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Sexual Behaviors, Referral to Sexual Health Services, and Use of Sexual Health Services Among Transgender High School Students

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Abstract

BACKGROUND—Transgender adolescents are at increased risk for negative sexual health outcomes compared to their cisgender peers.

METHODS—Using data from 10,231 students from 7 high schools in a large, urban school district, our analysis compared sexual behaviors, referral to sexual health services by school staff, and use of sexual health services between transgender and cisgender students. We used propensity score matching to create a comparable sample of transgender and cisgender students and logistic regression models to examine how gender identity was associated with aforementioned outcomes.

RESULTS—Transgender students were more likely to have ever had sex, less likely to have used a condom at last sex, and more likely to have been referred for human immunodeficiency virus (HIV) testing, sexually transmitted disease (STD) testing, and other sexual health services than cisgender students. Transgender students were no more likely than cisgender students to have tested for HIV or STDs.

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Human Subjects Approval Statement

The questionnaire and protocols for this study were reviewed and approved by the ICF Institutional Review Board (ICF Project Number 635274.00.000.004) and the Research Review Board for the participating school district.

Conflict of Interest

The authors have no conflict of interest to declare.

CONCLUSIONS—These findings underscore the need for understanding the risk perceptions held by transgender students and for prevention efforts that are inclusive for all gender identities. Research is needed to understand if school-based sexual health interventions such as staff referrals for sexual health services are effective for transgender students.

Keywords

transgender; gender identity; HIV/AIDS; STDs; adolescence; sexual health services

People who identify as transgender, including those who identify outside the gender binary (eg, gender nonbinary, genderqueer) are at increased risk for human immunodeficiency virus (HIV) and other sexually transmitted diseases (STDs). Both in the United States and globally, transgender populations are found to have a higher prevalence of HIV compared to cisgender populations.[1,2] Racial and ethnic minority transgender adults may disproportionately be affected. For example, one study found as many as 29% of Black and Latina transgender women self-reported being HIV positive in 3 US metropolitan areas.[3] Less is known about HIV prevalence among gender non-binary adults; however, one study suggests they may have an HIV prevalence equal to or greater than those who identify as transgender men or transgender women.[4]

Sexually active transgender young people are also at risk for STDs and HIV, and HIV prevalence estimates range widely from 4.8% to 30.9%.[5-8] Although these studies generally lack generalizability because they are not representative of the US population and are not limited to adolescent samples (ie, under the age of 19), they highlight increased HIV and STD risk among transgender adolescents, pointing to a need to better understand the sexual behaviors of these youth.

One protective factor to consider is condom use, which can reduce the risk of contracting HIV or STDs.[9] A lower prevalence of condom use among transgender populations may in part account for disparities in sexual health outcomes. For example, one study found that transgender high school students in Minnesota were less likely to use a condom at last sex, in addition to other sexual risk behaviors.[10] Given the protective effects of condom use, there is a substantial need to examine condom use among transgender adolescents.

In addition to condom use, testing and treatment for HIV and STDs is another important strategy for HIV and STD prevention. The Centers for Disease Control and Prevention (CDC) recommends that all individuals between 13 and 64 years of age test for HIV at least once as a part of routine health care and those at disproportionate risk, such as men who have sex with men or people who inject drugs, should test more frequently.[11] Additionally, sexually active women under the age of 25 and men at disproportionate risk (eg, populations with a high prevalence such as young men who have sex with men) are recommended to have routine screening for the STDs *chlamydia* and *gonorrhea*.[12] Similar to HIV, populations with more risk behaviors may benefit from more frequent testing for some STDs.[12] Specifically for transgender patients, the CDC recommends that clinicians assess STD- and HIV-related risks and screen for asymptomatic STDs as indicated by their patien's behavioral history and sexual practices.[12] One strategy for increasing the use of sexual health services such as HIV and STD testing among adolescents is a referral by school staff

to youth-friendly health care providers. Although there is evidence that school staff referrals are associated with increased testing among students in general,[13,14] it remains unclear to what extent such interventions reach transgender students.

Although sexually active transgender adolescents can benefit from the use of sexual health services such as HIV and STD screening, few data have been published on the HIV and STD testing behaviors of transgender adolescents. One study of transgender youth (ages 16 to 24) found high levels of lifetime testing for HIV but low levels of retesting and continued engagement in primary prevention for HIV.[5] As compared to cisgender students, transgender adolescents may lack engagement in preventive care more broadly. For example, in Minnesota, 9th- and 11th-grade transgender students were found to have fewer preventive health care visits in comparison to their cisgender peers.[15] A recent analysis of data from 10 states and 9 urban school districts in the United States found that transgender students were more likely than cisgender students to have ever tested for HIV.[16] These studies point to a need to better understand the HIV and STD testing behaviors among transgender adolescents.

To our knowledge, only 2 studies compare sexual behaviors[10,16] and no studies compare referrals to sexual health services and use of sexual health services between transgender and cisgender teens. We analyzed data from students in 7 high schools in a large, urban school district in the Southern United States to explore differences among transgender and cisgender students in terms of their sexual behaviors, school staff referral for sexual health services, and use of sexual health services.

METHODS

Participants

We used data from an evaluation of a school-centered HIV prevention program conducted in 7 high schools in a single, urban Florida school district to reduce HIV and STD infections among Black and Latino adolescent (ages 13-19) sexual minority males (ASMM) through school-based and community-based partnerships.[17] The program intended to increase the number of ASMM who had tested for HIV/STDs, decrease sexual risk behaviors among ASMM, and reduce absenteeism and school dropout among ASMM. The program had no specific focus on transgender students, and most program activities were implemented in a manner that reached all students—not only ASMM. Key program components included protocols for staff referrals for HIV and STD testing/treatment, a resource guide to help students identify appropriate providers of a variety of social and health services, including HIV and STD testing, and periodic onsite HIV testing opportunities via a mobile van. Of note, transgender-friendly care was a designation in the resource guide along with a number of other service provider characteristics such as LGB-friendly care, availability of free services, walk-in appointment options, and languages spoken.

Procedure

A 46-item self-administered paper-and-pencil questionnaire was given to a census of students in 7 high schools in the district. The questionnaire assessed demographic

characteristics, sexual behavior, experiences related to health services, school climate, and HIV/STD-related message exposure, and took students an average of 40 minutes to complete. Prior to survey administration, parental consent forms written in English, Spanish, and Haitian Creole were distributed to students; parents/guardians could return the forms to opt students out of data collection. Students who had not been opted-out of the survey by parents/guardians were read information about the study and given an opportunity to assent to their own participation. Students could decline participation with no questions and no penalty.

Data collection occurred over 2 weeks in December 2016. All students in attendance the day of the survey who had not been opted-out by parents and who were in regular classroom settings were able to take the survey. The survey was conducted during single periods or study hall/personalization periods depending on each school's preference. Surveys were not distributed to students in special needs classes or those in classes designated as non-English speaking. The questionnaire and protocols for this study were reviewed and approved by the ICF Institutional Review Board and the Research Review Board for the participating school district.

Overall, 10,231 students returned questionnaires. Response rate was calculated using total school enrollment for each school on the day of data collection and was determined to be 66.8%. During data cleaning, questionnaires without answers to 25% or more of the questions (n = 547) were removed from the sample. Students who were 12 years old or younger were removed due to a suspiciously high percent of respondents who identified as transgender (41.2%) among very few respondents in this category (n = 17). Further, 2.6% of students who were missing data on demographic variables (ie, age, sex, race and ethnicity, and gender identity) were removed. Additionally, 6% of students who responded "I don' know" to the gender identity question were removed, since it was impossible to ascertain whether they were questioning their gender identity or simply did not understand the question. The final unmatched sample consisted of 8,855 students, including 186 (2.1%) transgender students.

Instruments

Demographic characteristics.—Gender identity was assessed with the single question "A transgender person is someone whose biological sex at birth does not match the way they think or feel about themselves. Are you transgender?" with the response options yes, no, and I do not know. Age was assessed with the question "How old are you?" with the following response options: 12 years old or younger, 13 years old, 14 years old, 15 years old, 16 years old, 17 years old, and 18 years old or older. Sex was assessed as female or male. Ethnicity was assessed with the question "Are you Hispanic or Latino?" (yes/no) and race was assessed with the question "What is your race?" with the following response options: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or other Pacific Islander, and White. Race and ethnicity were combined to create 1 variable with the following categories: Hispanic or Latino, Non-Hispanic Black, Non-Hispanic White, and others. The other category included all Non-Hispanic American Indian or Alaska Native, Non-Hispanic Asian, and Non-Hispanic Native Hawaiian or other Pacific Islander

participants due to small numbers of students in each of these groups. The study team created a variable to designate school (n = 7), as data were being compiled for analysis.

Sexual behavior.—Sexually experienced students are those who responded yes to the question “Have you ever had sex?” Sex was defined as vaginal, oral, or anal sex. Sexually experienced youth were asked the question “The last time you had sex, did you or your partner use a condom?” with the response options yes and no. Having ever tested for HIV was assessed with the question, “Have you ever been tested for HIV, the virus that causes AIDS? (Do not count tests done if you donated blood.)” with the response options yes, no, and I do not know. Similarly, having ever tested for STDs was assessed with the question, “Have you ever been tested for other sexually transmitted diseases (STDs) such as genital herpes, chlamydia, syphilis, or genital warts?” with the response options yes, no, and I do not know. Demographic characteristics and sexual behaviors were measured using questions from the Youth Risk Behavior Survey, which has good test-retest reliability.[18]

Referral to sexual health services.—To assess whether students had been referred to sexual health services, students were asked the following questions: “During this school year, did a staff member at your school (such as a teacher, counselor, nurse, coach, or other school staff) provide you with a referral to HIV testing services or treatment?,” “During this school year, did a staff member at your school (such as a teacher, counselor, nurse, coach or other school staff) provide you with a referral to STD testing services or treatment?,” and “During this school year, did a staff member at your school (such as a teacher, counselor, nurse, coach or other school staff) provide you with a referral to other sexual health services such as contraceptives like condoms or pills, or HPV vaccine?” with the response options yes and no.

Data Analysis

Propensity score matching.—We used propensity score matching to create 2 matched datasets, 1 for all students, and 1 for sexually experienced students. We created the matched data sets using the MatchIt function[19] in R.[20] To create the matched dataset of all students, we matched based on age, race/ethnicity, sex, and school using the nearest neighbor method with replacement with 2 to 1 matches (ie, 2 cisgender students to every transgender student). Additionally, we use the “discard = both” command to remove both cases and controls that fall outside the common support of the distance measure before matching. Table 1 summarizes the matching variables, the standardized mean differences for the unmatched and matched data, and the percent balance improvement for each of our matching variables by gender identity for the full sample. To create the matched dataset of sexually experienced students, we first limited our full data set to those who had ever had sex. To retain as many controls as possible while still improving balance, we conducted 5 to 1 nearest neighbor matching with replacement and exact matching on school and race/ethnicity. Table 2 summarizes the matching variables, the standardized mean differences for the unmatched and matched data, and the percent balance improvement for each of our matching variables by gender identity for the sexually experienced sample. Jitter plots and histograms of the propensity scores by gender identity were also used to assess balance improvement for both matched samples (data not shown).

Logistic regression.—After matching, we assessed differences in our outcome variables by gender identity first by conducting chi-squared tests for independence. Then we used the glm and logistf[21] commands in R to model how gender identity (coded 1 for transgender students/0 for cisgender students) predicts each of our outcome variables (ever had sex, used a condom at last sex, referred by school staff in the past year for HIV testing or treatment, referred by school staff in the past year for STD testing or treatment, referred by school staff for other sexual health services, ever tested for HIV, and ever tested for STDs). All models were adjusted for age, sex, race/ethnicity, and school. Due to limited variation in the outcomes ever tested for STDs, referred by school staff in the past year for HIV testing or treatment, referred by school staff in the past year for STD testing or treatment, and referred by school staff for other sexual health services, we applied Firth's correction to the maximum likelihood estimates.[22] The analysis for ever had sex was done on the full matched sample, while the remaining outcome variables were analyzed using the sexually experienced matched sample. For analyses involving the outcome variables HIV and STD testing, we excluded students who responded "I dont know" to these questions. P-values were considered significant if they were <.05.

RESULTS

Propensity Score Matching and Sample Summary

Tables 1 and 2 show that matching was successful in full and sexually active samples. Standardized mean difference values did not exceed 0.1 threshold, and balance improvements were achieved for all matching covariates. The full matched sample consisted of 542 students, including 186 transgender students. The sexually experienced matched sample contained 522 students, including 94 transgender students. Both samples contained a slightly higher percentage of females than males. The majority of students was 15 and older and identified as Hispanic/Latino or Black.

Table 3 displays sexual behaviors, referrals to sexual health services, and use of sexual health services by gender identity. In the full matched sample, 40.6% of students, 53.7% of transgender students, and 35.8% of cisgender students had ever had sex. Having ever had sex significantly differed by gender identity ($\chi^2_{(df=l)} = 14.66$, $p < .001$). Among sexually experienced students in our matched sample, 61.6% of all students, 47.3% of transgender students, and 64.8% of cisgender students used a condom at last sex. Condom use at last sex significantly differed by gender identity ($\chi^2_{(df=l)} = 9.11$, $p = .003$). School staff referred 9.0% of students, 20.4% of transgender students, and 6.4% of cisgender students in our sexually experienced matched sample for HIV testing or treatment. Referrals for HIV testing or treatment significantly differed by gender identity ($\chi^2_{(df=l)} = 16.54$, $p < .001$). Similarly for referrals to STD testing or treatment, 4.6% of students, 16.7% of transgender students, and 1.8% of cisgender students were referred by school staff. STD testing or treatment referrals significantly differed by gender identity ($\chi^2_{(df=l)} = 33.66$, $p < .001$). For referrals for other sexual health services, 10.6% of students, 24.2% of transgender students, and 7.6% of cisgender students were referred by school staff. Referrals for other sexual health services also differed by gender identity ($\chi^2_{(df=l)} = 19.74$, $p < .001$). Among sexually experienced students in our matched sample, 41.6% all students, 46.2% of transgender students, and

40.6% of cisgender students had ever tested for HIV. Similarly for STDs, 28.8% of all students, 34.1% of transgender students, and 27.7% of cisgender students had ever tested for STDs. Testing for HIV or STDs did not significantly differ by gender identity.

Logistic Regression

Table 4 displays the results of the logistic regression models for the association between gender identity and the 7 outcomes. Transgender students in the full matched sample were more likely to ever have sex (adjusted odds ratio [AOR] = 2.40, 95% confidence interval [CI] 1.62-3.57) than their cisgender peers. Transgender students in the sexually active matched sample were less likely to have used a condom at last sex (AOR = 0.47, 95% CI 0.29-0.73) and were more likely to have been referred for all 3 sexual health services, specifically HIV testing or treatment (AOR = 3.42, 95% CI 1.78-6.45), STD testing or treatment (AOR = 11.07, 95% CI 4.39-30.72), and other sexual health services (AOR = 3.40, 95% CI 1.82-6.27) than cisgender students. Gender identity was not significantly associated with ever having tested for HIV or STDs.

DISCUSSION

In line with previous findings,[10,16] our study demonstrates that transgender students were more likely to ever have sex and less likely to have used a condom at last sex than cisgender students. These sexual behaviors may contribute to the high prevalence of HIV and STDs among transgender adolescents. Additionally, behaviors developed during adolescence may contribute to the high prevalence of HIV and STDs in young adult transgender populations.[2,3,6,23] These findings highlight the need for effective interventions to help promote protective behaviors such as condom use among transgender adolescents. Sexual health education is one approach; however, little work has been done to evaluate the effect of sexual health education with transgender youth, particularly in schools.[24] Condom availability programs (CAPs) in schools are another intervention that has been found to increase condom use among teens in schools[25-27]; however, it is also unclear to what extent these programs are effective for transgender students. In addition to sexual health education and CAPs, supportive parents and communication with partners play a protective role in ensuring the sexual health of transgender youth.[28] For example, one study found that among transgender female youth, those with at least one supportive parent reported consistent condom use, while those who did not have supportive parents reported inconsistent or no condom use.[29] Interventions that address parental support of transgender youth and communication with sex partners may be important strategies for increasing protective factors such as condom use. Additional research is needed to expand the knowledge base on protective factors for transgender youth,[28] and to understand if existing strategies for reducing sexual risk behaviors and increasing protective factors among all youth, such as sexual health education, CAPs, and interventions to increase parental support/connectedness are effective for transgender youth.

In addition to the aforementioned interventions, referral to sexual health services is another strategy for improving the sexual health of teens. Our study demonstrated that transgender students were more likely to be referred to HIV testing/treatment, STD testing/treatment,

and other sexual health services than cisgender students. It is possible that school staff recognize the need for sexual health services for sexually experienced transgender adolescents. Previous work has emphasized the importance of follow-up to ensure service delivery.[13] Follow-up with transgender students is particularly important because many barriers to accessing health care for transgender individuals have been documented in the United States.[30-32] To this point, our study noted a greater likelihood of referral of transgender students for such services but no differences between transgender and cisgender students in receipt of HIV or STD testing. Understanding what occurs between referral and receipt of services for transgender students is warranted. More work is needed to understand if school staff referrals are effective for transgender students, to determine the characteristics of effective referrals for transgender youth, and to ensure respectful and youth-friendly care at the point of service.

Given less condom use and more referrals to HIV and STD testing, one might expect a higher prevalence of HIV and STD testing among transgender students compared to cisgender students. As previously noted in our study, transgender students were no more likely than cisgender students to have ever tested for HIV or STDs. This contradicts findings from a recent study that found that transgender students were more likely to have ever tested for HIV.[16] Moreover, the majority of sexually experienced transgender students did not report ever testing for HIV or STDs. This contradicts the findings of one study that found a high prevalence of ever having tested for HIV in their sample of 16- to 24-year-old participants[5]; however, this may be due to differences in sampling strategies and age ranges. Efforts to increase testing for HIV and STDs among transgender youth may benefit from making services more welcoming to transgender youth. One approach may be to improve the cultural sensitivity of sexual health services, which may play a role in transgender people's health-seeking behaviors.[30,31] The Fenway Institute in collaboration with the CDC recently developed a continuing medical education training for health providers about transgender populations and HIV.[33] However, this training is not specific to adolescents and more work is needed to help train providers on developmentally appropriate gender-affirming sexual health care.

Limitations

The results of this study are not generalizable to all high school students or even all students in this school district. Although we were able to assess gender identity, our questionnaire did not capture variation in gender identity or clearly identify sex assigned at birth, therefore we were unable to assess differences among transgender males, transgender females, and gender nonbinary individuals. To address this concern, professional organizations have called for the use of a 2-step method in assessing gender identity and sex assignment at birth to better capture the variation in gender identity.[34] Social desirability bias could have affected students' responses, but the use of anonymous data collection is expected to have minimized such bias. Finally, we were unable to assess the reliability of the referral measures and it is noteworthy that few students reported receiving referrals from school staff, which may affect the stability of these estimates.

Conclusions

Transgender students in our sample were more likely to have ever had sex and less likely to have used a condom at last sex than cisgender students. This may indicate that transgender students are at higher risk for negative sexual health outcomes such as HIV or STDs, and therefore may benefit from HIV and STD testing/treatment. Although transgender students were more likely to have been referred to sexual health services by school staff, they were no more likely to have ever tested for HIV or STDs. Collectively, these findings are novel in that they highlight differences in sexual behavior by gender identity among an ethnically diverse sample of high school students and also highlight the need for a more in-depth understanding of risk perceptions held by this population as well as sexual health care seeking behaviors. Additional research is needed to better understand if and when interventions such as school staff referrals for services are effective for transgender students.

IMPLICATIONS FOR SCHOOL HEALTH

This study has several important implications. First, school staff should be aware that transgender students may be at increased risk for negative sexual health outcomes, as reflected in our findings of increased risk of having ever had sex and not having used a condom at last sex among transgender students. Second, transgender students may benefit from school health programs such as condom availability programs[27] or referrals for sexual health services by school staff.[13] Finally, data showing higher levels of referrals for services among transgender students, but no higher levels of HIV or STD testing among this group further suggests that there may be a missing piece between referral for and receipt of care for transgender students. Consideration of how best to ensure that referrals to HIV or STD testing, as well as other school health services, are inclusive of and effective for transgender students is needed.

These implications are related to several actions schools can take that may improve the health of transgender students. For example, professional development for teachers and other school staff, including counselors and nurses may help increase their understanding of diverse gender identities allowing them to better serve transgender students. However, transgender identities should not be used as a marker of sexual risk, given that almost half of the transgender students in our sample had never had sex. For those students who may benefit from sexual health services, partnerships between schools and community organizations can be used to ensure that teachers are referring transgender students to culturally competent health care providers. In the case of this study, the resource guide provided to students designated several health care providers as transgender-friendly. However, the extent to which students trusted the accuracy of these designations and/or received culturally competent care from these organizations is unknown. Ongoing communication between schools, students, and local health care organizations can help improve services for transgender youth. To this point, following up with students after a referral for sexual health services has been shown to be an important factor associated with service receipt and could be used to understand whether services transgender youth received were sensitive to their needs. Additional research in the field of school health is needed to demonstrate the effectiveness of such programs for transgender students.

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Table 1.

Full Sample Balance Summary of Matching Covariates by Gender Identity

	Before Matching			After Matching			
	Transgender (N = 186), N (%)	**Cisgender (N = 8669), N (%)**	**Standardized mean difference**	**Transgender (N = 186), N (%)**	**Cisgender (N = 356), N (%)**	**Standardized mean difference**	**Percent balance improvement**
Sex							
Male	86 (46.2)	4211 (48.6)	−0.05	86 (46.2)	167 (46.9)	−0.01	77
Female	100 (53.8)	4458 (51.4)	—	100 (53.8)	189 (53.1)	—	—
Age (years)							
13	2 (1.1)	20 (0.2)	—	2 (1.1)	3 (0.8)	—	—
14	21 (11.3)	1323 (15.3)	−0.13	21 (11.3)	38 (10.7)	0.0	100
15	49 (26.3)	2286 (26.4)	0.00	49 (26.3)	95 (26.7)	0.0	100
16	48 (25.8)	2340 (27.0)	−0.03	48 (25.8)	94 (26.4)	0.0	100
17	41 (22.0)	1912 (22.1)	0.00	41 (22.0)	78 (21.9)	0.0	100
≥18	25 (13.4)	788 (9.1)	0.13	25 (13.4)	48 (13.5)	0.0	100
Race/Ethnicity							
Hispanic or Latino	80 (43.0)	3611 (41.7)	—	80 (43.0)	154 (43.3)	—	
Non-Hispanic Black	61 (32.8)	2992 (34.5)	−0.04	61 (32.8)	118 (33.1)	0.00	84
Non-Hispanic White	30 (16.1)	1334 (15.4)	0.02	30 (16.1)	57 (16.0)	0.00	100
Other *	15 (8.1)	732 (8.4)	−0.01	15 (8.1)	27 (7.6)	0.01	29
School							
A	32 (17.2)	1672 (19.3)	—	32 (17.2)	61 (17.1)	—	—
B	23 (12.4)	1315 (15.2)	−0.08	23 (12.4)	43 (12.1)	0.00	100
C	30 (16.1)	1133 (13.1)	0.08	30 (16.1)	55 (15.4)	0.01	91
D	18 (9.7)	1105 (12.7)	−0.10	18 (9.7)	35 (9.8)	0.00	100
E	30 (16.1)	1116 (12.9)	0.09	30 (16.1)	59 (16.6)	−0.01	92
F	17 (9.1)	811 (9.4)	−0.01	17 (9.1)	33 (9.3)	0.00	100
G	36 (19.4)	1517 (17.5)	0.05	36 (19.4)	70 (19.7)	0.00	100

* Other race category includes Native American, Native Hawaiian/Pacific Islander, and Asian.

Table 2.

Sexually Experienced Sample Balance Summary of Matching Covariates by Gender Identity

	Before Matching			After Matching			
	Transgender (N = 95), N (%)	**Cisgender (N = 3057), N (%)**	**Standardized mean difference**	**Transgender (N = 94), N (%)**	**Cisgender (N = 428), N (%)**	**Standardized mean difference**	**Percent balance improvement**
Sex							
Male	46 (48.4)	1689 (55.3)	0.12	46 (48.9)	211 (49.3)	−0.01	89.5
Female	49 (51.6)	1368 (44.7)	—	48 (51.1)	217 (50.7)	—	—
Age (years)							
13	2 (2.1)	3 (0.1)	—	1 (1.1)	0 (0.0)	—	—
14	7 (7.4)	198 (6.5)	0.03	7 (7.4)	30 (7.0)	0.03	64.1
15	21 (22.1)	560 (18.3)	0.09	21 (22.3)	94 (22.0)	−0.03	92.8
16	21 (22.1)	885 (28.9)	−0.16	21 (22.3)	102 (23.8)	−0.03	77.1
17	25 (26.3)	954 (31.2)	−0.11	25 (26.6)	117 (27.3)	0.01	98.6
≥18	19 (20.0)	457 (14.9)	0.12	19 (20.2)	85 (19.9)	−0.02	99.7
Race/Ethnicity							
Hispanic or Latino	47 (49.5)	1323 (43.3)	0.12	47 (50.0)	208 (48.6)	0.0	100
Non-Hispanic Black	27 (28.4)	1028 (33.6)	−0.11	27 (28.7)	125 (29.2)	0.0	100
Non-Hispanic White	14 (14.7)	485 (15.9)	−0.03	14 (14.9)	65 (15.4)	0.0	100
Other *	7 (7.4)	221 (7.2)	0.01	6 (6.4)	30 (7.0)	0.0	100
School							
A	19 (20.0)	611 (20.0)	0.00	19 (21.3)	91 (20.2)	0.0	100
B	11 (11.6)	390 (12.8)	−0.04	11 (12.1)	52 (11.7)	0.0	100
C	12 (12.6)	368 (12.0)	0.02	12 (12.9)	55 (12.8)	0.0	100
D	9 (9.5)	424 (13.9)	−0.15	9 (10.5)	45 (9.6)	0.0	100
E	17 (17.9)	401 (13.1)	0.12	17 (17.3)	74 (18.1)	0.0	100
F	8 (8.4)	269 (8.8)	−0.01	7 (8.2)	35 (7.4)	0.0	100
G	19 (20.0)	594 (17.5)	0.01	19 (17.8)	76 (20.2)	0.0	100

* Other race category includes Native American, Native Hawaiian/Pacific Islander, and Asian.

Table 3.

Sexual Behaviors, Referral to Services, and Use of Sexual Health Services by Gender Identity

	Total, N (%)	Transgender, N (%)	Cisgender, N (%)	p-Value*
Sexual behavior				
Ever had sex†,‡				<.001
Yes	220 (41.8)	95 (53.7)	125 (35.8)	
No	306 (58.2)	82 (46.3)	224 (64.2)	
Used condom at last sex§,¶				.003
Yes	318 (61.6)	44 (47.3)	274 (64.8)	
No	198 (38.4)	49 (52.7)	149 (35.2)	
Referrals to Health Services				
Referred by school staff in the past year for HIV testing or treatment by school staff§				<.001
Yes	46 (9.0)	19 (20.4)	27 (6.4)	
No	466 (91.0)	74 (79.6)	392 (93.6)	
Referred by school staff in the past year for STD testing or treatment by school staff§				<.001
Yes	22 (4.6)	15 (16.7)	7 (1.8)	
No	458 (95.4)	75 (83.3)	383 (98.2)	
Referred by school staff in the past year for other sexual health services by school staff§,#				<.001
Yes	53 (10.6)	22 (24.2)	31 (7.6)	
No	445 (89.4)	69 (75.8)	376 (92.4)	
Use of sexual health services				
Ever tested for HIV§				.40
Yes	207 (41.6)	42 (46.2)	165 (40.6)	
No	290 (58.4)	49 (53.58)	241 (59.4)	
Ever tested for STDs§				.28
Yes	141 (28.8)	30 (34.1)	111 (27.7)	
No	348 (71.2)	58 (65.9)	290 (72.3)	

HIV, human immunodeficiency virus; STD, sexually transmitted disease.

[*] p-Value for chi-square test of independence.

[†] Sex was defined as vaginal, oral, or anal.

[‡] Analysis performed using the all student matched sample.

[§] Analysis performed using the sexually experienced matched sample.

[¶] Condom use was only asked of sexually experienced students.

[#] Other sexual health services such as contraceptives (like condoms or pills) or the HPV vaccine.

Table 4.

Logistic Regression Models of the Association Between Gender Identity and Sexual Behaviors, Referral to Services, and Use of Sexual Health Services Using Matched Samples[†]

	Transgender Identity	
	Adjusted odds ratio[‡]	**95% Confidence interval**
Sexual behaviors		
Ever had sex (N = 526)	2.40*	1.62-3.57
Used a condom at last sex (N = 516)	0.47*	0.29-0.73
Referrals to health services		
Referred by school staff in the past year for HIV testing or treatment[§] (N = 512)	3.42***	1.78-6.45
Referred by school staff in the past year for STD testing or treatment[§] (N = 480)	11.07***	4.39-30.72
Referred by school staff in the past year for other sexual health services[§, ¶] (N = 498)	3.40***	1.82-6.27
Use of sexual health services		
Ever tested for HIV (N = 497)	1.32	0.91-2.10
Ever tested for STDs§ (N = 489)	1.27	0.76-2.08

* p < .05.

*** p < .001.

HIV, human immunodeficiency virus; STD, sexually transmitted disease.

[†] N's varied because of missing data and because the analysis for ever had sex was performed using the all student matched sample, where as the analyses for used a condom at last sex, referrals to health services, and use of health services were performed using the sexually experienced matched sample.

[‡] Models adjusted for age, race/ethnicity, sex, and school.

[§] Models applied Firth's correction to maximum likelihood due to few numbers of referrals.

[¶] Other sexual health services such as contraceptives (like condoms or pills) or the HPV vaccine.