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## School Climate Among Transgender High School Students: An Exploration of School Connectedness, Perceived Safety, Bullying, and Absenteeism

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### Abstract

This study used self-administered survey data from seven high schools in Florida with a majority Black and/or Hispanic sample to examine transgender students' perceptions and experiences related to school climate in comparison to cisgender students. Using propensity score matching, a matched analytic sample was created of transgender and cisgender students (n=542, including 186 transgender youth). Adjusted weighted logistic regression models indicated that transgender students were significantly more likely to report ever being bullied at school, being bullied in the past 3 months, and not going to school 3 days during the past 30 days. Transgender students were significantly less likely to report feeling safe at school and having positive perceptions of all five school connectedness items compared to cisgender students. Recent bullying experiences moderated the association between transgender status and past month absences. Findings can inform potential roles for school nurses in improving school climate for transgender youth.

### Keywords

transgender; bullying; absenteeism; school connectedness; safety; school climate; school nurse

### Introduction

Transgender students often report negative perceptions and experiences related to school climate (Kosciw, Greytak, & Diaz, 2009; McGuire, Anderson, Toomey, & Russell, 2010). Transgender is an umbrella term used to refer to individuals whose gender identity or gender expression differs from their sex assigned at birth (The Fenway Institute, 2010). Data from the 2015 National School Climate Survey (NSCS) in the United States indicate that approximately 64.5% of transgender students report experiences of verbal harassment,

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24.9% report physical harassment, and 12.0% report physical assault based on their gender expression (Kosciw, Greytak, Giga, Villenas, & Danischewski, 2016). In a nationally representative survey from New Zealand, approximately one in five transgender students reported experiencing bullying at school on a weekly or more frequent basis (Clark et al., 2014). Further, transgender students were significantly more likely to report being bullied at school at least weekly, being hit or physically harmed by another person, and being in a serious physical fight than nontransgender students (Clark et al., 2014). Further, there is a paucity of literature examining racial/ethnic minority transgender youth's experiences. One study suggests that ethnic minority transgender youth may have limited familial support and had a high prevalence of life stressors. In addition, a qualitative study of transgender youth of color found that education settings often challenged their sense of personal resiliency (Singh, 2013). More research is needed to understand the unique experiences of transgender youth who are racial/ethnic minorities.

These forms of victimization can deprive transgender youth of a safe, stable, and nurturing learning environment. Data from the NSCS indicate that approximately 75% of transgender students felt unsafe at school because of their gender expression (Kosciw et al., 2016). Other quantitative and qualitative studies also have indicated many transgender youth do not feel safe at school (Clark et al., 2014; McGuire et al., 2010). Few studies have explored the impact of these adverse experiences for transgender youth in school environments, but research with the full spectrum of lesbian, gay, bisexual, transgender, and queer (LGBTQ) youth suggests that youth may face deleterious effects from unsafe school climates. Many lesbian, gay, bisexual, and transgender (LGBT) youth report coping with school violence by distancing themselves from school (Grossman et al., 2009). A recent study found that avoiding school due to safety concerns was associated with lower perceptions of both school belonging and positive teacher/student relationships (Williams, Schneider, Wornell, & Langhinrichsen-Rohling, 2018). Furthermore, LGBTQ youth who experience victimization and discrimination are more likely to have lower educational aspirations, lower grades, and higher absenteeism (Kosciw et al., 2016). In addition to poor school-related outcomes, the impact of these forms of school victimization can be far reaching. LGBT-related school victimization has been strongly linked to poor young adult mental health and risk of sexually transmitted diseases and HIV (Russell, Ryan, Toomey, Diaz, & Sanchez, 2011), and victimization due to perceived or actual LGBT status has been significantly associated with negative psychosocial adjustment (i.e., life satisfaction and depression) (Toomey, Ryan, Diaz, Card, & Russell, 2010).

However, it is important to note that researchers have also identified protective factors shown to reduce the likelihood of negative outcomes in youth. In a systematic review of protective factors among transgender and gender variant youth, having supportive educators and staff emerged as a protective factor (Johns, Beltran, Armstrong, Jayne, & Barrios, 2018). A growing body of research indicates that school connectedness, which refers to an academic environment where students believe that adults in the school care about their learning and about them as individuals, is a key protective factor (R. W. Blum, 2005). In a study of LGBT youth, Diaz, Kosciw, and Greytak (2010) found that LGBT youth with supportive school staff have increased feelings of school connectedness. In samples of all youth, school connectedness has been found to be associated with a host of positive

behavioral and health-related outcomes, including lower exposure to weapon violence (Henrich, Brookmeyer, & Shahar, 2005), lower levels of early adolescent conduct problems (Loukas, Ripperger-Suhler, & Horton, 2009), students' experiences of all forms of victimization and perceived reasons for victimization (O'Brennan & Furlong, 2010), and lower depression risk (Langille, Rasic, Kisely, Flowerdew, & Cobbett, 2012). Again, few studies have examined school connectedness in samples of transgender youth exclusively.

We built upon the literature by examining the differences in school experiences of transgender and cisgender youth using propensity score matching (PSM) in order to obtain a comparable sample of cisgender and transgender youth who are similar on identified potentially confounding variables. This is one of the first quantitative studies of transgender youth situated in the South with a predominantly Hispanic and non-Hispanic Black sample. Further, to our knowledge, this is the first study to explore how school connectedness and recent bullying experiences moderate the association between transgender status and absenteeism. Our research aims to fill aforementioned research gaps by addressing the following research questions using PSM techniques: (1) Are there differences in bullying experiences, perceptions of safety, school absenteeism, and school connectedness among transgender and cisgender students? (2) Does school connectedness moderate the association between transgender status and absenteeism? (3) Do recent bullying experiences moderate the association between transgender status and absenteeism?

## Method

### Procedures

The study used data from a 46-item self-administered paper-and-pencil questionnaire that assessed students' demographic characteristics, experiences related to health services, school climate perceptions and experiences, sexual behavior, and exposure to health education and messaging. The questionnaire, which took about 40 minutes to complete, was provided to students at seven high schools in a large, urban school district in Florida implementing an HIV prevention program. Passive parental consent forms, provided in English, Spanish, and Haitian Creole, were sent home with students prior to the survey, and parents/guardians could return the forms in order to opt students out of the data collection. Teachers proctoring the survey read a script to describe the survey details and provide relevant information to secure students' assent to participation. Data were collected in December 2016 from a census of all students in regular classroom settings (excluding classes of non-English speaking students and self-contained special education or special needs classes). The instrument and protocols were approved by ICF's Institutional Review Board and the Research Review Board of the participating school district. For more details regarding survey administration, please refer to Rose, Sheremenko, Rasberry, Lesesne, and Adkins (2018).

### Participants

In total, 10,231 students completed questionnaires, resulting in a 66.8% response rate based on the total school enrollment on the days of data collection. Data cleaning procedures led to the removal of an additional 547 questionnaires that were missing responses to 25% or more

of the items. The analysis for this study was restricted to students with complete self-reported age, sex, and transgender status information. Further, we limited our analysis to respondents who were 13 or older due to two reasons: (1) there were only a small number of respondents who responded that they were 12 or younger (n=17) and (2) there was a unrealistic percentage of 12 year-old participants who identified as transgender (41.2%), likely due to mischievous responding or a lack of understanding of the question. The resulting sample size was 8855 students, of which 186 students identified as transgender.

## Measures

**Gender identity.**—Our item to measure gender identity was modeled after an item used at the time of our survey development in the Youth Risk Behavior Surveillance System to ensure comparability and use of a valid and reliable question. Transgender status was determined by the 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?” Response categories included: yes, no, and I don’t know. Participants who responded “I don’t know” were excluded from analyses, as we were unable to ascertain whether respondents did not understand the question or whether they were questioning their gender identity. Transgender status was modeled as a binary variable (1= transgender, 0=cisgender).

**School connectedness.**—School connectedness was measured using five items with a five-point Likert-type scale: I feel close to people at this school; I am accepted and feel like I belong at this school; I feel happy at this school; staff (such as a teacher, counselor, nurse, coach or other school staff) at this school treat students fairly; and staff (such as a teacher, counselor, nurse, coach or other school staff) at this school care about me. A composite school connectedness score was created by taking the mean score of the five items. The scale has good internal consistency (Cronbach alpha = 0.83). We also considered each individual school connectedness item as a dichotomous indicator, such that “strongly agree” and “agree” were recoded as “agree” and “strongly disagree,” “disagree,” and “neither agree nor disagree” were recoded as “do not agree.”

**School safety.**—Perception of school safety was assessed by the question, “Do you feel safe at your school?” with response categories “yes” or “no”. School safety was modeled as a binary outcome.

**Absenteeism.**—Past month absences were assessed by asking, “During the past 30 days, on how many days did you not go to school?” and was recoded as a binary variable with the cutoff point being the 75<sup>th</sup> percentile (1= ≥3days, 0=<3 days).

**Bullying.**—Ever being bullied at school was assessed by the question, “Do students at school bully you?” Ever being bullied was treated as a binary variable with the response categories “always,” “most of the time,” and “some of the time” coded as 1 and “never” coded as 0. Past 3 months bullied at school frequency was assessed by asking, “During the past 3 months, how many times on school property were you harassed or bullied?” and was modeled as a binary outcome (1 = at least one time, 0 = 0 times).

**Demographic variables.**—Race/ethnicity was determined by the questions “What is your race?” and “Are you Hispanic or Latino?” Race/ethnicity was modeled as a categorical variable with the following response categories: Hispanic, Non-Hispanic Black, Non-Hispanic White, and Other (Non-Hispanic Asian, Native American, Native Hawaiian/Pacific Islander, and Multiracial). Age was determined by the question “How old are you?” and was modeled as a categorical outcome. Sex was determined by the question, “What is your sex?” with the response categories female and male. Lastly, school was a categorical variable referring to which of seven schools the respondent attended.

### Statistical Analysis

PSM techniques are used in health disparities studies that compare risk and health outcomes for subgroup populations (Kamen, Mustian, Dozier, Bowen, & Li, 2015; Rasberry et al., 2018; Robinson & Espelage, 2012, 2013; Robinson, Espelage, & Rivers, 2013). PSM allows subgroup differences to be examined among like participants in large survey samples. We used PSM to create a sample where transgender and cisgender students were comparable in key matching variables, including age, sex, race/ethnicity, and school. Propensity scores for each student were estimated using a logistic model predicting gender identity (transgender/cisgender), where matching covariates were predictors. Each transgender student was matched to two cisgender respondents using nearest neighbor matching with replacement. Observations that fell outside the support of the distance measure were discarded. No transgender students were discarded during the matching process. Table 1 shows the characteristics of transgender and cisgender students on matching variables before and after PSM. Balance was assessed by examining standardized differences and calculating balance improvement for each of the matching variables, as shown in Table 1. Balance improved for all the matching variables. Diagnostic plots, including jitter plots of propensity scores and histograms of propensity scores, also indicated matching was successful (data not shown).

To examine whether each of the predictor and outcome variables significantly differed among transgender and cisgender participants, chi-square tests were conducted for categorical variables and two sample t-tests assuming unequal variance were conducted for continuous variables. Using the matched sample, the relationship between transgender status and the nine binary outcomes related to school connectedness, perceptions of safety, bullying, and absenteeism was assessed using weighted logistic regression. In addition, we modeled the relationship between transgender status and the composite school connectedness score using linear regression. In order to account for residual confounding, the models included sex, race/ethnicity, school, and age as controls. For the model predicting the number of days students did not go to school during the past 30 days, the interaction between the composite school connectedness score and transgender status was tested. An additional interaction effect between transgender status and bullying experiences in the past 3 months was tested separately for the model predicting the number of days students did not go to school during the past 30 days. All analyses were conducted using R (R Core Team, 2013). PSM was conducted using the MatchIt package (Stuart, King, Imai, & Ho, 2011) following the methodology outlined by Randolph and Falbe (2014).

## Results

Overall, 186 students (2.1%) from the full sample of 8855 students identified as transgender. The final matched sample included 542 students, of which 186 students identified as transgender. Table 2 shows demographic characteristics and prevalence estimates of school connectedness items, perceptions of safety, bullying, and absenteeism, by gender identity for the matched sample. The sample was predominately Hispanic (43.2%) and Non-Hispanic Black (33.0%). Approximately 88% of the students were 15 years old. Furthermore, there was a fairly even distribution of males (46.7%) and females (53.3%).

Table 3 presents the results from the adjusted logistic and linear regression models examining the relationship between transgender status and school connectedness items, perceptions of safety, bullying, absenteeism, and the composite school connectedness score using the matched sample. Transgender students were significantly less likely to report they feel close to people at this school (odds ratio [OR] = 0.60, 95% CI: 0.41, 0.87), they are accepted and feel like they belong at this school (OR = 0.38, 95% CI: 0.26, 0.55), they feel happy at this school (OR = 0.40, 95% CI: 0.27, 0.59), staff at this school treat students fairly (OR = 0.62, 95% CI: 0.42, 0.91), and staff at this school care about them (OR = 0.53, 95% CI: 0.36, 0.77). Transgender status was associated with a lower composite school connectedness score ( $b = -0.53$ , 95% CI:  $-0.67, -0.39$ ). Notably, the odds of reporting feeling safe at school were 65% lower for transgender than for cisgender students (OR = 0.35, 95% CI: 0.23, 0.53). Further, compared to cisgender students, transgender students had 1.5 times the odds of not going to school 3 days in the past 30 days (OR = 1.55, 95% CI: 1.07, 2.25) and eight times the odds of reporting being bullied at school (OR = 8.07, 95% CI: 5.20, 12.75). Lastly, transgender students had over four times the odds of reporting being harassed or bullied on school property more than one time during the past 3 months compared to cisgender students (OR = 4.40, 95% CI: 2.93, 6.66).

We independently examined two potential moderators, school connectedness and recent bullying experiences, for the association between transgender status and absenteeism (Table 4). In the main effects model, recent bullying experiences was significantly associated with absenteeism (OR = 1.81, 95% CI: 1.19, 2.77). In the interaction model examining recent bullying experiences, the interaction effect between transgender status and bullying in the past 3 months was significant, suggesting that transgender students who were bullied at school in the past 3 months were more likely to have missed 3 days of school in the past month than cisgender students who were bullied in the past 3 months (OR = 2.57, 95% CI: 1.09, 6.13). In the main effects model, school connectedness was not significantly associated with absenteeism. In the interaction model examining the composite school connectedness score, the interaction between the composite school connectedness score and transgender status was not significant, indicating that school connectedness did not moderate the effect of transgender status on past month absences.

## Discussion

Our study is one of the few to examine transgender youth in a school setting. The prevalence of transgender identity (2.1%) in this study differs slightly from that of other studies. In a

population-based study of transgender high school students in New Zealand using a one-item measure of transgender status, Clark et al. (2014) found 1.2% of students identified as transgender. Using surveillance data from 9<sup>th</sup> and 11<sup>th</sup> grade students in Minnesota, Eisenberg et al. (2017) found 2.7% of students identified as transgender and gender nonconforming. Given that these studies used varying measures of transgender identity, some specifying terms such as genderqueer and gender nonconforming, it is expected that there would be some variation in prevalence. Using Youth Risk Behavior Survey (YRBS) data from public middle schools in San Francisco, Shields et al. (2013) found a prevalence of transgender identity of 1.3% utilizing a measure of gender identity that did not specify other terms that typically fall under the transgender umbrella, similar to our study. However, the prevalence of transgender identity Shields et al. (2013) found was lower than our prevalence possibly due to the fact that their sample consisted of middle school students, whereas our sample was high school students. Previous research indicates the average age that transgender youth identified as transgender was 15 for female-to-male (FTM) youth and 13 for male-to-female (MTF) youth (Grossman, D'Augelli, Salter, & Hubbard, 2006). Thus, it may be reasonable to expect a higher prevalence of transgender youth in a high school sample compared to a middle school sample. Nonetheless, it is difficult to ascertain the nature of these discrepancies due to variations in question wording, geographic location, and timing.

Our findings align with a growing body of quantitative and qualitative research indicating that transgender students often face harassment and bullying in school (Clark et al., 2014; Eisenberg et al., 2017; Kosciw et al., 2016; McGuire et al., 2010). Transgender students in our sample experienced heightened levels of bullying compared to their cisgender peers. In addition, more than half of transgender students reported not going to school at least 3 days during the past month, placing these students at high risk of chronic absenteeism, generally defined as missing 10% or more of the school year in the previous year (Balfanz & Byrnes, 2012). Further, we build upon these findings and show that the association between experiencing bullying in the past 3 months and past month absences was more pronounced in transgender students than cisgender students, as evidenced by the significant interaction effect between transgender status and recent bullying on past month absences. Unfortunately, the reason for this cannot clearly be determined from our data, given that the survey did not capture information about the nature or severity of students' bullying experiences, but instead provided limited information on its occurrence and frequency. It is possible that the bullying experiences of transgender youth were related to their gender identity. Harassment and victimization about core identities can trigger psychological distress in the form of expectations of rejection and internalized negative beliefs about oneself (Meyer & Frost, 2013). Although our analysis was unable to account for these internal processes, they may help explain the amplified association between bullying and absenteeism. Future research should investigate both the attributed causes of bullying and associated psychological effects in transgender youth.

Further, it may be possible that bullying was more severe among transgender youth, which could influence its association with absenteeism. Future research should aim to better characterize bullying experiences in order to elucidate their impact on absenteeism. Regardless of the reason for this differential association, our findings underscore the need

for school staff to be appropriately trained and empowered to intervene when bullying occurs. Furthermore, staff may need specific training to understand better the needs and experiences of transgender students, and to ensure safe and non-threatening environments for these students given their substantially heightened risk of experiencing bullying and the strong association between recent bullying and absences.

The majority of transgender students did not report positive perceptions of school connectedness and safety, and they were significantly less likely to report these factors than cisgender students. The majority of transgender students did not believe that staff cared about them or that staff treated students fairly. Our results are in contrast to those of Eisenberg et al. (2017), who found that most transgender and gender non-conforming youth report protective factors, such as feeling supported by teachers. In our study, only 34% of transgender students agreed with the statement “staff at this school care about me.” In addition, Clark et al. (2014) also found that most transgender youth in New Zealand reported protective factors, such as believing school is okay for them. In our study, less than 30% of transgender youth in our sample agreed with the statement “I feel happy at school.” In accordance with our findings, Clark et al. (2014) and Eisenberg et al. (2017) found that most protective factors were less common among transgender youth compared to cisgender youth. In contrast to our findings, those investigators still found a relatively high prevalence of protective factors among transgender youth. It is difficult to ascertain the nature of these discrepancies given the varying settings these studies took place in, the race/ethnicity sample differences, and the substantial differences in survey items relating to student-teacher relationships and perceptions of school. Although there is a dearth of research examining the experiences of transgender youth in communities of color, the few studies that do exist suggest transgender youth of color face challenges finding social support, which may put them at risk for adverse outcomes (Garofalo, Deleon, Osmer, Doll, & Harper, 2006; Singh, 2013). No nationally representative surveys of youth in the United States include an item measuring transgender status so it is not possible to situate our findings in a broader context. Taken together, these findings about school connectedness stress the need for schools to strengthen positive connections and the safety of school environments for transgender youth.

Our findings did not support the notion that school connectedness is protective for past month absences. Further, school connectedness did not significantly moderate the association between transgender status and past month absences. However, school connectedness is a well-established protective factor for adolescent health (Robert WM Blum, Libbey, Bishop, & Bishop, 2004) and theoretically should operate similarly for transgender youth. Because prevalence of transgender youth is low, it is possible that we were underpowered to detect significant differences. Further, there may be a directional effect such that students who are missing more school are less likely to feel connected to their school. As this is cross-sectional data, the direction of these effects cannot be verified. However, it is possible that these contrasting effects could cancel each other out and yield a null effect. Finally, school connectedness may serve as a protective factor for transgender students on outcomes other than absenteeism. A growing body of research indicates that school connectedness can serve as a powerful moderator, lessening the impact of a range of adverse experiences including bullying and peer victimization (Duong & Bradshaw, 2014; Loukas & Pasch, 2013). This is one of the first studies examining school connectedness



among transgender students, and further research is warranted in order to elucidate the impact of school connectedness on school-related outcomes for transgender youth. Future research may benefit from examining other protective factors for transgender youth, such as gay-straight alliances and healthy relationships with parents and peers (Johns et al., 2018), in addition to school connectedness, that may buffer the effects of negative school climate.

### Strengths and Limitations

There are limitations to consider when interpreting this study's findings. First, our measure of transgender identity was limited. It did not explicitly specify other terms under the transgender umbrella such as gender nonconforming, gender fluid, or genderqueer, and it used a one-step rather than a two-step method. Many researchers have advocated for use of the two-step method to determine gender identity where respondents are first asked their assigned birth sex and then asked their current gender identity, and have described it as better able to identify transgender respondents in adult samples (Tate, Ledbetter, & Youssef, 2013). Future research could incorporate cognitive testing of gender identity measures with adolescents in order to determine best approaches. Related to this, we were also limited by our question to ascertain sex, which simply asks, "What is your sex?" Students may have responded with their sex assigned at birth or the gender with which they identify. The possibility for ambiguity on this response limited our ability to meaningfully divide transgender students by sex for sub-group analysis. In addition, data from this study come from a subset of schools in a single school district, limiting generalizability. Lastly, data were self-reported and may be subject to recall and social desirability biases.

Despite these limitations, this is one of only a few studies to examine transgender students' school climate perceptions and related experiences in school. Using PSM, we created a comparable sample of cisgender and transgender youth, minimizing the effect of potential confounders. Transgender and cisgender students significantly differed on almost all outcomes in our study. Overall, transgender students reported more negative perceptions of school connectedness and safety. In addition, transgender students experienced heightened levels of bullying and bullying had a more pronounced effect on past month absences for transgender students than cisgender students. Future researchers may find assessing type, severity, and frequency of bullying experiences helpful in better understanding why the effect of bullying on school absenteeism may be more pronounced for transgender students. Findings highlight the need for increased efforts to improve school climate and related experiences for transgender youth, and specifically underscore a need to improve school connectedness, ensure safety, and reduce bullying among transgender youth.

### Implications for School Nursing

These findings have important implications for school nurses. Given that one recent study found transgender youth were more likely than cisgender youth to have school nurse office visits (Rider, McMorris, Gower, Coleman, & Eisenberg, 2018), school nurses may be well-positioned to provide transgender youth with the support they need to be healthy and safe. Our findings highlight a disproportionately high risk of absenteeism among transgender students, and the National Association of School Nurses (NASN) has suggested school nurses can play an important role in addressing chronic absenteeism by helping students and

families access needed physical or mental healthcare providers and ensuring students feel safe at school (National Association of School Nurses, 2015). School nurses can reach out to transgender students and connect them with the support they need in order to reduce absenteeism. The Center of Excellence for Transgender Health has compiled a series of guidelines for the care of transgender and gender nonbinary people that may be useful for school nurses (Center of Excellence for Transgender Health, 2016). Included in these guidelines are steps providers could potentially take to create a safe and welcoming environment for transgender people, including promoting cultural humility, staff training on transgender health issues, and collecting gender identity data (Center of Excellence for Transgender Health, 2016).

Further, nurses can work to address the root causes of absenteeism for transgender students. Our study found that many transgender students do not feel safe at school and experience bullying, which may be a contributing factor to high absenteeism. As trusted health professionals within the school, school nurses can help improve school climate for transgender youth by supporting bullying prevention programs (David-Ferdon et al., 2016) and the appropriate implementation of anti-bullying policies. Further, as a recent position statement from the NASN suggests, school nurses may also have an important role in identifying students at high risk of bullying and other forms of violence by understanding the multiple factors associated with school violence (National Association of School Nurses, 2018b) and then connecting these students to appropriate resources.

School nurses can also serve as a trusted adult to which transgender youth can confide in, which may be particularly important as the majority of transgender youth in our sample did not believe that staff at their school cared about them. By creating a safe space where students can openly verbalize concerns, school nurses can contribute to creating a safer and more supportive environment (National Association of School Nurses, 2018a), and feeling supported by staff can improve a student's sense of belonging and connectedness to their school (Robert WM Blum et al., 2004). Overall, school nurses play an important role in improving the school climate for transgender youth by connecting them to the appropriate resources, supporting bullying prevention programs and effective school policies, identifying and addressing bullying, and serving as a trusted source of support.

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**Table 1**  
 Characteristics of transgender and cisgender students on matching variables before and after propensity score matching

Variable	Before matching			After matching			% balance improvement
	Transgender (n=186) No. (%)	Cisgender (n=8669) No. (%)	Standardized mean difference	Transgender (n=186) No. (%)	Cisgender (n=356) No. (%)	Standardized mean difference	
<b>Sex</b>							
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%)	-	-
<b>Age</b>							
13 years	2 (1.1%)	20 (0.2%)	-	2 (1.1%)	3 (0.8%)	-	-
14 years	21 (11.3%)	1323 (15.3%)	-0.13	21 (11.3%)	38 (10.7%)	0.00	100%
15 years	49 (26.3%)	2286 (26.4%)	-0.00	49 (26.3%)	95 (26.7%)	0.00	100%
16 years	48 (25.8%)	2340 (27.0%)	-0.03	48 (25.8%)	94 (26.4%)	0.00	100%
17 years	41 (22.0%)	1912 (22.1%)	0.00	41 (22.0%)	78 (21.9%)	0.00	100%
18 years	25 (13.4%)	788 (9.1%)	0.13	25 (13.4%)	48 (13.5%)	0.00	100%
<b>Race/Ethnicity</b>							
Hispanic	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 <sup>a</sup>	15 (8.1%)	732 (8.4%)	-0.01	15 (8.1%)	27 (7.6%)	0.01	29%
<b>School</b>							
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%)	-0.00	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%

<sup>a</sup> Other race category includes Native American, Native Hawaiian/Pacific Islander, and multiracial

Demographic characteristics and prevalence estimates of school connectedness, bullying, and absenteeism, by gender identity for matched sample

Table 2

Variables	Total (n=542)	Transgender (n=186)		Cisgender (n=356)		p-values <sup>a</sup>
	No. (%) or Mean (SD)	No. (%) or Mean (SD)	No. (%) or Mean (SD)	No. (%) or Mean (SD)	No. (%) or Mean (SD)	
Sex						.95
Male	253 (46.7%)	86 (46.2%)	167 (46.9%)			
Female	289 (53.3%)	100 (53.8%)	189 (53.1%)			
Age						.99
13 years	5 (0.9%)	2 (1.1%)	3 (0.8%)			
14 years	59 (10.9%)	21 (11.3%)	38 (10.7%)			
15 years	144 (26.6%)	49 (26.3%)	95 (26.7%)			
16 years	142 (26.2%)	48 (25.8%)	94 (26.4%)			
17 years	119 (22.0%)	41 (22.0%)	78 (21.9%)			
18 years	73 (13.5%)	25 (13.4%)	48 (13.5%)			
Race/Ethnicity						.99
Hispanic	234 (43.2%)	80 (43.0%)	154 (43.3%)			
Non-Hispanic Black	179 (33.0%)	61 (32.8%)	118 (33.1%)			
Non-Hispanic White	87 (16.1%)	30 (16.1%)	57 (16.0%)			
Other <sup>b</sup>	42 (7.7%)	15 (8.1%)	27 (7.6%)			
School						.99
A	93 (17.2%)	32 (17.2%)	61 (17.1%)			
B	66 (12.2%)	23 (12.4%)	43 (12.1%)			
C	85 (15.7%)	30 (16.1%)	55 (15.4%)			
D	53 (9.8%)	18 (9.7%)	35 (9.8%)			
E	89 (16.4%)	30 (16.1%)	59 (16.6%)			
F	50 (9.2%)	17 (9.1%)	33 (9.3%)			
G	106 (19.6%)	36 (19.4%)	70 (19.7%)			
I feel close at people at this school <sup>c</sup>						.007
Agree	231 (43.0%)	64 (34.8%)	167 (47.3%)			
Do not agree	306 (57.0%)	120 (65.2%)	186 (52.7%)			

Variables	Total (n=542) No. (%) or Mean (SD)	Transgender (n=186) No. (%) or Mean (SD)	Cisgender (n=356) No. (%) or Mean (SD)	p-values <sup>a</sup>
I am accepted and feel like I belong at this school <sup>c</sup>				
Agree	273 (50.6%)	65 (35.3%)	208 (58.4%)	<.001
Do not agree	267 (49.4%)	119 (64.7%)	148 (41.6%)	
Feel happy at this school <sup>c</sup>				
Agree	235 (43.5%)	55 (29.7%)	180 (50.7%)	<.001
Do not agree	305 (56.5%)	130 (70.3%)	175 (49.3%)	
Staff at this school treat students fairly <sup>c</sup>				
Agree	210 (39.0%)	59 (32.1%)	151 (42.7%)	.02
Do not agree	328 (61.0%)	125 (67.9%)	203 (57.3%)	
Staff at this school care about me <sup>c</sup>				
Agree	237 (43.9%)	63 (34.1%)	174 (49.0%)	.001
Do not agree	303 (56.1%)	122 (65.9%)	181 (51.0%)	
Composite school connectedness score	3.17 (0.85)	2.82 (0.95)	3.36 (0.73)	<.001
Feel safe at school				
Yes	389 (73.1%)	111 (60.3%)	278 (79.9%)	<.001
No	143 (26.9%)	73 (39.7%)	70 (20.1%)	
Days did not go to school during the past 30 days				
<3 days	301 (55.7%)	91 (49.2%)	210 (59.2%)	.03
3 days	239 (44.3%)	94 (50.8%)	145 (40.8%)	
Bullied at school				
Never	402 (74.6%)	91 (49.5%)	311 (87.6%)	<.001
Some of the time, most of the time, or always	137 (25.4%)	93 (50.5%)	44 (12.4%)	
Number of times harassed or bullied on school property during the past 3 months				
0 times	394 (73.2%)	99 (54.1%)	295 (83.1%)	<.001
1 or more times	144 (26.8%)	84 (45.9%)	60 (16.9%)	

<sup>a</sup>Chi-square test was used for categorical variables and a two sample t-test assuming unequal variance was used for continuous variables to identify differences in transgender and cisgender participants

<sup>b</sup>Other race category includes Native Americans, Native Hawaiian/Pacific Islanders, and multiracial

<sup>c</sup>Likert-type scale items were dichotomized so that "strongly agree" and "agree" were recoded as "agree" and "strongly disagree," "disagree," and "neither agree or disagree" were recoded as "do not agree"

**Table 3**

The association between transgender status and school belonging, perceptions of safety, bullying, absenteeism, and school connectedness after matching<sup>a,b</sup>

	I feel close to people at this school (n=537)	I am accepted and feel like I belong at this school (n=540)	Feel happy at this school (n=540)	Staff at this school treat students fairly (n=538)	Staff at this school care about me (n=540)	Feel safe at school (n=532)	Days did not go to school during the past 30 days (n=540)	Bullied at school (n=539)	Number of times harassed or bullied on school property during the past 3 months (n=538)	Composite school connectedness score (n=542)
Transgender status <sup>c</sup>	0.60 (0.41, 0.87)**	0.38 (0.26, 0.55)**	0.40 (0.27, 0.59)**	0.62 (0.42, 0.91)**	0.53 (0.36, 0.77)**	0.35 (0.23, 0.55)**	1.55 (1.07, 2.25)**	8.07 (5.20, 12.75)**	4.40 (2.93, 6.66)**	-0.53 (-0.67, -0.39)**

<sup>a</sup>N varies due to missing data

<sup>b</sup>ORs and 95% CIs were reported for all models except the composite school connectedness model for which a beta estimate and 95% CI was reported

<sup>c</sup>All models were controlled for sex, age, race/ethnicity, and school

\*\* p < 0.05



Regression of transgender status, recent bullying experiences, and interaction on past month absenteeism<sup>a</sup>

**Table 4**

	Days did not go to school during the past 30 days		3 days
	OR (95% CI)	OR (95% CI)	OR (95% CI)
<b>Recent bullying and absenteeism</b>			
Transgender status	1.30 (0.88, 1.93)	Interaction model (n=536) 0.96 (0.59, 1.56)	
Number of times harassed or bullied on school property during the past 3 months	1.81 (1.19, 2.77)**	1.16 (0.64, 2.08)	
Transgender status * number of times harassed or bullied on school property during the past 3 months	---	2.57 (1.09, 6.13)**	
<b>School connectedness and absenteeism</b>			
Transgender status	1.39 (0.94, 2.05)	Interaction model (n=540) 0.36 (0.09, 1.51)	
School connectedness score	0.81 (0.65, 1.01)	0.65 (0.47, 0.89)**	
Transgender status * school connectedness score	---	1.55 (0.99, 2.43)	

<sup>a</sup>Models were controlled for sex, age, race/ethnicity, and school

\*\* p < 0.05