Title

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Journal

AIDS and Behavior, 27(9)

ISSN

1090-7165

Authors

Wiginton, John Mark
Maksut, Jessica L
Scheim, Ayden I
et al.

Publication Date

2023-09-01

DOI

10.1007/s10461-023-04028-w

Peer reviewed

AIDS and Behavior
https://doi.org/10.1007/s10461-023-04028-w

ORIGINAL PAPER

Intersecting Sexual Behavior and Gender Identity Stigmas Among Transgender Women in the United States: Burden and Associations with Sexual Health

John Mark Wiginton[1,2] · Jessica L. Maksut[3] · Ayden I. Scheim[4] · Maria Zlotorzynska[5] · Travis H. Sanchez[5] · Stefan D. Baral[3]

Accepted: 15 February 2023

Abstract

In the United States, a context of multiple marginalization shapes sexual health disparities experienced by transgender women. Using data from 396 transgender women with negative or unknown HIV status, we performed exploratory factor analysis on responses to gender identity and sexual behavior stigma items and regressed sexual health outcomes on extracted factors via modified Poisson regression with robust variance estimation. Overall, 97.2% of participants endorsed ≥ 1 gender identity stigma; 67.2% endorsed ≥ 1 sexual behavior stigma; and 66.9% endorsed ≥ 1 of each. Extracted factors included gender-identity social stigma, reflecting experiences related to family, fearfulness in public, and verbal harassment ($\alpha = 0.68$); gender-identity institutional stigma/violence, reflecting experiences related to healthcare, police interactions, and interpersonal violence ($\alpha = 0.73$); and global sexual behavior stigma, reflecting experiences related to family, friends, and healthcare, as well as police interactions, fearfulness in public, verbal harassment, and interpersonal violence ($\alpha = 0.83$). Gender-identity social stigma was significantly, positively associated with testing for HIV and testing for sexually transmitted infections. Gender-identity institutional stigma/violence and global sexual behavior stigma were both significantly, positively associated with condomless anal sex, sex work, testing for HIV, testing for sexually transmitted infections, and use of HIV pre-exposure prophylaxis. Stigma-mitigation remains critical to improve quality of life and sexual health for transgender women in the United States.

Keywords Transgender women · Gender identity stigma · Sexual behavior stigma · Sexual health

Introduction

In the United States (US), transgender women occupy social space at the intersection of multiple axes of identity—as women, as transgender people, and others (e.g., as racial/ethnic minorities)—creating potential for sexist, transphobic, and other (e.g., racist) stigma experiences across multiple contexts [1–3]. Stigma—an attribute of difference that discredits, devalues, and spoils one's identity in the eyes of society [4]—can emerge via internalized (one's own adoption of negative views toward those with the stigmatized attribute, including oneself), anticipated (expectation of mistreatment due to the stigmatized attribute), and enacted mechanisms (acts of mistreatment such as violence, discrimination, harassment, and rejection due to the stigmatized attribute) [5, 6]. Stigma not only manifests individually and interpersonally, but also communally (in norms and values that shape attitudes toward people with the stigmatized attribute) and

✉ John Mark Wiginton
jwiginton@ucsd.edu

1 Division of Infectious Diseases and Global Public Health, Department of Medicine, University of California-San Diego, 9500 Gilman Dr, La Jolla, CA 92093, USA

2 San Diego State University, San Diego, CA, USA

3 Center for Public Health & Human Rights, Department of Epidemiology, Johns Hopkins University Bloomberg School of Public Health, 615 N. Wolfe Street, Baltimore, MD 21205, USA

4 Dornsife School of Public Health, Drexel University, Nesbitt Hall, 3215 Market St, Philadelphia, PA 19104, USA

5 Rollins School of Public Health, Emory University, 1581 Clifton Road NE, Atlanta, GA 30322, USA

Published online: 23 March 2023

structurally (e.g., in policies that enable denial of services or protection to people with the stigmatized attribute) [7, 8].

Gender identity stigma operates to invalidate transgender women's lived experience and block gender-affirming resources (e.g., medical services; gender identity-matching restrooms) [7, 9]. Gender affirmation—the "interpersonal, interactive process whereby a person receives social recognition and support for their gender identity and expression" [10]—through other means (e.g., sexual behavior) could increase risk for HIV and sexually transmitted infections (STIs) [3]. As gender identity stigma can constrain socioeconomic opportunities, some transgender women may engage in sex work, conferring additional HIV/STI risk, particularly when condomless sex may yield greater financial gain [3, 11–15]. Gender identity stigma can constrain access to social, educational, and insurance resources, compromising health literacy and healthcare utilization, while gender identity stigma encountered in service settings may deter help-seeking [11, 16–19].

Gender identity stigma may underpin or exacerbate observed sexual health disparities among US transgender women. Meta-analytic findings indicate 21% prevalence of self-reported HIV and 14% prevalence of laboratory-confirmed HIV in this population, compared to 0.3% in the US adult population [20, 21]. Systematic reviews have found 20–25% STI prevalence among US transgender women, with > 33% engaging in recent condomless sex and participating in sex work [20, 22]. Individuals aged 13–64 years at elevated risk for HIV are advised to get tested for HIV at least yearly, though 25–61% of US transgender women have never tested for HIV, and as many as 90% have reported no past-year HIV-testing [11, 20, 23, 24]. Further, HIV pre-exposure prophylaxis (PrEP) awareness and uptake remain low [20, 25, 26].

Research has explored how intersecting gender identity and other stigmas may compound sexual health disparities for transgender women [20, 27, 28]. However, sexual behavior stigma—the shared belief system that denigrates individuals who report participation, or are perceived to participate, in non-heterosexual practices—among transgender women remains underexplored [29–32]. Transgender women may encounter sexual behavior stigma because they are misperceived as cisgender men who have sex with men, possibly due to sexual partner characteristics or because transfemininity is misperceived as male homosexuality [33]. Likewise, transgender women who have sex with women may encounter sexual behavior stigma because they identify as lesbian or bisexual or have sex with other women [11, 33].

Like gender identity stigma, sexual behavior stigma can be experienced across socioecological levels [34, 35]. While sexual behavior stigma has been linked to sexual behavior and/or healthcare utilization among transgender women in sub-Saharan Africa and in other populations in the US and elsewhere [31, 36, 37], such associations (including intersectional associations) among transgender women in the US remain unclear. Intersectionality posits that social identities/positions and social inequality share an interdependent and mutually constitutive relationship [38]. While stigma related to gender identity and sexual behavior may be linked to transgender women's sexual health in distinct ways, they may also intersect synergistically. Moreover, each stigma may operate or be experienced differently across other identities and social positions, such as race/ethnicity and age [20, 27, 28, 39–46].

The Present Study

The purpose of this study was to assess gender identity and sexual behavior stigma and determine independent and intersectional associations with sexual health outcomes—including condomless anal and vaginal sex, sex work, HIV and STI testing, and PrEP use—in an online sample of US transgender women. The focus on stigma experiences and potential associations with sexual health does not negate the fact that transgender women possess agency and demonstrate strength and resilience in stigmatizing contexts [47–49].

Minority stress theories and the gender affirmation framework [3, 50–54], as well as previous research, informed our hypotheses. First, we expected that gender identity and sexual behavior stigma would be positively associated with condomless sex and sex work, as invalidation of gender identity may lead to alternative avenues for affirmation, such as condomless sex [3], and stigmatization of identity may constrain socioeconomic opportunities, leading to sex work [11, 13]. Moreover, gender-related and sexuality-based stigma have both been found to be positively associated with condomless anal sex and sex work participation among transgender women in prior research [37, 55–57].

We hypothesized that gender identity and sexual behavior stigma would be associated with each sexual health service utilization outcome, but given mixed findings/associations in prior research, we did not specify directionality. For example, minority stress and gender affirmation models would posit stigma as a barrier to accessing sexual health services [3, 50–52, 54], which has been demonstrated previously [26, 56–59]. However, some transgender women may endure stigma as part of the healthcare experience [56, 60], or experience both stigma and gender affirmation when utilizing healthcare, with gender affirmation mitigating the effects of ongoing stigma and facilitating further healthcare [61].

Lastly, informed by intersectionality [38, 62], we expected the co-existence of both gender identity and sexual behavior stigma to amplify stigma-outcome associations [29, 63]. Additionally, given enhanced vulnerabilities among young transgender women and transgender women of Color, including syndemic factors (e.g., violence and other forms of

victimization, substance use) and high HIV and STI prevalence [12, 20, 29, 40, 64, 65], we expected stigma-outcome associations to be stronger among younger and racial/ethnic minority participants.

Methods

Data, Participants, and Procedures

Methods on the Transgender Women's Internet Survey and Testing (TWIST) study have been described elsewhere [66]. Briefly, participants were recruited through online convenience sampling using banner advertisements on mobile dating applications (e.g., Grindr) and social media platforms (e.g., Facebook) from March–April 2019. Eligibility criteria included age ≥ 15 years, self-identification as a transgender woman or transfeminine person, self-report of a valid US ZIP code, and ever having had oral, anal, or vaginal sex. There were no HIV status-related criteria or restrictions on participation, but we were interested in examining stigma's association with sexual health among those who were not knowingly living with HIV. Participants ≥ 18 years provided online informed consent, and participants 15–17 years provided online informed assent (parental consent waived by institutional review board) before beginning the online survey in English using SurveyGizmo (Boulder, CO, USA). No incentive was provided. The original study was approved by Emory University Institutional Review Board, and this secondary analysis of deidentified data was deemed exempt from review by Johns Hopkins University Institutional Review Board.

Measures

Participants responded to 1 set of 13 sexual behavior stigma items and 1 set of 13 gender identity stigma items, which served as independent variables (Table 1). Items were based on a set of sexual behavior stigma items originally developed to measure sexual behavior stigma affecting cisgender men who have sex with men [67–73]. While a limitation that the items were not originally developed with transgender women, the adaptation of these items was significant, including consultations with transgender researchers and a community advisory board comprised of transgender women. Collectively, the goal of the adaptation process was to better ensure that these items were representative of transgender women's lived experience and to ensure their adaptation for use with transgender women.

Stigma items assessed perceptions, anticipations, and experiences of gender identity and sexual behavior stigma in social, healthcare, and other contexts. Though several of the stigma items reflect experiences that were conceptualized and categorized as "perceived" stigma a priori during the scale development process (e.g., "Have you ever felt excluded from family activities because of your gender identity?"), these experiences certainly could have been objective instances of mistreatment (i.e., enacted stigma). Response options included "no," "yes, in the past 6 months," and "yes, but not in the past 6 months." For analysis, responses were dichotomized by collapsing the affirmative responses to create lifetime experience of stigma versus none. For items 12 (experienced physical violence) and 13 (experienced sexual violence), participants were first asked if they experienced the violence, and if yes, they were asked if the violence was due to their gender identity or sexual behavior. Endorsement of both the experience of violence and attribution to gender identity (or sexual behavior) were coded "yes."

We examined several past-year sexual health outcomes with yes/no items: condomless anal sex (insertive/receptive), condomless vaginal sex (insertive/receptive), sex work (was given drugs or money in exchange for sex), HIV testing, STI testing (gonorrhea, chlamydia, or syphilis), and PrEP use. Narrower or more recent timeframes were not assessed because, like its predecessor (the American Men's Internet Survey [AMIS; [74, 75]]), TWIST was designed to assess and monitor broader, yearly trends in HIV-relevant behaviors and healthcare utilization [66]. Covariates included age in years, education (high school education or less; some college, associate's degree, or technical school; college graduate or graduate school), race/ethnicity (non-Hispanic white, non-Hispanic Black, non-Hispanic Multiracial and Other Races, Hispanic), sexual identity (homosexual or gay, heterosexual or straight, bisexual or pansexual, queer, or other, including asexual, questioning, or another identity), insurance status (uninsured or not), and urbanicity (large metro, suburban, small/medium metro, and rural).

Analysis

Frequencies were calculated for endorsement of stigma items, and exploratory factor analysis (EFA) was performed separately on each item set to characterize stigma burden through detection of underlying constructs.

Specifically, a tetrachoric correlation matrix was generated given dichotomous response options, upon which a principal components analysis was performed. Next, the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was calculated to determine the data's suitability for factor analysis [76, 77]. A scree plot was subsequently generated, and a parallel analysis was performed to reveal potential factor solutions, upon which EFA with robust weighted least squares estimation (to avoid convergence problems) was performed [78]. An oblique-quartimin rotation was applied due to expected inter-factor correlations and to minimize variable complexity [79, 80]. Loadings ≥ 0.40 that did not

Table 1 Endorsement and quartimin-rotated factor loadings of gender identity and sexual behavior stigma among US transgender women

	Gender identity stigma			Sexual behavior stigma	
	Item endorsement	Factor 1 loadings	Factor 2 loadings	Item endorsement	Factor 1 loadings
Stigma items	*Your gender identity?*			*Who you have sex with?*	
1. Have you ever felt excluded from family activities because of	293 (74.0)	**0.861**	0.073	95 (24.0)	**0.914**
2. Have you ever felt that family members have made discriminatory remarks or gossiped about you because of	292 (73.7)	**0.888**	0.014	146 (36.9)	**0.860**
3. Have you ever felt rejected by your friends because of	250 (63.1)	0.377	0.335	108 (27.3)	**0.749**
4. Have you ever felt afraid to go to healthcare services because of	211 (53.3)	–	–	59 (14.9)	**0.675**
5. Have you ever avoided going to healthcare services because of	167 (42.2)	0.336	0.286	42 (10.6)	–
6. Have you ever heard healthcare providers gossiping about you (talking about you) because of	84 (21.2)	−0.181	**0.850**	27 (6.8)	–
7. Have you ever felt that you were not treated well in a health center because of	121 (30.6)	0.043	**0.850**	36 (9.1)	–
8. Have you ever felt that the police refused to protect you because of	88 (22.2)	0.233	**0.611**	46 (11.6)	**0.790**
9. Have you ever felt scared to be in public places because of	340 (85.9)	**0.706**	−0.204	131 (33.1)	**0.757**
10. Have you ever been verbally harassed and felt it was because of	298 (75.3)	**0.503**	0.348	149 (37.6)	**0.832**
11. Have you ever been blackmailed by someone because of	56 (14.1)	–	–	36 (9.1)	**–**
12. Has someone ever physically hurt you (pushed, shoved, slapped, hit, kicked, choked or otherwise physically hurt you)? [AND] Do you believe any of these experiences of physical violence was/were related to	118 (29.8)	0.364	**0.536**	61 (15.4)	**0.765**
13. Have you ever been forced to have sex when you did not want to? (By forced, I mean physically forced, coerced to have sex, or penetrated with an object, when you did not want to). [AND] Do you believe any of these experiences of sexual violence were related to	60 (15.2)	0.080	**0.672**	38 (9.6)	**0.694**

Boldface items represent highest factor loadings ≥ 0.40 for a given factor

US, United States

cross-load were retained [81]. Model selection was based on the number of strongly loading factors, parsimony, and scientific interpretation. Cronbach's alphas were calculated to determine the internal consistency of extracted factors.

Descriptive statistics were calculated for sociodemographic characteristics and outcome variables. Mean factor scores were calculated by summing the number of endorsed stigma experiences per factor, dividing by the number of non-missing items, and rescaling by a factor of 10 to improve interpretability. Chi-squared and Kruskal–Wallis tests were used to assess outcome differences in sociodemographic characteristics and stigma factor scores; for significant chi-squared tests involving sociodemographic characteristics comprised of more than two groups, adjusted residuals were

calculated to determine which specific subgroup(s) proportions significantly differed across each outcome. Bivariate modified Poisson regressions with robust variance estimation were performed between each outcome and stigma factor [82]. Multivariable regressions were performed for each independent variable that had a bivariate association ($p < 0.10$) with a given outcome.

To examine the extent to which stigmas intersected on outcomes [63], we added two-way product terms between mean-centered sexual behavior and gender identity stigma factors [83]. We also tested two-way product terms between age (dichotomized at median) and each stigma factor, and between race/ethnicity (racial/ethnic minorities versus non-Hispanic white) and each stigma factor [63]. Coefficients were exponentiated to generate prevalence ratios. Wald tests, with statistical significance set at $p < 0.05$, and 95% confidence intervals (CI) were calculated and examined. Analyses were conducted in Stata Version 15 [84] and Mplus Version 8 [78].

Results

Sample Characteristics

A total of 401 participants completed the survey, 5 (1.2%) of whom reported living with HIV and were therefore outside the scope of interest for this study. We excluded these participants, leaving 396 with HIV-negative or unknown status. Roughly 1 in 3 were from the South, and median age was 24 years. Over 70% were non-Hispanic white, and 44.9% identified as bisexual or pansexual (Table 2). In the past year, 28.3% (112/396) reported condomless anal sex, 32.3% (128/396) reported condomless vaginal sex, 7.3% (29/396) reported sex work, 36.6% (145/396) had been tested for HIV, 31.8% (126/396) had been tested for STIs, and 5.6% (22/396) had used PrEP.

Condomless anal sex was associated with heterosexual/straight identity ($\chi^2 = 12.14[4]$, $p < 0.05$), and condomless vaginal sex was associated with having earned a college degree or more ($\chi^2 = 12.27[2]$, $p < 0.01$). Sex work was associated with non-Hispanic Black and Hispanic race/ethnicity ($\chi^2 = 24.39[3]$, $p < 0.001$) and heterosexual/straight identity ($\chi^2 = 13.51[4]$, $p < 0.01$). HIV testing was associated with older age ($\chi^2 = 14.20[1]$, $p < 0.05$) and having earned a college degree or more ($\chi^2 = 16.03[2]$, $p < 0.001$). STI testing was associated with having earned a college degree or more ($\chi^2 = 11.81[2]$, $p < 0.01$), queer identity ($\chi^2 = 10.11[4]$, $p < 0.05$), having insurance ($\chi^2 = 4.28[1]$, $p < 0.05$), and residing in a large metro area ($\chi^2 = 9.01[3]$, $p < 0.05$). PrEP use was associated with heterosexual/straight identity ($\chi^2 = 14.18[4]$, $p < 0.01$), residing in a large metro area ($\chi^2 = 10.25[3]$, $p < 0.05$), and residing in the West ($\chi^2 = 8.64[3]$, $p < 0.05$). Additional associations are noted in Table 3.

Gender Identity Stigma

Of the 13 gender identity stigma experiences assessed, respondents endorsed an average of 6.0 experiences, with 97.2% (385/396) endorsing ≥ 1 and 93.4% (370/396) endorsing ≥ 2. The most endorsed experience was feeling afraid in public (340/396, 85.9%), followed by verbal harassment (75.3%), exclusion from family activities (74.0%), and family gossip/discriminatory remarks (73.7%; Table 1). A two-factor model best fit the data. Factor 1 consisted of 4 items related to family, fearfulness in public, and verbal harassment and was named "gender-identity social stigma" ($\alpha = 0.68$). Factor 2 consisted of 5 items related to healthcare, police interactions, and interpersonal violence and was named "gender-identity institutional stigma/violence" ($\alpha = 0.73$). These factors were moderately correlated ($r = 0.52$). Other items were removed due to high correlations with other items, low KMO values, or low loadings.

Participants reporting greater gender-identity social stigma were significantly more likely to report HIV (aPR = 1.08, 95% CI 1.02, 1.15) and STI testing (aPR = 1.13, 95% CI 1.05, 1.22). Those reporting greater gender-identity institutional stigma/violence were significantly more likely to report condomless anal sex (aPR = 1.07, 95% CI 1.02, 1.13), sex work (aPR = 1.31, 95% CI 1.13, 1.52), HIV testing (aPR = 1.07, 95% CI 1.03, 1.11), STI testing (aPR = 1.07, 95% CI 1.03, 1.11), and PrEP use (aPR = 1.17, 95% CI 1.01, 1.34) (Table 4).

Sexual Behavior Stigma

Of the 13 sexual behavior stigma experiences assessed, respondents endorsed an average of 2.5 stigma experiences, with 67.2% (266/396) endorsing ≥ 1 and 50.8% (201/396) endorsing ≥ 2. The most endorsed sexual behavior stigma experience was verbal harassment (37.6%), followed by gossip/discriminatory remarks by family (36.9%) and feeling afraid in public (33.1%; Table 1). A one-factor model comprised of nine items, all of which loaded > 0.60, best fit the data, and the factor was named "global sexual behavior stigma" ($\alpha = 0.83$). Other items were removed due to low endorsement (< 11%) that prohibited conducting principal components analysis. Participants reporting greater sexual behavior stigma were significantly more likely to report condomless anal sex (aPR = 1.10, 95% CI 1.05, 1.16), sex work (aPR = 1.37, 95% CI 1.16, 1.61), HIV testing (aPR = 1.07, 95% CI 1.03, 1.12), STI testing (aPR = 1.08, 95% CI 1.04, 1.13), and PrEP use (aPR = 1.24, 95% CI 1.07, 1.43) (Table 4).

Table 2 Overall sociodemographic characteristics and stigma factor scores among US transgender women

	Overall/total, n (%)[a]
Age	
Median (IQR)	24 (20–36)
Education	
≤ High school	138 (34.9)
Some college, associate's degree, or technical school	155 (39.1)
≥ College	95 (24.0)
Unknown	8 (2.0)
Race/ethnicity	
White, non-Hispanic	288 (72.7)
Black, non-Hispanic	8 (2.0)
Other, non-Hispanic[b]	35 (8.8)
Hispanic	44 (11.1)
Unknown	21 (5.3)
Sexual identity	
Homosexual/gay	58 (14.6)
Heterosexual/straight	35 (8.8)
Bisexual/pansexual	178 (44.9)
Queer	74 (18.7)
Asexual, questioning, other unlisted identity	45 (11.4)
Unknown	6 (1.5)
Insurance status	
Uninsured	35 (8.8)
Insured	321 (81.1)
Unknown	40 (10.1)
Urbanicity	
Large metro	126 (31.8)
Suburban	90 (22.7)
Small/medium metro	130 (32.8)
Rural/micro metro	50 (12.6)
Region	
Northeast	90 (22.7)
Midwest	77 (19.4)
South	126 (31.8)
West	103 (26.0)
Gender-identity social stigma	
Mean (SD)	8.2 (2.8)
Median (IQR)	10 (7.5–10)
Gender-identity institutional stigma/violence	
Mean (SD)	2.6 (3.1)
Median (IQR)	2 (0–4)
Global sexual behavior stigma	
Mean (SD)	2.6 (2.8)
Median (IQR)	1.8 (0–4.3)

US United States; *IQR* interquartile range; *SD* standard deviation

[a]Except for continuous age and stigma factors

[b]Including Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, Multiracial

Table 3 Differences in sociodemographic characteristics and stigma factor scores by sexual health outcomes among transgender women in the United States

	Condomless anal sex		Condomless vaginal sex		Sex work	
	No (n = 280, 70.7%)	Yes (n = 112, 28.3%)	No (n = 266, 67.2%)	Yes (n = 128, 32.3%)	No (n = 360, 90.9%)	Yes (n = 29, 7.3%)
Age						
Median (IQR)	24 (20–36.5)	25 (21–34)	24 (19–36)	25.5 (22–35.5)	24 (20–36)	24 (21–28)
Chi-squared statistic	–	0.75	–	1.83	–	0.32
Education						
≤ High school	93 (33.2)	45 (40.2)	105 (39.5)	32 (25.0)‡	127 (35.3)	10 (34.5)
Some college[a]	106 (37.9)	47 (42.0)	103 (38.7)	51 (39.8)	138 (38.3)	12 (41.4)
≥ College	74 (26.4)	19 (17.0)	52 (19.5)	43 (33.6)†	87 (24.2)	7 (24.1)
Unknown	7 (2.5)	1 (0.9)	6 (2.3)	2 (1.6)	8 (2.2)	0 (0.0)
Chi-squared statistic	–	4.42	–	12.27**	–	0.05
Race/ethnicity						
White, non-Hispanic	209 (74.6)	75 (67.0)	183 (68.8)	103 (80.5)	273 (75.8)	12 (41.4)†
Black, non-Hispanic	4 (1.4)	4 (3.6)	4 (1.5)	4 (3.1)	5 (1.4)	3 (10.3)†
Other, non-Hispanic[b]	27 (9.6)	8 (7.1)	27 (10.2)	8 (6.3)	29 (8.1)	4 (13.8)
Hispanic	26 (9.3)	18 (16.1)	34 (12.8)	10 (7.8)	34 (9.4)	8 (27.6)†
Unknown	14 (5.0)	7 (6.3)	18 (6.8)	3 (2.3)	19 (5.3)	2 (6.9)
Chi-squared statistic	–	6.32	–	5.86	–	24.39***
Sexual identity						
Homosexual/gay	43 (15.4)	13 (11.6)	36 (13.5)	22 (17.2)	55 (15.3)	3 (10.3)
Heterosexual/straight	17 (6.1)	18 (16.1)†	29 (10.9)	6 (4.7)	25 (6.9)	7 (24.1)†
Bisexual/pansexual	126 (45.0)	51 (45.5)	125 (47.0)	51 (39.8)	169 (46.9)	8 (27.6)‡
Queer	58 (20.7)	15 (13.4)	42 (15.8)	32 (25.0)	64 (17.8)	8 (27.6)
Other[c]	31 (11.1)	14 (12.5)	30 (11.3)	15 (11.7)	41 (11.4)	3 (10.3)
Unknown	5 (1.8)	1 (0.9)	4 (1.5)	2 (1.6)	6 (1.7)	0 (0.0)
Chi-squared statistic	–	12.14*	–	9.45	–	13.51**
Insurance status						
Uninsured	232 (82.9)	87 (77.7)	23 (8.6)	12 (9.4)	31 (8.6)	4 (13.8)
Insured	20 (7.1)	13 (11.6)	216 (81.2)	103 (80.5)	292 (81.1)	22 (75.9)
Unknown	28 (10.0)	12 (10.7)	27 (10.2)	13 (10.2)	37 (10.3)	3 (10.3)
Chi-squared statistic	–	2.16	–	0.06	–	0.89
Urbanicity						
Large metro	78 (27.9)	46 (41.1)	87 (32.7)	39 (30.5)	108 (30.0)	15 (51.7)
Suburban	67 (23.9)	22 (19.6)	64 (24.1)	25 (19.5)	85 (23.6)	5 (17.2)
Small/medium metro	98 (35.0)	31 (27.7)	84 (31.6)	45 (35.2)	121 (33.6)	7 (24.1)
Rural/micro metro	37 (13.2)	13 (11.6)	31 (11.7)	19 (14.8)	46 (12.8)	2 (6.9)
Chi-squared statistic	–	6.53	–	1.95	–	5.96
Region						
Northeast	65 (23.2)	22 (19.6)	65 (24.4)	25 (19.5)	82 (22.8)	7 (24.1)
Midwest	58 (20.7)	19 (17.0)	50 (18.8)	27 (21.1)	73 (20.3)	4 (13.8)
South	91 (32.5)	34 (30.4)	87 (32.7)	38 (29.7)	116 (32.2)	8 (27.6)
West	66 (23.6)	37 (33.0)	64 (24.1)	38 (29.7)	89 (24.7)	10 (34.5)
Chi-squared statistic	–	3.87	–	2.45	–	1.78
Gender-identity social stigma						
Mean (SD)	8.2 (2.7)	8.2 (2.9)	8.3 (2.6)	7.9 (3.2)	8.1 (2.8)	8.6 (2.9)
Median (IQR)	10 (7.5–10)	10 (7.5–10)	10 (7.5–10)	10 (7.5–10)	10 (7.5–10)	10 (10–10)
Chi-squared statistic	–	0.40	–	0.20	–	1.93
Gender-identity institutional stigma/violence						

Table 3 (continued)

	Condomless anal sex		Condomless vaginal sex		Sex work	
	No (n = 280, 70.7%)	Yes (n = 112, 28.3%)	No (n = 266, 67.2%)	Yes (n = 128, 32.3%)	No (n = 360, 90.9%)	Yes (n = 29, 7.3%)
Mean (SD)	2.4 (3.0)	3.3 (3.5)	2.7 (3.1)	2.5 (3.2)	2.4 (2.9)	5.3 (4.2)
Median (IQR)	2 (0–4)	2 (0–6)	2 (0–4)	1 (0–4)	2 (0–4)	5 (0–10)
Chi-squared statistic	–	5.33*	–	1.65	–	13.26***
Global sexual behavior stigma						
Mean (SD)	2.3 (2.7)	3.3 (2.9)	2.6 (2.8)	2.5 (2.8)	2.4 (2.6)	5.1 (3.4)
Median (IQR)	1.3 (0–3.3)	2.2 (1.1–5.6)	2.2 (0–4.4)	1.3 (0–3.5)	1.3 (0–3.3)	5.6 (2.2–8.8)
Chi-squared statistic	–	13.00***	–	0.27	–	16.63***
	HIV testing		STI testing		PreP use	
	No (n = 251, 63.4%)	Yes (n = 145, 36.6%)	No (n = 248, 62.6%)	Yes (n = 126, 31.8%)	No (n = 365, 92.2%)	Yes (n = 22, 5.6%)
Age						
Median (IQR)	23 (19–33)	27 (22–36)	24 (19–36)	25 (22–33)	24 (20–35)	28 (25–33)
Chi-squared statistic	–	14.20***	–	3.08	–	3.73
Education						
≤ High school	101 (40.2)	37 (25.5)†	99 (39.9)	30 (23.8)†	132 (36.2)	4 (18.2)
Some college[a]	97 (38.6)	58 (40.0)	93 (37.5)	56 (44.4)	143 (39.2)	10 (45.5)
≥ College	45 (17.9)	50 (34.5)†	50 (20.2)	40 (31.7)‡	83 (22.7)	8 (36.4)
Unknown	8 (3.2)	0 (0.0)	6 (2.4)	0 (0.0)	7 (1.9)	0 (0.0)
Chi-squared statistic	–	16.03***	–	11.81**	–	3.68
Race/ethnicity						
White, non-Hispanic	181 (72.1)	107 (73.8)	179 (72.2)	95 (75.4)	268 (73.4)	13 (59.1)
Black, non-Hispanic	4 (1.6)	4 (2.8)	6 (2.4)	2 (1.6)	7 (1.9)	0 (0.0)
Other, non-Hispanic[b]	25 (10.0)	10 (6.9)	23 (9.3)	9 (7.1)	34 (9.3)	1 (4.5)
Hispanic	26 (10.4)	18 (12.4)	26 (10.5)	16 (12.7)	38 (10.4)	6 (27.3)
Unknown	15 (6.0)	6 (4.1)	14 (5.6)	4 (3.2)	18 (4.9)	2 (9.1)
Chi-squared statistic	–	1.94	–	1.13	–	6.95
Sexual identity						
Homosexual/gay	37 (14.7)	21 (14.5)	38 (15.3)	18 (14.3)‡	54 (14.8)	3 (13.6)
Heterosexual/straight	19 (7.6)	16 (11.0)	21 (8.5)	11 (8.7)	28 (7.7)	5 (22.7)‡
Bisexual/pansexual	126 (50.2)	52 (35.9)	124 (50.0)	45 (35.7)‡	173 (47.4)	3 (13.6)†
Queer	40 (15.9)	34 (23.4)	37 (14.9)	32 (25.4)‡	65 (17.8)	6 (27.3)
Other[c]	25 (10.0)	20 (13.8)	25 (10.1)	18 (14.3)	39 (10.7)	5 (22.7)
Unknown	4 (1.6)	2 (1.4)	3 (1.2)	2 (1.6)	6 (1.6)	0 (0.0)
Chi-squared statistic	–	9.41	–	10.11*	–	14.18**
Insurance status						
Uninsured	26 (10.4)	9 (6.2)	193 (77.8)	114 (90.5)‡	292 (80.0)	21 (95.5)
Insured	194 (77.3)	127 (87.6)	26 (10.5)	6 (4.8)	34 (9.3)	1 (4.5)
Unknown	31 (12.4)	9 (6.2)	29 (11.7)	6 (4.8)	39 (10.7)	0 (0.0)
Chi-squared statistic	–	2.56	–	4.28*	–	0.79
Urbanicity						
Large metro	73 (29.1)	53 (36.6)	69 (27.8)	50 (39.7)‡	106 (29.0)	13 (59.1)‡
Suburban	63 (25.1)	27 (18.6)	64 (25.8)	18 (14.3)‡	86 (23.6)	3 (13.6)
Small/medium metro	80 (31.9)	50 (34.5)	81 (32.7)	43 (34.1)	123 (33.7)	6 (27.3)
Rural/micro metro	35 (13.9)	15 (10.3)	34 (13.7)	15 (11.9)	50 (13.7)	0 (0.0)
Chi-squared statistic	–	4.44	–	9.01*	–	10.25*
Region						
Northeast	65 (25.9)	25 (17.2)	61 (24.6)	23 (18.3)	85 (23.3)	0 (0.0)‡

Table 3 (continued)

	HIV testing		STI testing		PrePP use	
	No (n = 251, 63.4%)	Yes (n = 145, 36.6%)	No (n = 248, 62.6%)	Yes (n = 126, 31.8%)	No (n = 365, 92.2%)	Yes (n = 22, 5.6%)
Midwest	49 (19.5)	28 (19.3)	51 (20.6)	22 (17.5)	73 (20.0)	4 (18.2)
South	79 (31.5)	47 (32.4)	78 (31.5)	41 (32.5)	116 (31.8)	8 (36.4)
West	58 (23.1)	45 (31.0)	58 (23.4)	40 (31.7)	91 (24.9)	10 (45.5)‡
Chi-squared statistic	–	5.28	–	4.17	–	8.64*
Gender-identity social stigma						
Mean (SD)	7.9 (2.9)	8.6 (2.5)	7.8 (3.0)	8.7 (2.3)	8.1 (2.8)	8.4 (2.7)
Median (IQR)	10 (6.7–10)	10 (7.5–10)	10 (6.7–10)	10 (7.5–10)	10 (7.5–10)	10 (7.5–10)
Chi-squared statistic	–	5.33*	–	8.97**	–	0.21
Gender-identity institutional stigma/violence						
Mean (SD)	2.2 (2.8)	3.5 (3.5)	2.1 (2.8)	3.3 (3.5)	2.4 (3.0)	4.9 (3.5)
Median (IQR)	0 (0–4)	2 (0–6)	0 (0–4)	2 (0–6)	2 (0–4)	4.5 (2–8)
Chi-squared statistic	–	13.57***	–	10.38**	–	11.60***
Global sexual behavior stigma						
Mean (SD)	2.2 (2.7)	3.2 (3.0)	2.1 (2.5)	3.3 (3.1)	2.4 (2.7)	4.3 (3.3)
Median (IQR)	1.1 (0–3.3)	2.2 (0–5.6)	1.1 (0–3.3)	2.5 (1.1–5.6)	1.4 (0–3.8)	2.9 (2.2–6.7)
Chi-squared statistic	–	10.90**	–	16.22***	–	9.29**

Missingness per outcome: condomless anal sex (n = 4, 1.0%); condomless vaginal sex (n = 2, 0.5%); transactional sex (n = 7, 1.8%); STI testing (n = 22, 5.6%); PrEP use (n = 9, 2.3%)

[a]Including associate's degree or technical school; [b]Including Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, Multiracial; [c]Including asexual, questioning, and unlisted identities

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$; HIV, human immunodeficiency virus; STI, sexually transmitted infection; PrEP, pre-exposure prophylaxis; IQR, interquartile range; SD, standard deviation

‡Adjusted residual > | 2 |, †adjusted residual > | 3 |

Product Terms

Roughly two thirds of participants (265/396, 66.9%) endorsed ≥ 1 gender identity and ≥ 1 sexual behavior stigma, and 50.0% (198/396) endorsed ≥ 2 of each. The product term for gender-identity social stigma and gender-identity institutional stigma/violence on condomless vaginal sex was significant in multivariable analyses ($p = 0.004$). Simple slopes for gender-identity social stigma were significant at all values (1–10) of gender-identity institutional stigma/violence (all $p < 0.05$; Fig. 1). In other words, the marginal effect of gender-identity social stigma on condomless vaginal sex depended on the extent of gender-identity institutional stigma/violence experienced, with a more consequential effect (i.e., greater risk for condomless vaginal sex) the higher the gender-identity institutional stigma/violence. The adjusted effect remained significant ($p = 0.011$) when restricted to participants who had not had gender affirmation surgery ($n = 376$, 95.0%), and all simple slopes of gender-identity social stigma remained significant ($p < 0.05$) at each value of gender-identity institutional stigma/violence except when the value was 1 ($p = 0.086$; not shown). No other product terms were significant (not shown).

Discussion

In this study, we identified latent constructs of gender identity stigma, including gender-identity social stigma and gender-identity institutional stigma/violence, with borderline adequate and adequate internal consistency, respectively. We also identified an underlying construct of sexual behavior stigma—global sexual behavior stigma—which had adequate internal consistency. We found a high burden of each stigma subtype across participants, and we documented associations between each latent stigma construct and several sexual health outcomes, including sexual behaviors, sex work, and sexual health service utilization.

Our findings are consistent with research that has documented high prevalence of gender identity stigma among transgender women in diverse settings [11, 16]. We extend these findings by also showing a high burden of sexual behavior stigma, justifying calls for the inclusion of sexuality-based stigma in research and intervention-development with this population [29, 85]. Among the most endorsed stigma experiences across gender identity and sexual behavior were fear when in public and verbal harassment. Transphobic verbal harassment is commonplace for many

Table 4 Associations between stigma factors and sexual health outcomes among US transgender women

Stigma factors	Condomless anal sex (n = 112, 28.3%)		Condomless vaginal sex (n = 128, 32.3%)		Sex work (n = 29, 7.3%)	
	PR (95% CI)	aPR (95% CI)	PR (95% CI)	aPR (95% CI)	PR (95% CI)	aPR (95% CI)
Gender-identity social stigma	1.00 (0.95, 1.07)	–	0.97 (0.93, 1.02)	–	1.06 (0.90, 1.25)	–
Gender-identity institutional stigma/violence	1.06** (1.02, 1.11)	1.07** (1.02, 1.13)	0.98 (0.93, 1.03)	–	1.24*** (1.12, 1.38)	1.31*** (1.13, 1.52)
Global sexual behavior stigma	1.08** (1.04, 1.14)	1.10*** (1.05, 1.16)	0.99 (0.93, 1.04)	–	1.29*** (1.16, 1.43)	1.37*** (1.16, 1.61)
Stigma factors	HIV testing (n = 145, 36.6%)		STI testing (n = 126, 31.8%)		PrEP use (n = 22, 5.6%)	
	PR (95% CI)	aPR (95% CI)	PR (95% CI)	aPR (95% CI)	PR (95% CI)	aPR (95% CI)
Gender-identity social stigma	1.06* (1.00, 1.12)	1.08* (1.02, 1.15)	1.10** (1.03, 1.18)	1.13** (1.05, 1.22)	1.04 (0.88, 1.22)	–
Gender-identity institutional stigma/violence	1.08*** (1.04, 1.12)	1.07*** (1.03, 1.11)	1.08*** (1.04, 1.12)	1.07** (1.03, 1.11)	1.21*** (1.09, 1.34)	1.17* (1.01, 1.34)
Global sexual behavior stigma	1.08** (1.03, 1.13)	1.07** (1.03, 1.12)	1.11*** (1.06, 1.16)	1.08*** (1.04, 1.13)	1.25*** (1.10, 1.41)	1.24** (1.07, 1.43)

Models 1–3 controlled for age, education, race/ethnicity, sexual identity, and urbanicity; Models 4–6 controlled for the same covariates, plus insurance status

PR, prevalence ratio; aPR, adjusted prevalence ratio; CI, confidence interval; STIs, sexually transmitted infections; PrEP, pre-exposure prophylaxis

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

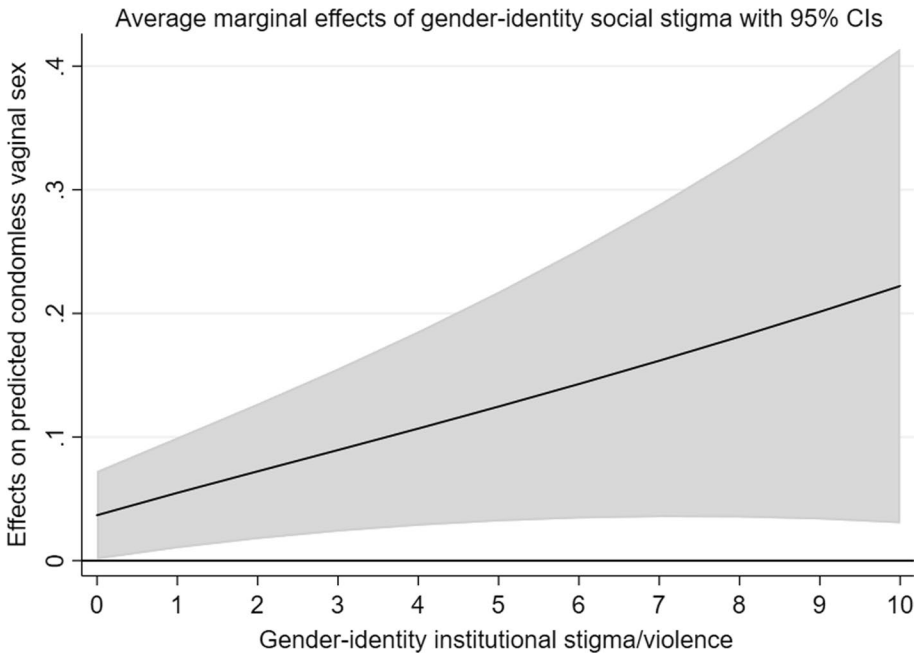

Fig. 1 Average marginal effects of gender-identity social stigma (with 95% confidence intervals [CIs]) on condomless vaginal sex at all possible values of gender-identity institutional stigma/violence among transgender women in the United States

transgender women [86, 87], which, in conjunction with structural (e.g., bathroom bills, sports bans) and interpersonal violence (e.g., assault, murder) against the transgender community, could conceivably foster a sense of threat and fear when in public spaces [88–92]. Additional threats of harm based on sexual prejudice may exacerbate this sense and lead to verbal harassment in even more contexts.

Gender-identity social stigma featured perceived/enacted negative interactions with others and fear when in situations (i.e., in public) that may facilitate such

interactions. What drove the constitution of this factor is unclear, as different forms of stigma (anticipated, perceived/enacted) in diverse contexts (family, public, unspecified) were represented. Gender-identity institutional stigma/violence featured negative encounters with healthcare and legal institutions, and physically and sexually violent interpersonal encounters. Form and context may have driven this factor's composition, as several items pertained to perceived/enacted stigma. Moreover, institutional stigma was represented in several of the items, while violence was represented in the others.

Sexual behavior stigma featured a mix of social and institutional stigma and violence. Item-removal driven by low endorsement may have prevented detection of additional constructs underlying sexual behavior stigma items [93], though one construct may in fact best represent experiences of sexual behavior stigma for transgender women in our sample; this is an area for future research. Notably, several healthcare stigma items were among the least-endorsed, possibly indicating that stigmatization in healthcare contexts is experienced as gender identity- rather than sexuality-related, or that providers and transgender women rarely discuss sex. Transgender women may consider sexual behavior issues less relevant to their healthcare, or providers may lack competence to address gender minorities' sexual health [94, 95].

Though comprised of the most commonly endorsed experiences, gender-identity social stigma was associated with past-year HIV and STI testing only. Prior research has linked gender identity and other types of stigma to transgender women's sexual health service utilization, as both a reason to delay sexual health services and as an unavoidable component of receiving them [60, 96], either of which could explain our findings. This relationship could also be explained by disclosure, with individuals who utilize sexual health services being likely to disclose their gender identity as part of the healthcare assessment, experiencing stigma as a result.

Though comprised of the least commonly endorsed stigma experiences, gender-identity institutional stigma/violence was associated with nearly all examined outcomes: condomless anal sex, sex work, HIV and STI testing, and PrEP use. Sex work contexts may more easily facilitate gender identity stigmatization or even victimization by both police/legal systems and sex work clients [15], while healthcare contexts may facilitate stigmatization when attempting to access sexual health services. Moreover, stigma in the form of denial of gender-affirming services or transphobic violence may exacerbate the need for gender affirmation while also restricting accessible avenues for it, which could lead to engagement in sexual behaviors to secure gender affirmation [3].

Like gender identity institutional stigma/violence, global sexual behavior stigma had strong associations with sexual behaviors, sex work, and sexual health service utilization. While transgender women may encounter sexual behavior stigma due to sexual identity, sexual partner characteristics, or misperceptions about their gender identity [11, 33, 97], they may also encounter sexual behavior stigma because sexual practices such as condomless anal sex and occupations such as sex work are stigmatized [31, 97–100]. The reverse has also been shown, wherein experiences of stigma due to one's presumed sexual behavior or sexuality may lead to participation in these practices [101, 102]. Likewise, sexual health service utilization typically requires disclosure of one's sexual behaviors or other sexuality-based attributes to healthcare workers, which may also lead to stigmatization [103, 104]. Further, sexual health service utilization, particularly PrEP use, is often conflated with stigmatized sexual behavior [105]. Incorporating a sex-positive perspective into medical/public health discourse could be effective for both sexual behavior stigma-mitigation and sexuality-affirmation in this population.

That our gender identity-by-sexual behavior product terms were non-significant does not negate the fact that these are intersecting attributes or that they may lead to intersecting stigma experiences. The lack of findings could reflect how these stigmas operate uniquely and independently of one another for this sample of transgender women, but could also reflect selective stigmatization and differences in disclosure across contexts (or participants' being asked to report their experiences of stigma separately by stigmatized identity/attribute). A lack of statistical power and the relative homogeneity of the sample (thereby limiting the diversity of potential experiences of both stigmas) could have contributed as well.

However, we did find that gender-identity social and institutional stigma/violence interacted to increase risk for condomless vaginal sex. For transgender women who have not had or who do not want gender affirmation surgery, condomless vaginal sex can potentiate HIV risk, and though underresearched, prior studies have linked transgender women's engagement in condomless vaginal sex to HIV/STI risk [55]. Such a substantial burden of both gender-identity social and institutional stigma/violence may be particularly isolating, in terms of both social and material resources, resulting in restricted access to safe sex tools or fostering a need for intimacy and connection that may be achieved through condomless sex. Condomless sex may act as an avoidant, albeit useful, strategy to cope with stigma, serving as an escape from any thoughts or emotions resulting from that stigma [106–108]. Notably, prior research has documented greater distress and greater use of avoidant coping among transgender persons who have less social support or who are earlier in the transition or affirmation process [109]. Identifying

mechanisms linking gender-identity social and institutional stigma/violence to condomless vaginal sex merits future research.

Our findings echo the need for structural- and community-level interventions to mitigate stigma, affirm gender identity and sexuality, and increase safe, equitable access to socioeconomic (including housing, education, and employment), healthcare, and other resources. While recent legislation (such as the *Bostock v. Clayton County* ruling, which provided federal protection for employees against discrimination because they are transgender or a sexual minority) could somewhat aid in these efforts [110, 111], other ongoing legislation (e.g., bathroom bills, sports participation restrictions, gender affirmation care bans, bans of books and classroom discussions pertaining to sexuality and gender, and the like) rooted in status-quo oppressive power structures (e.g., sexism and cisgenderism, heteropatriarchy, white supremacy, capitalism) will continue to undermine them, constraining the human rights of and increasing stigma toward transgender people, exacerbating social and health inequities further [88, 112]. Collective and concerted efforts remain warranted to identify and disrupt intersectional causes of transgender health inequities, including structures of domination that shape institutional systems and sociocultural processes [113].

Limitations

Findings should be considered in light of limitations. First, as this was an online convenience sample of young, mostly non-Hispanic white transgender women, results may not be generalizable to more diverse samples unlikely to be recruited online. Further, these sample characteristics, especially the lack of racial/ethnic diversity, limit the extent to which our findings can richly contribute to understandings of HIV-related health inequities. Second, the small sample size and even smaller cell values of some subgroups prevented modeling and possibly the detection of some relationships. Third, the data were cross-sectional, preventing the establishment of temporality. Future qualitative research to understand better the directionality of the relationships found here, particularly the relationships with sexual health testing and PrEP use, would be useful. Relatedly, the recall period for all outcomes was the 12 months prior to survey completion, which could have resulted in recall bias. Fifth, stigma items removed in preliminary analyses were not subjected to EFA. Items may behave differently in larger, more diverse samples and not necessitate removal, yielding an alternative factor structure. Removal may also indicate the need for more refinement of some items. Incentives were not provided for completing the survey, which may have discouraged some individuals from participation. Finally, we examined self-reported stigma experiences perceived to be related to one's gender identity and sexual behavior, requiring some level of subjective judgment and therefore possible bias.

Conclusion

Results of this study highlight the multifaceted burden of gender identity and sexual behavior stigma encountered by US transgender women and stigma's complex linkages to sexual health. Stigma-mitigation interventions must be more innovative and intentional in targeting the socio-environmental contexts (e.g., family, healthcare) in which stigma emerges or is experienced. With COVID-19 constraining healthcare access further, addressing stigma may be even more consequential for preventing the exacerbation of sexual health disparities. Understanding that sexuality is part of transgender women's lived experience and ensuring that sexuality is integrated into gender identity stigma-mitigation interventions for transgender women across settings, including programs that train providers in transgender-competent care, will be key in these efforts.

Acknowledgements This study was funded by the National Institute of Mental Health (Grant No. R01MH110358) and by the National Institute of Allergy and Infectious Diseases (Grant No. P30AI050409)—the Emory Center for AIDS Research. JLM received research support from the National Institute of Allergy and Infectious Diseases (Grant No. T32AI102623).

Author contributions JMW: conceptualization, formal analysis, methodology, visualization, writing (original draft), writing (review & editing); JLM: conceptualization, supervision, writing (review & editing); AIS: writing (review & editing); MZ: writing (review & editing), project administration, data curation; THS: writing (review & editing), project administration, original funding acquisition, original investigation; SDB: writing (review & editing), supervision, project administration, funding acquisition.

Funding Funding was provided by National Institute of Mental Health (Grant No. R01MH110358), National Institute of Allergy and Infectious Diseases (Grant No. P30AI050409).

Data Availability The data are not publicly available to protect confidentiality. Requests to access the data should be send to authors SDB and THS.

Code Availability Code may be made available by contacting the first author.

Declarations

Conflict of interest The authors have no conflicts of interest to report.

Ethical Approval The original study was approved by Emory University's institutional review board. This secondary analysis of de-identified data was deemed exempt from review by Johns Hopkins University's institutional review board.

Consent to Participate This was a secondary data analysis of de-identified data. In theoriginal study, participants provided informed consent to participate.

Consent for Publication Not applicable.

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