School Restroom and Locker Room Restrictions and Sexual Assault Risk Among Transgender Youth

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abstract

BACKGROUND: Transgender and gender nonbinary adolescents experience high rates of peer victimization, but the prevalence of sexual assault in this population has not been established. Some schools restrict transgender and nonbinary students from using restrooms and locker rooms that match their gender identity, with unknown effects on sexual assault risk. We tested whether these restrictions were associated with the 12-month prevalence of sexual assault victimization.

METHODS: Survey responses were analyzed from 3673 transgender and nonbinary US adolescents in grades 7 through 12 who participated in the cross-sectional 2017 LGBTQ Teen Study. We estimated the association between school restroom and locker room restrictions and sexual assault, adjusting for potential social and behavioral confounders, using logistic regression. We also tested potential mediators.

RESULTS: The 12-month prevalence of sexual assault was 26.5% among transgender boys, 27.0% among nonbinary youth assigned female at birth, 18.5% among transgender girls, and 17.6% among nonbinary youth assigned male at birth. Youth whose restroom and locker room use was restricted were more likely to experience sexual assault compared with those without restrictions, with risk ratios of 1.26 (95% confidence interval [CI]: 1.02–1.52) in transgender boys, 1.42 (95% CI: 1.10–1.78) in nonbinary youth assigned female at birth, and 2.49 (95% CI: 1.11–4.28) in transgender girls. Restrictions were not associated with sexual assault among nonbinary youth assigned male at birth.

CONCLUSIONS: Pediatricians should be aware that sexual assault is highly prevalent in transgender and nonbinary youth and that restrictive school restroom and locker room policies may be associated with risk.

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Mr Murchison conceptualized and designed the study, coordinated data collection, conducted data analysis, and drafted the initial manuscript; Drs Agénor and Reisner provided input on the study design and analyses and reviewed the manuscript; Dr Watson conceptualized and designed the study, coordinated and supervised data collection, and reviewed the manuscript; and all authors revised the manuscript, approved the final manuscript as submitted, and agree to be accountable for all aspects of the work.

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WHAT'S KNOWN ON THIS SUBJECT: Among transgender and gender nonbinary adolescents, lacking access to safe, gender identity–congruent restrooms and locker rooms is associated with psychological distress and negative peer attention. Peer victimization, including sexual harassment, is prevalent in this population.

WHAT THIS STUDY ADDS: Transgender and gender nonbinary adolescents experience high rates of sexual assault victimization during middle and high school. Being denied access to gender identity–congruent school restrooms and locker rooms is associated with sexual assault risk.

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Adolescents (as well as children or adults) may identify as transgender when their gender identity (their internal sense of being male, female, or something else) does not match the sex they were assigned at birth. Someone whose gender identity falls outside of the traditional male and female "binary" may also identify as nonbinary. Together, transgender and nonbinary people are sometimes described as "gender minorities."

Gender minority youth and adults are disproportionately likely to experience sexual violence. In the United States, the lifetime prevalence of sexual assault (ie, unwanted sexual contact) among gender minorities is estimated at 47%.[1] In previous research with small samples of gender minority youth, researchers have found sexual assault rates of >50% in some subpopulations, including transgender girls of color, transgender boys, and nonbinary youth assigned a female sex at birth.[2,3] Transgender and nonbinary people with a history of sexual violence are more likely to experience psychiatric distress,[4] engage in problematic substance use[5,6] and sexual risk behaviors, drop out of school,[7] and consider or attempt suicide.[4,5,7] In general, adolescents who have experienced sexual assault are at risk for major depression, posttraumatic stress disorder, substance use problems, eating disorders, and additional sexual violence.[8]

Little is known about risk factors for sexual assault in gender minority adolescents, but school policies and practices play an important role in other forms of victimization.[9,10] One potentially impactful policy is whether schools restrict transgender students from using restrooms or locker rooms that match their gender identity. A majority of transgender students report that school staff have placed limits on their restroom or locker room use.[11] In a focus group study, transgender boys reported fear and harassment when using girls' restrooms. Using "unisex" facilities, often staff or nurse restrooms, likewise attracted "unwanted attention from peers and adults."[12]

Based on the literature, there are at least 3 reasons to expect that restroom and locker room policies may be related to gender minority students' risk of sexual assault. First, restrictions may cause students to use facilities that are less safe for them, and students may be assaulted while using them.[12] Second, restrictions may increase the likelihood of bias-related victimization in other locations (eg, by increasing peer awareness of a student's gender minority status).[12] Third, restrictive policies may not cause victimization but may be a marker of a hostile school or community climate for gender minority youth.[10] In each case, we would expect higher rates of sexual assault victimization in gender minority youth whose schools restrict their use of identity-congruent restrooms or locker rooms compared with those not facing restrictions. However, to date, the relationship between restroom and locker room policies and sexual assault victimization has not been examined.

Our first aim was to determine the 12-month prevalence of sexual assault in a large, geographically diverse sample of transgender and nonbinary US middle and high school youth. Our second aim was to determine if having been prohibited by school staff from using identity-congruent restrooms and locker rooms is associated with sexual assault victimization in gender minority youth. Our third aim was to test 4 potential mediators of the restrictions–sexual assault association: perceived safety in restrooms and locker rooms, perceived safety elsewhere at school, sexual harassment victimization, and the proportion of classmates aware of the student's gender minority status.

METHODS

Study Population

We analyzed data from the LGBTQ Teen Study, an anonymous Web-based survey of lesbian, gay, bisexual, transgender, and queer or questioning (LGBTQ) adolescents aged 13 to 17 years living in the United States and able to read English (N = 17 112).[13] Youth were recruited through social media posts and were offered Human Rights Campaign–branded wristbands and entry into a $50 gift card drawing. Participants provided informed assent; parental permission was waived to avoid disclosure of the child's LGBTQ identity. The study protocol was approved by the Institutional Review Board at the University of Connecticut.

Of 29 291 participants who began the survey, 8985 screened ineligible, and 3006 were removed because they abandoned the survey before completing the first section. Probable mischievous (n = 175) and duplicate (n = 22) responses were manually identified and removed. The present analysis was limited to the 3673 participants who were currently in grades 7 through 12 and reported a transgender and/or nonbinary identity.

Measures

Restroom and Locker Room Status

The exposure of interest was being denied access to identity-congruent school restrooms and/or locker rooms by school staff. Participants were asked, "At school, do you use restrooms and locker rooms that match your gender identity?" (1 = never, 5 = always). Participants with responses other than "always" were provided a list of 5 possible reasons for not using identity-congruent facilities. Those who selected "Teachers or administrators told me I am not allowed to use them" (with or without other reasons) were classified as restricted. Any other

response was classified as not restricted. Some students classified as restricted also reported additional reasons, such as feeling unsafe, and some students classified as nonrestricted did not use identity-congruent facilities. In other words, the exposure of interest was the restriction imposed by school staff rather than actual facility use.

Sexual Assault

The binary outcome of interest was past-year sexual assault. Participants were asked, "During the past 12 months, how many times did anyone force you to do sexual things that you did not want to do? (Count such things as kissing, touching, or being physically forced to have sexual intercourse.)"[14] The response "0 times" was coded as 0. Any positive number of assaults was coded as 1.

Gender Identity and Sex Assigned at Birth

Gender was assessed by using a "2-step approach."[15] Participants provided their sex assigned at birth (male or female) and their current gender identity (male, female, trans male or trans boy, trans female or trans girl, nonbinary, genderqueer or gender nonconforming, or write-in responses). Nonbinary, genderqueer or gender nonconforming, and similar write-in responses (eg, gender fluid) were considered nonbinary identities. On the basis of this information, participants were assigned to 1 of 4 categories: (1) trans male (ie, male and/or trans male gender identity and female sex assigned at birth); (2) trans female (ie, female and/or trans female gender identity and male sex assigned at birth); (3) nonbinary, assigned female at birth (AFAB) (ie, nonbinary gender identity and female sex assigned at birth); and (4) nonbinary, assigned male at birth (AMAB) (ie, nonbinary gender identity and male sex assigned at birth).

Covariates

Our primary estimates of the association between restroom and locker room restrictions and sexual assault were adjusted for known risk factors for adolescent sexual assault victimization and gender minority peer victimization, as follows.

Alcohol Use

Participants were asked, "During your life, on how many days have you had at least 1 drink of alcohol?" (1 = 0 days, 7 = 100 or more days).[14]

Family Connectedness

Family connectedness was assessed by using the mean of 3 items (sample: "How much do you feel…your family cares about your feelings?"; 1 = strongly disagree, 5 = strongly agree). Items were selected, on the basis of item-total correlation, from a 7-item scale previously used in research with LGBTQ adolescents.[16,17] Coefficient α was .83.

Teacher Awareness of Gender Minority Status ("Outness")

Participants were asked, "For each of the following groups [teachers and adults at school], how many people currently do you think know that you are transgender?" (1 = none, 5 = all).

Caregiver Education

Participants were asked their relationship to "the 1 or 2 adults most responsible for raising you now" and the highest level of education that each had completed (1 = high school or general equivalency diploma [GED] or less, 2 = vocational or technical school or some college, 3 = college completion, 4 = postgraduate education). For youth with 2 caregivers, scores were averaged and (for Table 1 only) rounded to the nearest integer.

State Same-Sex Marriage Approval

Attitudes toward sexual minorities and gender minorities are strongly correlated,[18] and same-sex marriage approval rates are predictive of health outcomes in LGBTQ populations.[19] In our sample, state-level approval was positively associated with family connectedness, outness to classmates and teachers, and perceived safety at school and negatively associated with depression, sexual harassment, and restroom and locker room restrictions, supporting its validity as a proxy for lower levels of local antitransgender stigma (see Supplemental Table 6). The proportion of state residents who approve of legal same-sex marriage was obtained from the 2016 Cooperative Congressional Election Study (N = 64 600).[20]

Teacher LGBTQ Attitudes

Participants were asked, "How many of the teachers and staff at your school do you think are supportive of LGBTQ people?" (0 = none of them, 3 = all of them).

Presence of Gender-Sexuality Alliance

Participants reported whether their school had a gender-sexuality alliance (GSA) (1 = yes, 0 = no).

Potential Mediators

Variables related to peer victimization were conceptualized as potential intermediates in the relationship between restroom and locker room restrictions and sexual assault risk.

Safety at School

Participants responded to the question "When at school, how often do you feel safe…" for 8 locations (sample: "In the cafeteria," 0 = never, 4 = always).[21] Safety in restrooms and locker rooms was defined as the mean of "in the bathroom" and "in the locker room" (α = .89). Safety elsewhere in school was defined as the mean of the remaining 6 items (α = .88).

TABLE 1 Percent Distribution of Demographic, Family, Social, and Behavioral Covariates Among US Transgender and Nonbinary Youth in Grades 7–12 Participating in the LGBTQ Teen Study by Sex Assigned at Birth and Gender Identity (N = 3673)

Variable	Total, N = 3673	AFAB		AMAB	
		Transgender Boys, n = 1359	Nonbinary Youth, n = 1947	Transgender Girls, n = 158	Nonbinary Youth, n = 209
Total, %	—	37.0	53.0	4.3	5.7
Region, %					
Northeast	18.2	17.7	18.2	18.6	21.3
South	35.4	32.3	37.6	36.5	34.8
North Central	24.2	27.8	22.1	23.1	20.3
West	22.2	22.1	22.1	21.8	23.7
Race and ethnicity, %					
White	68.1	71.5	66.1	70.3	62.7
Black or African American	3.0	2.3	3.3	4.4	4.3
Asian American	3.0	2.2	3.3	5.7	3.3
Hispanic or Latino	8.2	7.1	9.0	5.7	10.0
Biracial or multiracial	15.3	14.8	15.8	12.7	16.7
Another race	2.3	2.1	2.4	1.3	2.9
Caregiver education, %					
HS or GED or less	16.6	20.0	14.1	11.2	19.9
Some college	27.7	29.5	26.6	25.2	27.9
4-y degree	33.3	32.8	33.9	39.9	27.9
Graduate degree	22.3	17.7	25.3	23.8	24.4
Out to teachers, %					
None	48.2	28.3	60.7	45.6	63.1
A few	20.9	20.8	21.3	20.4	19.5
Some	9.4	13.4	7.3	6.2	5.6
Most	10.9	17.7	6.6	13.4	5.8
All	10.5	19.9	4.1	14.4	6.0
Alcohol use in d, %					
0	44.5	41.3	46.5	48.5	43.8
1 or 2	17.8	16.7	18.3	18.0	20.4
3–9	18.2	19.2	17.8	15.2	18.2
10–19	8.1	9.7	7.0	10.0	5.9
20–39	5.6	6.8	5.4	2.2	3.3
40–99	3.0	2.9	3.0	2.7	5.1
100 or more	2.6	3.4	2.0	3.5	3.3
Age in y, mean (SD)	15.40 (1.29)	15.45 (1.25)	15.31 (1.32)	15.74 (1.22)	15.77 (1.28)
Family connectedness, mean (SD)	3.18 (1.00)	3.09 (1.04)	3.20 (0.97)	3.35 (1.05)	3.42 (1.00)
State SSM approval, mean (SD)	0.62 (0.08)	0.62 (0.08)	0.62 (0.08)	0.62 (0.08)	0.61 (0.08)

HS, high school; SSM, same-sex marriage; —, not applicable.

Classmate Awareness of Gender Minority Status (Outness)

Participants were asked, "For each of the following groups [classmates at school], how many people currently do you think know that you are transgender?" (1 = none, 5 = all).

Sexual Harassment

Participants rated the frequency in the past 12 months (0 = 0 times, 5 = ≥6 times) of experiencing 5 sexual harassment behaviors (sample: "Having someone flash or expose themselves to you").[22] Responses were summed. Coefficient α was .79.

Analysis

We first calculated the distribution of each covariate by gender group (ie, gender identity and sex assigned at birth) and restroom and locker room restriction status. We then determined the prevalence of sexual assault in the past 12 months by gender and restroom and locker room restriction status. Next, we fit a logistic regression model for the probability of sexual assault, adjusting for potential confounders associated with adolescent sexual assault (ie, alcohol use,[23] family connectedness,[24] and caregiver educational attainment[25]) and exposure to antitransgender stigma and victimization (ie, state same-sex marriage approval rate,[18,19] outness to teachers,[26] perceived teacher LGBTQ support, and presence or absence of GSA). The initial model was also adjusted for age and race, but these were removed because of nonsignificance. Each model included interaction terms between restroom restrictions and gender group to estimate the effect of restroom and locker room restrictions separately for each group. We also tested interaction terms between assigned sex and each covariate; all were nonsignificant, except for the

interaction between assigned sex and outness to teachers, which was retained in the final model. Odds ratios from the model were converted to relative risks to aid interpretation.[27]

To assess potential mediators, we fit a separate natural effects model for each proposed mediator using the medflex package for R.[28] The proportion mediated was calculated by dividing the natural indirect effect by the total effect on the log-odds scale.

Missingness was low (1.7%) for sexual assault but substantial for restroom and locker room status (9.6%) and certain covariates. Nearly all missingness was attributable to early survey termination rather than the skipping of sensitive items, supporting the assumption that the data were missing at random and making multiple imputation appropriate.[29] The data were imputed 40 times by using the mice package for R, and imputed data were used for all regression models.[30] As a sensitivity analysis, we fit models on the nonimputed data, resulting in similar point estimates (except for a stronger association among transgender girls) and larger SEs because of the deletion of partial cases (see Supplemental Table 7). Data analysis was conducted in R 3.4.4.[31]

RESULTS

Participants represented every US state, and a plurality (35.4%) lived in the South (Table 1). The mean age was 15.4 years (SD = 1.3). Most (90.0%) participants were AFAB, with the remaining 10.0% AMAB; 58.9% of AFAB participants and 56.9% of AMAB participants had a nonbinary gender identity.

Nonrestricted youth lived in states with higher average same-sex marriage approval (0.62, SD = 0.08) compared with restricted youth (0.60, SD = 0.08, $P < .001$; Table 2). Restricted youth were less likely to have a GSA at their school (57.3% compared with 66.8%, $P < .001$) and gave poorer mean ratings for teacher LGBTQ attitudes (1.34, SD = 0.64 compared with 1.53, SD = 0.63, $P < .001$).

The prevalence of sexual assault in the past 12 months was 25.9% (95% confidence interval [CI]: 24.4%–27.3%; Table 3). The prevalence was highest among nonbinary AFAB youth at 27.0% (95% CI: 25.0%–29.0%) and transgender boys at 26.5% (95% CI: 24.0%–28.6%). Youth subject to restroom and locker room restrictions had an overall sexual assault prevalence of 36.0% (95% CI: 31.6%–40.3%).

After adjustment for potential confounders, in 3 of the 4 gender groups, youth who experienced restroom and locker room restrictions were significantly more likely to experience sexual assault than those whose facility use was not restricted (Table 4). Specifically, restricted transgender boys had 1.26 (95% CI: 1.02–1.52; $P = .042$) times the adjusted sexual assault risk compared with nonrestricted transgender boys, restricted nonbinary AFAB youth had 1.42 (95% CI: 1.10–1.78; $P = .012$) times the adjusted risk compared with nonbinary AFAB youth without restrictions, and restricted transgender girls had 2.49 (95% CI: 1.11–4.28; $P = .027$) times the adjusted risk compared with nonrestricted transgender girls. For nonbinary AMAB participants, restroom and locker room restrictions were not associated with sexual assault risk ($P = .673$).

Significant indirect effects were present for all 4 mediating variables tested (Table 5). Sexual harassment fully mediated the association between restroom and locker room restrictions and sexual assault victimization. There was partial mediation by feeling safe in restrooms and locker rooms (23.7% mediated), feeling safe elsewhere in school (19.0% mediated), and classmate knowledge of gender minority status (6.8% mediated).

DISCUSSION

In our sample of transgender and nonbinary US adolescents, the 12-month prevalence of sexual assault was 25.9%, substantially higher than national rates of 15% among cisgender high school girls and 4% among cisgender boys.[32] After adjusting for potential confounders, compared with nonrestricted youth of the same gender identity and sex assigned at birth, school restroom and locker room restrictions were associated with 1.26 times the risk of sexual assault for transgender boys, 1.42 times the risk for nonbinary youth AFAB, and 2.49 times the risk for transgender girls; we found no association between restroom and locker room restrictions and sexual assault risk in nonbinary youth AMAB. To our knowledge, the current study is the first in which researchers have determined the prevalence of sexual assault in a large middle and high school gender minority sample and assessed the association between school restroom and locker room policies and sexual assault victimization.

We found that sexual harassment fully mediated the association between restroom and locker room restrictions and sexual assault risk. One explanation for this finding is that restroom and locker room restrictions increase gender minority students' risk of sexual harassment, which can escalate to sexual assault. It is also possible that the students who experience restroom and locker room restrictions are more likely to experience sexual harassment and assault for other reasons (ie, confounding), such as poor school disciplinary practices. Notably, in our

TABLE 2 Percent Distribution of Demographic, Family, Social, and Behavioral Covariates in Relation to Restroom and Locker Room Restrictions Among US Transgender and Nonbinary Youth in Grades 7–12 Participating in the LGBTQ Teen Study by Sex Assigned at Birth and Gender Identity (N = 3673)

	All, N = 3673		AFAB				AMAB			
			Transgender Boys, n = 1359		Nonbinary Youth, n = 1947		Transgender Girls, n = 158		Nonbinary Youth, n = 209	
	Restricted, n = 452	Not Restricted, n = 2868	Restricted, n = 265	Not Restricted, n = 985	Restricted, n = 145	Not Restricted, n = 1599	Restricted, n = 23	Not Restricted, n = 121	Restricted, n = 19	Not Restricted, n = 163
Total, %	13.6	86.4	21.2	78.8	8.4	91.6	15.7	84.3	11.4	88.6
Race and ethnicity, %										
White	65.8	68.4	72.7	71.9	56.9	70.0	64.3	66.5	49.9	62.2
African American	2.3	3.2	3.8	2.4	8.1	1.6	4.3	3.5	4.5	2.2
Asian American	2.0	3.2	5.9	2.3	4.8	1.9	2.9	3.6	6.7	1.1
Hispanic or Latino	9.0	8.1	5.3	7.1	8.1	7.4	9.6	8.8	13.6	11.3
Biracial or multiracial	17.8	15.0	10.9	14.4	22.1	16.3	16.5	15.4	19.1	19.6
Another race	3.1	2.1	1.5	1.9	0.0	2.9	2.5	2.3	6.2	3.5
Caregiver education, %										
HS or GED or less	21.0	15.9	72.7	19.3	56.9	23.2	64.3	13.8	49.9	18.5
Some college	32.0	27.1	3.8	29.2	8.1	31.4	4.3	26.0	4.5	33.3
4-y degree	29.9	33.9	5.9	32.8	4.8	32.1	2.9	34.6	6.7	26.0
Graduate degree	17.1	23.1	5.3	18.7	8.1	13.3	9.6	25.6	13.6	22.2
Teachers know gender minority status, %										
None	31.0	50.9	46.7	30.2	39.8	21.1	64.2	62.3	54.7	43.7
A few	21.5	20.9	20.3	20.8	20.6	20.8	20.6	21.0	10.5	24.5
Some	13.2	8.8	5.5	12.8	10.2	15.4	4.6	7.1	13.2	9.6
Most	18.1	9.8	13.6	16.3	12.6	22.6	4.7	6.2	15.1	11.3
All	16.2	9.6	14.0	19.8	16.8	20.0	5.9	3.5	6.5	10.9
Alcohol use in d, %										
0	41.0	45.1	46.4	41.7	59.9	39.8	42.7	47.3	52.6	38.5
1 or 2	15.4	18.2	17.4	17.3	21.1	14.5	21.6	18.5	10.7	16.8
3–9	16.4	18.5	17.0	19.9	5.6	16.5	20.0	17.6	4.1	19.6
10–19	10.4	7.7	11.0	9.1	4.2	11.9	6.0	6.7	5.2	9.6
20–39	8.1	5.3	2.5	6.1	0.4	9.6	2.7	5.2	7.6	6.8
40–99	3.1	3.1	3.2	3.2	0.4	1.8	4.0	2.9	14.0	4.2
100 or more	5.7	2.2	2.6	2.7	8.3	6.0	3.0	1.7	5.7	4.6
School has GSA, %										
Yes	57.3	66.8	62.1	71.5	49.6	64.9	42.9	59.8	66.7	62.5
No	42.7	33.2	37.9	28.5	50.4	35.1	57.1	40.2	33.3	37.5
Age in y, mean (SD)	15.32 (1.34)	15.42 (1.29)	15.38 (1.30)	15.46 (1.24)	15.15 (1.39)	15.32 (1.31)	15.6 (1.44)	15.77 (1.17)	15.71 (1.24)	15.77 (1.28)
Family connectedness, mean (SD)	2.89 (1.05)	3.22 (0.99)	2.92 (1.05)	3.14 (1.03)	2.82 (1.02)	3.23 (0.96)	2.84 (1.19)	3.44 (1.00)	3.15 (1.01)	3.46 (1.00)
State SSM approval, mean (SD)	0.60 (0.08)	0.62 (0.08)	0.60 (0.08)	0.62 (0.08)	0.59 (0.09)	0.62 (0.08)	0.64 (0.09)	0.62 (0.08)	0.58 (0.08)	0.62 (0.08)
Teacher LGBTQ support, mean (SD)	1.34 (0.64)	1.53 (0.63)	1.39 (0.64)	1.60 (0.61)	1.29 (0.62)	1.47 (0.63)	1.19 (0.75)	1.59 (0.70)	1.20 (0.56)	1.59 (0.58)

HS, high school; SSM, same-sex marriage.

analysis, we controlled for both state-level and school-level indicators of attitudes toward LGBTQ people, reducing the likelihood that these attitudes confounded our results.

In our mediation analysis, consistent with previous qualitative research,[12] we found that restrictions were

TABLE 3 Prevalence of Sexual Assault in the Past 12 Months Overall and by School Restroom and Locker Room Status Among US Transgender and Nonbinary Youth in Grades 7–12 Participating in the LGBTQ Teen Study by Sex Assigned at Birth and Gender Identity (N = 3673)

Sexual Assault in Past 12 mo, % (95% CI)	All, N = 3673	AFAB		AMAB	
		Transgender Boys, n = 1359	Nonbinary Youth, n = 1947	Transgender Girls, n = 158	Nonbinary Youth, n = 209
All	25.9 (24.4–27.3)	26.5 (24.0–28.6)	27.0 (25.0–29.0)	18.5 (12.4–24.6)	17.6 (12.3–22.8)
No restrictions	24.3 (22.8–25.8)	24.5 (21.9–27.1)	25.6 (23.5–27.6)	14.9 (8.8–20.9)	17.6 (12.0–23.2)
Restroom or locker room use restricted	36.0 (31.6–40.3)	33.8 (28.1–39.5)	42.2 (34.3–50.2)	37.9 (18.3–57.6)	17.4 (0.7–34.1)

associated with feeling less safe not only in restrooms and locker rooms but also elsewhere at school. Although we cannot determine if the restrictions themselves affected safety, it appears that using a single-person facility (eg, a staff restroom) may not fully address the risks associated with restrictions. We found evidence for 1 potential mechanism for victimization outside restrooms and locker rooms: restroom and locker room restrictions may put students at risk by "outing" them as transgender.[12,33] However, classmates' awareness of students' gender minority status accounted for only a small proportion of the association between restrictions and sexual assault risk.

A major strength of the current study is the use of one of the largest samples of gender minority adolescents ever collected, including youth in every US state. We controlled for key potential confounders, including school, family, and contextual factors. The study's limitations stem primarily from the use of cross-sectional, nonprobability data. We cannot determine if restroom and locker room restrictions caused the observed differences in sexual assault risk; furthermore, sexual assault prevalence estimates and other findings may not apply to the full population of US transgender and nonbinary adolescents. In particular, Black or African American and Hispanic or Latino participants were underrepresented, which limited our ability to observe differences by race or ethnicity. These differences are a critical consideration in adolescent health research, particularly when restrictive or punitive practices (which often target Black or African American and Hispanic or Latino youth) play a role. Similarly, the smaller number of students AMAB limited the precision of effect estimates in this subgroup. Nonetheless, our sample had strong geographic and socioeconomic diversity, supporting our findings' generalizability to US gender minority adolescents broadly.

TABLE 4 Adjusted Risk Ratios for the Association Between Being Restricted From Using Gender-Appropriate Restrooms and Locker Rooms at School and Sexual Assault Victimization in the Past 12 Months Among US Transgender and Nonbinary Youth in Grades 7–12 Participating in the LGBTQ Teen Study by Sex Assigned at Birth and Gender Identity (N = 3673)

	Adjusted Risk Ratio for Sexual Assault Victimization in Past 12 mo (95% CI)
AFAB	
Transgender boys, n = 1359	
No restrictions, reference	1.00
Restroom or locker room use restricted	1.26 (1.02–1.52)[a]
Nonbinary youth, n = 1947	
No restrictions, reference	1.00
Restroom or locker room use restricted	1.42 (1.10–1.78)[a]
AMAB	
Transgender girls, n = 158	
No restrictions, reference	1.00
Restroom or locker room use restricted	2.49 (1.11–4.28)[a]
Nonbinary youth, n = 209	
No restrictions, reference	1.00
Restroom or locker room use restricted	0.82 (0.27–2.08)

All estimates are adjusted for parental educational attainment, alcohol use, family connectedness, teachers' awareness of participant's gender minority status, state same-sex marriage approval rate, presence of GSA, and teacher LGBTQ attitudes. Within each model, the effect of restroom or locker room restrictions was allowed to vary by sex assigned at birth and gender identity (boy or girl versus nonbinary).

[a] Statistically significant at α = .05.

CONCLUSIONS

Transgender and nonbinary middle and high school youth in our sample experienced sexual assault at troubling rates well above those for nontransgender adolescents. Besides avoiding restrictive policies, schools should strongly consider designating "all-gender restrooms,"[12,33] along with additional adult supervision in locations where harassment is most likely to occur,[34] training staff to intervene in anti-LGBTQ bullying, and offering privacy options (eg, curtains) in locker rooms.

Pediatricians should be aware of the high prevalence of sexual assault

TABLE 5 Direct and Indirect Effects and Proportion Mediated by Peer Victimization Variables for Association Between Restroom and Locker Room Restrictions and Sexual Assault Victimization in the Past 12 Months Among US Transgender and Nonbinary Youth in Grades 6–12 Participating in the LGBTQ Teen Study (N = 3673)

Mediating Variable	Natural Direct Effect		Natural Indirect Effect		Proportion Mediated
	Risk Ratio (95% CI)	*P*	Risk Ratio (95% CI)	*P*	
Feel safe in restrooms and locker rooms	1.24 (1.05–1.44)	.013	1.07 (1.04–1.10)	<.001	0.237
Feel safe elsewhere at school	1.25 (1.06–1.46)	.008	1.06 (1.03–1.09)	<.001	0.190
Classmates know gender minority status	1.29 (1.10–1.50)	.002	1.02 (1.00–1.04)	.030	0.068
Sexual harassment	1.02 (0.87–1.19)	.816	1.29 (1.19–1.40)	<.001	0.935

among transgender and nonbinary youth, particularly those who have been subject to restrictive school policies, and should consider sexual victimization as a possible contributor to psychological distress and health risk behaviors in gender minority patients. Clinicians should routinely screen adolescents for a history of sexual assault,[35] keeping in mind that youth may not have previously disclosed the assault and may not volunteer the information unless asked directly.[36] Pediatricians can provide emotional support and mental health referrals[35]; gender minority youth should ideally be referred to providers who are experienced with gender minority populations. From a prevention perspective, pediatricians are key advocates for transgender and nonbinary patients, and their role may include educating school officials and submitting letters confirming the patient's need to express their gender identity.[37] These communications can emphasize the importance of access to safe, identity-congruent restrooms and locker rooms.

Adolescent health researchers should identify the characteristics (eg, perpetrators, settings) of sexual assault in transgender and nonbinary K–12 youth as well as any protective factors. Finally, it is not clear why restroom and locker room restrictions were not associated with sexual assault risk among nonbinary youth AMAB. Researchers should seek to better understand the school experiences and health risk profile of this understudied group.

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ABBREVIATIONS

AFAB: assigned female at birth
AMAB: assigned male at birth
CI: confidence interval
GED: general equivalency diploma
GSA: gender-sexuality alliance
LGBTQ: lesbian, gay, bisexual, transgender, and queer or questioning

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