Differential HIV Risk for Racial/Ethnic Minority Trans*female Youths and Socioeconomic Disparities in Housing, Residential Stability, and Education

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Objectives. We examined HIV prevalence and risk behaviors of 282 trans*female youths aged 16 to 24 years participating in the San Francisco Bay Area, California, SHINE study from 2012 to 2013 to determine differences between racial/ethnic minority and White youths.

Methods. We conducted the χ^2 test to determine distributional differences between racial/ethnic minority and White participants in sociodemographic factors, HIV-related risk behaviors, and syndemic factors.

Results. Of the trans*female youths, 4.8% were HIV positive. Racial/ethnic minority and White trans*female youths differed significantly in gender identity and sexual orientation. Racial/ethnic minority youths also had significantly lower educational attainment, were less likely to have lived with their parents of origin as a child, and were significantly more likely to engage in recent condomless anal intercourse than were Whites.

Conclusions. Efforts to assess the impact of multiple-minority stress on racial/minority trans*female youths are needed imminently, and prevention efforts must address macrolevel disparities for trans*female youths, especially those from racial/ethnic minority groups, to reduce these disparities and prevent incident cases of HIV. (*Am J Public Health.* 2015;105:e41–e47. doi:10.2105/AJPH.2014.302443)

Trans*female youths (i.e., youths whose gender identity is different from that typically associated with their male sex assigned at birth) aged 16 to 24 years are disproportionately at risk for HIV and other poor health and social outcomes.[1–3] In 2010, youths aged 13 to 24 years made up 17% of the US population but accounted for 26% of all new HIV infections.[4] Two studies of trans*female youths found that 1 in 5 were infected with HIV before age 25 years.[5,6] These rates presage the high prevalence of HIV among adult transwomen. In San Francisco, California, adult transwomen aged 18 years and older have the highest HIV prevalence of any population at 39.5%, the highest proportion of AIDS cases among youths, and the highest mortality from AIDS.[7]

Adolescence is the most important period in setting patterns of future risk behavior.[8] HIV prevention efforts with youths may be best informed by identifying the correlates of risk behavior, rather than HIV-related risk behavior alone, to effectively intervene. For example, Sevelius et al.[9] found inconsistent condom use was associated with stimulant use, among other factors. Identifying patterns of risk behaviors is particularly relevant for trans*female youths, who may not be infected until years after they establish such behaviors.

Macrolevel factors are also an important influence on individual risk for HIV and may be even more prevalent among racial/ethnic minority youths.[10] Latinas and African Americans have been overrepresented in studies of transwomen compared with their representation in the general population[5,7,11,12] and exist at the intersection of multiple stigmatized social identities, including sexual orientations and gender identities that transgress culturally accepted social norms. Much like gay racial/ethnic minority youths, trans*female youths may be more likely to face poverty and social instability, factors that have been found to underpin HIV epidemics through less engagement in preventive care and more engagement in HIV-related risk behaviors as a result of stress-induced mental health conditions.[10,13] For racial/ethnic minority trans*female youths, experiences of racism may cause heightened exposure to HIV risk factors through discrimination in education, housing, and residential stability.[14] For example, 1 study of Latinos and African Americans in 12 high HIV prevalence areas in Broward County, Florida, found that those with less education were more likely to hold stigmatizing beliefs about those living with AIDS, were less likely to engage in HIV prevention community mobilization, and perceived themselves to be at increased HIV risk.[15]

Data that describe the way racism affects risk behaviors of transgender people are limited, but evidence from numerous studies has suggested that racial/ethnic minority transwomen are disproportionately affected by HIV.[11,16,17] Of all transgender HIV cases diagnosed in San Francisco between 2006 and 2012, Latinas and African Americans accounted for the largest proportion (35% and 27%, respectively).[18] A recent population-based study of HIV prevalence among transwomen in San Francisco found that African Americans made up almost half of all HIV-positive cases.[19] Addressing racial inequities specific to HIV that are prevalent among trans*female youths may be the path forward to effective prevention efforts.

We examined HIV prevalence and HIV risk behaviors in a sample of 282 trans*female youths aged 16 to 24 years in the San Francisco Bay Area. Our goal was to determine differences in sociodemographic factors and risk behaviors by stratifying our sample by racial/ethnic minority youths and Whites. We hypothesized that racial/ethnic minority trans*female youths would engage in more HIV-related sexual and drug-use behaviors as

mechanisms to cope with discrimination and identity threat.[20,21]

We also sought to assess both interpersonal and macrolevel factors by testing a model of syndemic risk for this population. Singer[22] described a syndemic as being multiple co-occurring health problems that work together in an environment of social inequality. Previous syndemics work with trans*female youths assessed the additive and associated risk for HIV caused by a syndemic index of low self-esteem, polysubstance use, victimization related to transgender identity, and intimate partner violence.[23] In the analysis, Brennan et al.[23] found that sex work and incarceration were significantly related to the syndemic index, speaking to the importance of structural factors associated with social marginalization. In constructing a syndemic index of risk for trans*female youths, we assessed psychosocial and macrolevel factors of depression, trauma, violence in school, stigma toward transgender people, unstable housing, and parental rejection. To our knowledge, this sample of the trans*female youth population is the largest in the scientific literature to date.

METHODS

The SHINE study is a longitudinal study of HIV risk and resilience among trans*female youths; our analysis used data from the baseline assessment (2012–2013). Study participants were initially recruited using a peer-referral method to obtain a diverse sample of this hard-to-reach population.[24] After a formative assessment phase, which included focus groups with trans*female youths, we selected 10 diverse (e.g., with respect to age, race/ethnicity, education, and geography) trans*female youths to function as recruiter seeds. These youths were asked to recruit as many as 5 participants, who in turn were asked to recruit a subsequent wave of as many as 5 participants, and so on. To complete the cohort study sample, we used direct referrals from community-based organizations, outreach at events, and online outreach through social networks.

Individuals were eligible for the study if they (1) self-identified as any gender other than that associated with their assigned male sex at birth, (2) were aged 16 to 24 years, and (3) reported living in the San Francisco Bay Area. We obtained written consent from all youths aged 18 years or older and written assent from younger participants (in accordance with a review board waiver of parental consent) before they started the behavioral survey, which was interviewer administered using hand-held tablet computers. All participants were offered rapid HIV testing regardless of self-reported HIV status. Positive rapid HIV tests were confirmed using a secondary rapid test of a different brand and testing method.

Measures

Sociodemographic factors. We assessed youths' age, gender, race/ethnicity, whether they were born in the United States or abroad, sexual orientation (straight or heterosexual, lesbian or gay, queer, bisexual, pansexual, questioning, no preference), HIV status, education (in school, general equivalency diploma, or high school graduate; highest grade attained), income (inclusive of all sources of income and dichotomized to those above and below the federal poverty level), unstable housing currently (i.e., lived in a single room occupancy or were currently homeless) and as a child (i.e., moved 2 or more times) between kindergarten and age 16 years (yes–no responses), and living situation as a child (i.e., with parents of origin, with family caregiver, adopted, or in foster care). We measured racial discrimination with items from Krieger et al.'s[25] Experiences of Discrimination instrument, which asks whether one has ever experienced racial discrimination in school, getting a job, housing, medical care, services, or getting credit, a loan, or mortgage; at work; on the street or in public; or from the police or in courts. We used this set of factors in comparisons between racial/ethnic minority youths and White youths.

HIV-related risk behaviors. Measures of sexual risk behavior were recent (past 6 months) condomless anal intercourse (CAI), condomless insertive anal intercourse, and condomless receptive anal intercourse. We defined youths as having used substances if they reported binge drinking 25 times or more in the past 6 months, used methamphetamine once a week or more in the past 6 months, or used cocaine once a week or more in the past 6 months. If youths responded that they had ever injected drugs, we coded them as positive. The main outcome for the final analysis of HIV risk was CAI.

Syndemic factors. We assessed depressive symptoms in the past week using the short version of the Center for Epidemiologic Studies Depression Scale.[26] We used items from the brief New York PTSD Risk Score[27] to assess trauma in the past year, including the primary care posttraumatic stress disorder screen and the trauma exposure and sleep disturbances items. We assessed trans-related discrimination with measures from the Experiences of Transphobia Scale, an adaptation of a measure of homophobia developed by Diáz et al.[28]

We assessed unstable housing by asking youths about their current housing situation. Youths were coded as "yes" if they responded that they lived in a single room occupancy or were currently homeless. Being bullied while growing up was coded "yes" if youths responded with anything other than never on a Likert scale of responses to the question "As you were growing up (any time before 16 years), how often were you bullied (regularly harassed, threatened, and/or physically harmed) at school because of your gender identity or gender presentation?" Parental rejection was coded as "yes" if youths responded positively to the question "Have your parents/caregivers ever treated you poorly because of your gender identity or gender presentation?"

Data Analysis

We conducted the χ^2 test to examine distributional differences between racial/ethnic minority and White participants in the assessment of sociodemographic factors, HIV-related risk behaviors, and syndemic factors. To assess the proposed syndemic index, we calculated bivariate statistics comparing White and racial/ethnic minority youths on the 6 domains. We created a variable for the number of syndemic factors, then categorized this variable into the following groups: 0 to 1, 2, 3, 4, and 5 to 6 factors. CAI was the dependent variable. We did not include respondent-driven sampling adjustments in any analysis because respondent-driven sampling was not fully used to recruit participants. We conducted all analyses in R (version R-2.15.0, Revolution Analytics, Palo Alto, CA). We considered P values of .05 or less as significant.

RESULTS

Our study included 282 trans*female youths ages 16 to 24 years who resided in the San Francisco Bay Area. Nearly one fourth (23.5%) were aged 16 to 19 years, and 76.5% were aged 20 to 24 years (Table 1). When asked their gender identity, youths primarily responded with the terms *genderqueer* (i.e., identify as neither woman nor man; 45.4%) or *transgender* (33.1%). The sample was 36.8% White, 21.9% Latina, 15.2% mixed race, 13% African American, and 5.9% Asian; 7.1% identified as other. Most youths were born in the United States (84%). The most frequently reported sexual orientation was heterosexual (30.5%), followed by lesbian or gay (19.7%) and pansexual (13.4%).

Almost one half of youths had some college education or more (45.1%); three fourths lived on less than $1000 per month (74.2%). Of those making $1000 or less, 36.5% were currently in school. A total of 29.1% were currently unstably housed. As children (i.e., younger than 17 years), 81.8% lived with their parents of origin, and 38.3% were unstably housed (i.e., moved 2 or more times). Overall, 13 (4.8%) of the 269 trans*female youths for whom we had data were living with HIV. All 13 youths living with HIV knew their status at the time of participation.

Racial/ethnic minority youths were significantly more likely to identify as transgender than Whites (40.6% vs 20.2%; $P<.001$), and Whites were much more likely to identify as genderqueer (57.6% vs 38.2%; $P<.001$). Racial/ethnic minority youths were also significantly more likely than Whites to identify as gay or lesbian (22.4% vs 15.2%) or heterosexual (38.2 vs 17.2%; $P<.001$). Racial/ethnic minority youths were significantly less likely than White youths to have some college education or more (35.7% vs 61.5%; $P<.001$). Racial/ethnic minority youths were also much more likely to have lived with a family caregiver (12.4% vs 2.0%) or to have been adopted (12.9% vs 4%) than White youths ($P<.001$).

Racial/ethnic minority youth were significantly more likely to have experienced racial discrimination than their White peers (57.2% vs 15.3%; $P<.001$), and they were more likely to be currently unstably housed

TABLE 1—Demographic Characteristics of Trans*female Youths Aged 16 to 24 Years (n = 282): SHINE Study, San Francisco Bay Area, CA, 2012–2013

Variable	Total, No. (%)	Racial/Ethnic Minority, No. (%)	White, No. (%)	*P*
Age, y				.06
16–17	18 (6.7)	14 (8.2)	4 (4.0)	
18–19	39 (14.5)	26 (15.3)	13 (13.1)	
20–21	62 (23.5)	45 (26.5)	17 (17.2)	
22–23	108 (40.1)	65 (38.2)	43 (43.4)	
24	42 (15.6)	20 (11.8)	22 (22.2)	
Gender				<.001*
Genderqueer	122 (45.4)	65 (38.2)	57 (57.6)	
Transgender	89 (33.1)	69 (40.6)	20 (20.2)	
Female	42 (15.6)	27 (15.9)	15 (15.2)	
Other[a]	16 (5.9)	9 (5.3)	7 (7.1)	
Race/ethnicity				–
Asian	16 (5.9)	16 (9.4)	–	
African American	35 (13.0)	35 (20.6)	–	
Latina	59 (21.9)	59 (34.7)	–	
Mixed	41 (15.2)	41 (24.1)	–	
White	99 (36.8)	–	99 (100.0)	
Other[b]	19 (7.1)	19 (11.2)	–	
US-born				–
Yes	225 (84.0)	129 (76.3)	96 (97.0)	
No	43 (16.0)	40 (23.7)	3 (3.0)	
Sexual orientation				<.001*
Lesbian or gay	53 (19.7)	38 (22.4)	15 (15.2)	
Bisexual	36 (13.4)	12 (7.1)	24 (24.2)	
Heterosexual	82 (30.5)	65 (38.2)	17 (17.2)	
Pansexual	36 (13.4)	12 (7.1)	24 (24.2)	
Questioning	19 (7.1)	13 (7.6)	6 (6.1)	
Other[c]	18 (6.7)	8 (4.7)	10 (10.1)	
HIV status				.18
Positive	13 (4.8)	11 (6.5)	2 (2.0)	
Negative or unknown	256 (95.2)	159 (93.5)	97 (98.0)	
Education				<.001*
High school or less	145 (54.9)	108 (64.3)	37 (38.5)	
Some college or more	119 (45.1)	60 (35.7)	59 (61.5)	
Income				.37
< $1000 per month	198 (74.2)	121 (72.0)	77 (77.8)	
≥ $1000	69 (25.8)	47 (28)	22 (22.2)	
Unstable housing currently				.06
Yes	59 (21.9)	44 (25.9)	15 (15.2)	
No	210 (78.1)	126 (74.1)	84 (84.8)	
Moved ≥ 2 times as a child				.08
Yes	102 (38.3)	72 (42.6)	30 (30.9)	
No	164 (61.7)	97 (57.4)	67 (69.1)	

Continued

(25.9% vs 15.2%; $P=.06$) and as a child (42.6% vs 30.9%; $P=.08$), but these findings were not statistically significant. Racial/ethnic minority trans*female youths were evenly split between the younger (16–21 years) and older (22–24 years) age ranges, whereas only 34.3% of White youths were younger than 22 years ($P=.06$).

Of the participants, 37.2% reported CAI within the past 6 months; of those reporting CAI, 33.8% reported having condomless receptive anal intercourse in the past 6 months and 12.3% reported having condomless insertive anal intercourse (Table 2). Engagement in substance use (illicit drug use or binge drinking; 16%) and injection drug use (10%) was low relative to engagement in sexual risk behaviors. Racial/ethnic minority and White youths were significantly different on engagement in sexual risk behavior. They were most significantly different on condomless receptive anal intercourse (38.8% of racial/ethnic minority youths and 25.3% of White youths; $P=.03$). They also differed on CAI in the past 6 months, with 41.8% of racial/ethnic minority youths reporting CAI compared with 29.3% of Whites ($P=.06$), but this finding was not statistically significant.

Table 3 shows the prevalence of syndemic factors in the sample overall and in White and racial/ethnic minority youths. Overall, the sample had high reports of trauma in the past year (60.8%), transphobia during their youth (79.8%), and experiences with bullying while growing up (63%). We found no significant differences between groups or in the additive impact of syndemic factors on engagement in CAI (Table 4).

TABLE 1—*Continued*

Living situation as a child				< .001*
With parents of origin	220 (81.8)	127 (74.7)	93 (93.9)	
With family caregiver	23 (8.6)	21 (12.4)	2 (2.0)	
Adopted	26 (9.7)	22 (12.9)	4 (4.0)	
Foster				
Experienced racial discrimination ever[d]				< .001*
Yes	106 (41.2)	91 (57.2)	15 (15.3)	
No	151 (58.8)	68 (42.8)	83 (84.7)	

Note. Dashes indicate not applicable.
[a]Other gender identities included such gender as agender, androgynous, feminine, femme, princess, and 24/7 crossdresser.
[b]Other race/ethnicity included Iranian, Lebanese, Indian, Argentinian Arab, and Portuguese.
[c]For other sexual orientation, there was no option to fill in a sexual orientation.
[d]Racial discrimination in school, getting a job, at work, housing, medical care, getting services, getting credit, a loan or mortgage, on the street or in public, or from the police or in courts.
*$P < .001$.

DISCUSSION

Of the trans*female youths in this study, 4.8% (13) were HIV positive, which shows an elevated risk compared with the general population but a much lower prevalence than that in the population of adult San Francisco transwomen. Recent surveillance data through March 2013 showed a cumulative total of 352 HIV/AIDS cases among transgender people in San Francisco.[29] On the basis of these recent surveillance results, trans*female youths make up a very small proportion of local transgender HIV cases, and HIV may be most prevalent among transgender adults older than 24 years.[29] Cross-sectional surveys conducted by the San Francisco Department of Public Health have measured HIV prevalence among transwomen as accelerating from 0% at age 15 to 18 years to more than 35% by age 60 years, and the causal factors explaining why are not yet known. Compared with previous research with youths, we found markedly lower HIV rates. Wilson et al. found that 19% of a sample of 151 youths aged 16 to 24 years self-reported being HIV positive,[1] as did 22% of Garofalo et al.'s sample of 51 youths aged 16 to 25 years.[6]

These findings have 2 possible implications. One is that this is a cautionary tale, and prevention efforts are needed to curb the evolution from a relatively small epidemic to the large epidemic seen among adult transwomen. Alternatively, there may be an age cohort effect, wherein younger transwomen are less affected by HIV because of a natural evolution of the epidemic in this population in addition to or as a result of effective public health prevention efforts. In either case, it is clear that HIV still has a significant impact on trans*female youths.

Although the HIV prevalence among trans*female youths in this study was lower than that found in previous research, their socioeconomic situation was worse. More trans*female youths in this sample were low income compared to past research (i.e., <$1000 per month; 74.2% vs 67% in Wilson et al.[1]), and similar proportions of youths were unstably housed (21.9% vs 18% in Garofalo et al.[6]). Findings of a substantial proportion of low-income youths in this study are troubling because poverty is an important driver of HIV, and it has a particular impact on

TABLE 2—Reported HIV-Related Risk Behaviors Among Trans*female Youths by Race/Ethnicity: SHINE Study, San Francisco Bay Area, CA, 2012–2013

Variable	Overall, No. (%)	Racial/Ethnic Minority, No. (%)	White, No. (%)	*P*
CAI within past 6 mo	100 (37.2)	71 (41.8)	29 (29.3)	.06
CIAI within past 6 mo	33 (12.3)	21 (12.4)	12 (12.1)	≥.99
CRAI within past 6 mo	91 (33.8)	66 (38.8)	25 (25.3)	.03**
Substance use[a] within past 6 mo	41 (16.0)	31 (19.1)	10 (10.6)	.11
History of injection drug use ever	27 (10.0)	13 (7.6)	14 (14.1)	.13

Note. CAI = condomless anal intercourse; CIAI = condomless insertive anal intercourse; CRAI = condomless receptive anal intercourse.
[a]Defined as illicit substance use or binge drinking (i.e., having 5 or more alcoholic drinks on 1 occasion).
**$P < .05$.

TABLE 3—Reported Prevalence of Syndemic Factors in the Sample Overall and Differences in Prevalence of Syndemic Factors Between Racial/Minority and White Youths: SHINE Study, San Francisco Bay Area, CA, 2012–2013

Variable	Overall, No. (%)	Racial/Ethnic Minority, No. (%)	White, No. (%)	*P*
Depressive symptoms currently				.66
No	211 (78.7)	135 (79.9)	76 (76.8)	
Yes	57 (21.3)	34 (20.1)	23 (23.2)	
Trauma in past y[a]				.39
No	105 (39.2)	70 (41.4)	35 (35.4)	
Yes	163 (60.8)	99 (58.6)	64 (64.6)	
Experienced trans-related discrimination				≥.99
No	53 (20.2)	33 (19.9)	20 (20.6)	
Yes	210 (79.8)	133 (80.1)	77 (79.4)	
Unstable housing currently				.06
No	210 (78.1)	126 (74.1)	84 (84.8)	
Yes	59 (21.9)	44 (25.9)	15 (15.2)	
Bullied while growing up				.67
No	98 (37.0)	60 (35.7)	38 (39.2)	
Yes	167 (63.0)	108 (64.3)	59 (60.8)	
Parental rejection ever[b]				≥.99
No	185 (77.1)	121 (77.1)	64 (77.1)	
Yes	55 (22.9)	36 (22.9)	19 (22.9)	

[a]Primary care posttraumatic stress disorder screen, trauma exposure, and sleep disturbances.
[b]Ever treated poorly by parents because of one's gender identity or gender presentation.

partner selection and access to HIV prevention services.[10,30] More youths in our sample had some college education (45% vs 8% in Wilson et al.[1]), and more than 35% of low-income youths in this sample were students; thus, many low-income youths may have better job opportunities as a result of higher education to help them move out of poverty in the near future.

When we stratified the sample by race/ethnicity, it became clear that prevention efforts need to specifically address macrolevel structural factors and racial disparities among trans*female youths. Compared with racial/ethnic minority youths, 25% more White youths had some college education, and this difference was statistically significant. Also, although data on housing were not significant, 10% more racial/ethnic minority youths responded that they were currently unstably housed and had experienced housing instability as a child. Racial/ethnic minority trans*female youths were also significantly more likely than Whites to have engaged in condomless receptive anal intercourse in the past 6 months, which is the most risky sexual behavior with respect to HIV.

TABLE 4—Logistic Regression of Condomless Anal Intercourse on Syndemic Factors for Trans*female Youths: SHINE Study, San Francisco Bay Area, CA, 2012–2013

	Syndemic Factors		
No. of Conditions	CAI Overall, OR (95% CI)	CAI Racial/Ethnic Minority, OR (95% CI)	CAI White, OR (95% CI)
0–1 (Ref)	1.0	1.0	1.0
2	0.9 (0.4, 2.2)	0.9 (0.3, 2.6)	0.8 (0.2, 4.5)
3	1.7 (0.7, 3.9)	2.1 (0.7, 6.1)	1.3 (0.3, 6.2)
4	2.0 (0.8, 4.8)	1.4 (0.5, 4.3)	3.9 (0.7, 21.1)
5–6	1.9 (0.7, 5.4)	3.1 (0.9, 11.5)	0.8 (0.1, 6.3)

Note. CAI = condomless anal intercourse; CI = confidence interval; OR = odds ratio.

Not surprisingly, racial/ethnic minority youths in this sample also experienced racism more often than did their White peers. Racial stigma on top of gender-based stigma may exert a profound effect on trans*female youths' engagement in HIV-related risk behaviors. Members of racial/ethnic minority groups have been found to cope with racism-related stressors such as internalized racial stigma with substance use.[20,31] Racial stigma specifically has been found to affect condom use via its influence on decreased levels of self-control and subsequent substance use, as has been demonstrated among African American adolescents.[32,33] Trans*female youths who experience racial stigma may use substances to cope and be less inclined to use condoms while under the influence.[9,13,17,34] Among racial/minority trans*female youths who manage multiple marginalized social identities (i.e., racial minorities who are gender minorities), heightened stress and fewer coping mechanisms may ultimately lead to important health disparities in HIV.[35]

Interesting demographic characteristics emerged from these data, including a difference in the way in which young people express gender identity compared with findings from research with adults. A recent 2010 surveillance study of transwomen[19] found that almost half (47.8%) of transwomen in San Francisco identified as female, whereas only about 16% of youths in our sample identified as female. Instead, most youths identified as genderqueer, followed by transgender. This difference may reflect one step in a gender transition, it may represent an overall change in the way youths in the trans*female community see gender in nonbinary terms, or both.

Over the past 5 years, researchers have suggested that the trans*female community is not monolithic in terms of gender identity, and they have described differences within the population.[36,37] For example, Kuper et al.'s online gender identity study of 292 transgender people aged 18 to 73 years found that the oldest age group (≥35 years) was significantly

less likely than the younger group to identify as genderqueer.[38] However, little research has focused specifically on age cohorts, the ways in which conceptions of gender identity may be changing in the youth community, and how these changes are relevant for surveillance efforts and health education. This study demonstrated that gender identity varies within the trans*female youth community, and more in-depth research is needed to identify unmeasured confounding and explore these identities in depth.

Sexual orientation was also diverse and well distributed among a variety of identities. The largest proportion of youths identified as heterosexual but, when separated into racial/ethnic minority and White youths, the 2 largest identities for Whites were bisexual and pansexual, whereas racial/ethnic minority youths mostly identified as heterosexual or lesbian or gay. These data may help inform researchers' and providers' efforts to better identify risk behaviors and tailor prevention messages.

This study was limited because the data were not probability based; therefore, extrapolating to the general population is not possible. There have been calls for national HIV surveillance efforts within the trans*female population,[9,19] and our findings suggest the importance of including youths in such efforts. More research using longitudinal data to understand the temporal order from risk factors to risk behaviors to HIV is also needed. In addition, as with our recent adult surveillance study,[19] recruitment of Asian trans*female youths was low. Asian transwomen are known to be particularly hard to reach, which has been attributed to lack of ties to the transgender community. Targeted studies may be needed to reach this population. Another important limitation is the collapsing of racial/minority youths into a single category, which was done to test an overall theory of disparities in macrolevel factors that may have an impact on individual health behaviors. Future analyses are currently under way that focus on specific racial/ethnic groups within the population.

Despite its limitations, this study indicates that important opportunities exist for primary prevention of HIV in a younger cohort of trans*female youths in the San Francisco Bay area. To date, there is no evidence-based HIV prevention intervention for trans*female youths. This is the only set of recent data from a large sample of trans*female youths and, as such, it can be used to guide efforts to develop evidence-based interventions. These data also make it clear that there are important disparities in engagement in HIV-related risk behaviors and access to education, stable housing, and residential stability as a child for racial/ethnic minority youths.

Interventions that focus on addressing racial inequalities to reduce stressors that compromise mental health and lead to coping through substance use and risky sexual behavior may have the most impact on HIV risk in the trans*female community. Public health efforts that prioritize access to housing, education, and jobs and move away from focusing solely on individual behaviors and behavior change alone will likely demonstrate the most health and wellness benefits for this important, understudied, and underserved community of trans*female youths. ■

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Contributors

E. C. Wilson originated the study, managed its implementation, ran the analysis, and was the primary author of the article. Y.-H. Chen primarily ran the statistical analyses and assisted in writing. S. Arayasirikul, M. Fisher, W. A. Pomart, and V. Le assisted in study development and implementation and in developing the analysis and writing the article. H. F. Raymond and W. McFarland were the coprincipal and coinvestigator, respectively, and assisted with study development, implementation, and writing. All authors helped to conceptualize ideas, interpret findings, and review drafts of the article.

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Human Participant Protection

All study procedures were approved by the institutional review board at the University of California, San Francisco. Written consent was obtained from all youths aged 18 years or older and written assent was given by younger participants in accordance with a review board waiver of parental consent.

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