		
Hispanic/Latina	--	--	--	2.25 (1.21, 4.19)	2.56	0.01	--	--	--	2.24 (1.20, 4.20)	2.53	0.01
Other	--	--	--	1.75 (0.68, 4.50)	1.16	0.25	--	--	--	1.71 (0.67, 4.35)	1.12	0.26
Took hormones for gender transition or affirmation [a]												
Yes	3.01 (1.03, 8.76)	2.02	0.04	2.74 (0.92, 8.19)	1.81	0.07	--	--	--	--	--	--
No	*ref.*			*ref.*			--	--	--	--	--	--
Has a provider with whom they are comfortable speaking about gender-related issues												
Yes	--	--	--	--	--	--	1.80 (0.98, 3.32)	1.89	0.06	1.63 (0.90, 2.95)	1.60	0.11
No	--	--	--	--	--	--	*ref.*			*ref.*		

PR = prevalence ratio; aPR = adjusted prevalence ratio; CI = confidence interval

[a] In the past 12 months