



Teacher Support Moderates Associations among Sexual Orientation Identity Outness, Victimization, and Academic Performance among LGBQ+ Youth

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Abstract

Lesbian, gay, bisexual, queer, and youth with other minority sexual orientations (LGBQ+) who are more out to others about their sexual orientation identity may experience greater victimization at school based on sexual orientation, gender identity or expression, with negative implications for academic performance. Teacher support, however, may buffer these associations. Among a national US sample of cisgender and trans/non-binary LGBQ+ youth ($n = 11,268$; 66.1% White, 66.8% cisgender, $M_{\text{age}} = 15.5$ years, $SD_{\text{age}} = 1.3$), latent moderated-mediation models were tested in which perceived teacher support and affirmation moderated the extent to which sexual orientation identity outness was associated with poorer reported academic performance in part through its association with greater victimization. As hypothesized, greater perceived teacher support and affirmation buffered (a) the association between sexual orientation identity outness and victimization, (b) the association between victimization and reported academic performance, and (c) the indirect association between sexual orientation identity outness and reported academic performance through victimization. These findings underscore the important protective role of supportive teachers for LGBQ+ youth in schools.

Keywords Sexual orientation · LGB · Discrimination · Teacher support · Academic performance

Introduction

A majority of lesbian, gay, bisexual, queer and youth with other minority sexual orientations (LGBQ+ youth) continue to report victimization at school (Kosciw et al., 2020; Russell and Fish, 2016). Some LGBQ+ youth are especially at risk of victimization, including youth who are more out to others about their sexual orientation (Russell et al., 2014). These findings are concerning in part because

victimization based on sexual orientation, gender identity or expression is associated with academic concerns such as absenteeism, lower reported grades, and less intention to graduate (Aragon et al., 2014; Kosciw et al., 2013). It would be important to identify conditions under which LGBQ+ youth who are more out about their sexual orientation identity are *not* at greater risk for victimization or poorer academic performance. There has been little attention to this point. To address this issue, this study considers the role of perceived teacher support and affirmation in a model (Fig. 1) wherein the associations among sexual orientation identity outness, bias-based victimization, and academic performance are buffered by greater perceived teacher support and affirmation.

Framing Associations among Outness, Victimization, and Academics

Ecological models of development underscore the need to examine youth in context (Bronfenbrenner & Morris, 2006; Lerner et al., 2015). These frameworks emphasize that social environments, such as schools, shape youth's

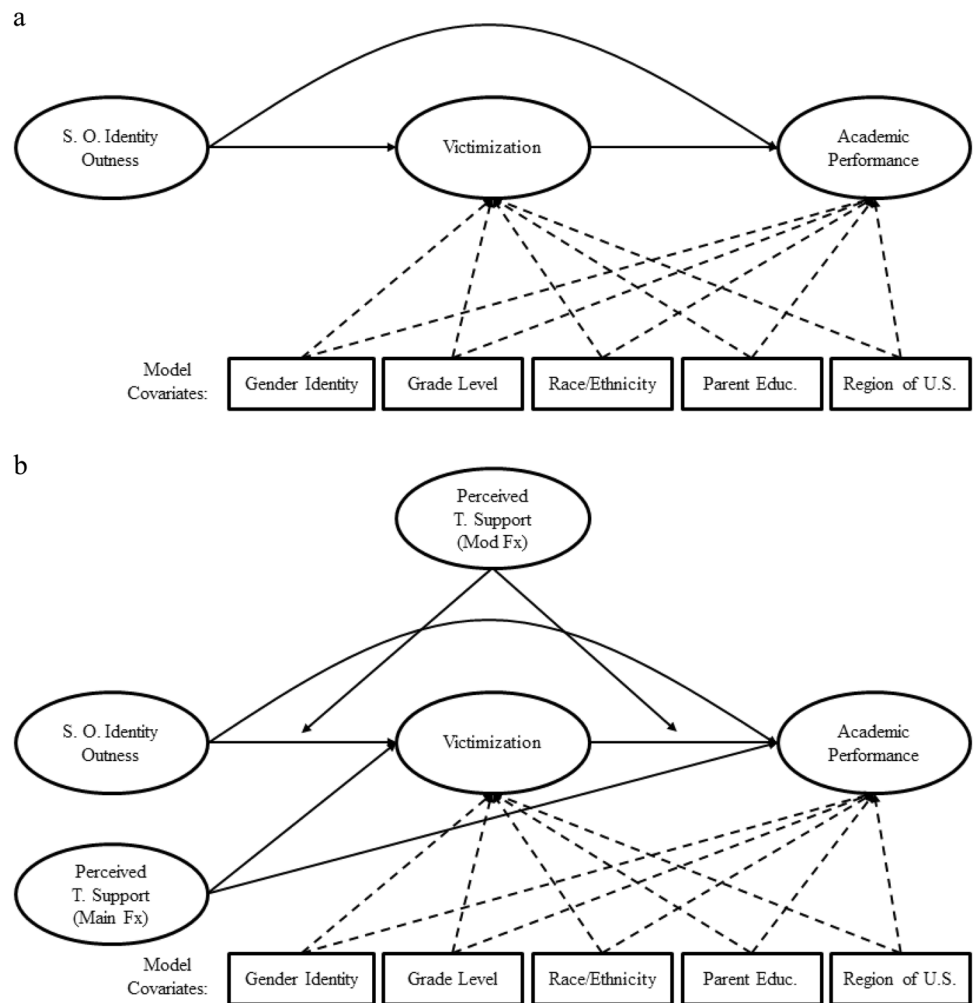
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Fig. 1 **a** Mediation-only Conceptual Model. **b** Moderated-Mediation Conceptual Model



experiences, learning, and development. In doing so, social contexts can be sources of stressors and strengths to youth (Bronfenbrenner & Morris, 2006). With respect to stressors, discrimination is understood to be a major social determinant of health for LGBQ+ people and it is a factor associated with academic concerns (Aragon et al., 2014; Russell & Fish, 2016). Indeed, greater victimization is associated with poorer reported academic performance among LGBQ+ youth (Aragon et al., 2014; Kosciw et al., 2013). As such, it is important for research to identify factors that place LGBQ+ youth at risk for discrimination.

Sexual orientation identity outness (i.e., the extent to which LGBQ+ youth's identity is known to others) could place LGBQ+ youth at greater risk for experiencing victimization. Some findings show that greater outness is associated with greater victimization (Kosciw et al., 2015; Russell et al., 2014). One possible explanation for this is that LGBQ+ youth who are more out to others about their sexual orientation may be more visible as members of the LGBQ+ community. This visibility may place them at greater risk to experience victimization because other

students are more likely to harass peers whom they know or believe identify as LGBQ+ (Camodeca et al., 2019). Thus, LGBQ+ youth who report greater outness about their sexual orientation may report greater victimization.

Sexual orientation identity outness also could be associated with academic performance in part through its association with victimization. Again, sexual orientation identity outness is associated with victimization (Kosciw et al., 2015; Russell et al., 2014), and victimization is associated with poorer academic performance (Aragon et al., 2014; Kosciw et al., 2013). Pairing these past findings together, there may be a significant indirect association between sexual orientation identity outness and academic performance through victimization (Fig. 1a). In effect, LGBQ+ youth who are more out at school may report poorer academic performance because they experience more victimization, a known predictor of academic concerns (Aragon et al., 2014; Kosciw et al., 2013). However, greater teacher support could “disrupt” this process. This process may not apply universally to LGBQ+ youth in general, but rather only to LGBQ+ youth who perceive less teacher support.

The Potential Protective Roles of Teachers

Social contexts can promote resilience in the face of adversity (Lerner et al., 2015). At school, teachers are in a key position to play a supportive role for students and foster their academic success. They have regular interactions with students and opportunities for one-on-one conversations during and outside of class. The potential protective role of teachers would be important to consider, as many LGBTQ+ youth lack support from other traditional sources such as families (Newcomb et al., 2019).

Students who believe that there is a teacher who they can go to for support and who perceive greater warmth and care from their teachers report greater academic motivation, better grades, and higher GPAs (Pitzer & Skinner, 2017; Tennant et al., 2015). Perceived teacher support is also associated with a greater sense of safety and lower victimization (Troop-Gordon, 2015). Similar correlations exist among LGBTQ+ youth (Kosciw et al., 2013; Ullman, 2017). Thus, greater perceived teacher support and affirmation (in the form of social-emotional support and affirmation of LGBTQ+ people) may be associated with lower reported victimization and better reported academic performance.

Beyond these bivariate associations, less attention has been given to the protective buffering role of teachers. Supportive and caring teachers may be among the first adults at school to notice which of their students could be at greater risk of victimization or which students show initial signs of distress from experiencing victimization. With this in mind, greater perceived teacher support and affirmation could buffer the association between sexual orientation identity outness and victimization, as well as the association between victimization and reported academic performance (Fig. 1b).

First, greater perceived teacher support and affirmation may attenuate the extent to which greater sexual orientation identity outness is associated with greater victimization. Teachers can model and promote prosocial norms in part by providing social-emotional support to their students (Hendrickx et al., 2016). Teachers' social-emotional support and affirmation of LGBTQ+ people could foster norms within the school wherein LGBTQ+ identities are respected and valued. Supportive and affirming teachers also may be more likely to intervene when bullying occurs, thereby preventing chronic victimization of LGBTQ+ youth. In this case, LGBTQ+ youth may find that they are able to be more out about their sexual orientation identities without facing greater victimization from peers.

Second, greater perceived teacher support and affirmation may attenuate the extent to which greater victimization is associated with poorer academic performance. Social support, particularly identity-affirming support, may buffer the effects of discrimination on certain outcomes (Kwon, 2013). This proposition aligns with a stress-buffering model

of social support (Cohen & Wills, 1985), in that social support can reduce the impact of stressors (e.g., discrimination) on an individual. LGBTQ+ youth who experience greater victimization may be less negatively affected academically by it if they have stronger teacher connections. Supportive and affirming teachers may be more aware of and responsive to LGBTQ+ youth who are experiencing victimization. For instance, these teachers may provide victimized LGBTQ+ youth with needed reassurance and validation in the face of victimization that denigrates their LGBTQ+ identities, referrals to affirming school counselors, or be more open to providing accommodations (e.g., time extensions to complete assignments).

Finally, by attenuating these two paths in the model, the indirect association between sexual orientation identity outness and academic performance (i.e., through victimization) may be weaker at higher levels of perceived teacher support and affirmation. In other words, strong teacher support may disrupt this otherwise anticipated process wherein being more out about one's sexual orientation identity places LGBTQ+ youth at greater risk of bias-based victimization, which subsequently could affect their academic performance.

Accounting for other Contributing Factors

The proposed models will adjust for several covariates that could also account for variability in youth's victimization and academic performance, so as to provide a more refined test of the unique contributions of sexual orientation identity outness and perceived teacher support and affirmation. Grade level is included for several reasons. As contemporary LGBTQ+ youth are coming out at earlier ages, this occurs during periods of heightened bias-based victimization in middle school and into early high school (Poteat et al., 2012; Russell & Fish, 2019). Additionally, the difficulty of curricula and expectations for students can increase at higher grade levels. Also included is parent highest educational attainment as a proxy for SES, which is associated with academic performance (Reardon, 2011); as well as geographic region, as some research shows different patterns of academic performance based on region (Morris & Monroe, 2009). Race/ethnicity is included for several reasons. Broader educational inequities between white students and students of color have been robustly documented (Howard, 2019). Further, LGBTQ+ youth of color contend with racial discrimination and sexual orientation discrimination, which may lead to experiences of stigma and marginalization that are distinct from their white LGBTQ+ peers.

Finally, gender identity is included as a covariate in these models. LGBTQ+ youth include both cisgender and transgender or non-binary (trans/non-binary) youth. As such, it is

essential for both to be included in LGBTQ+ youth research, especially trans/non-binary LGBTQ+ youth who often go unrepresented in studies and in the larger literature base. At the same time, trans/non-binary youth face unique stressors at school relative to their cisgender LGBTQ+ peers, including even higher rates of victimization, adult failure to use their correct gender pronouns, and risk for violence in gendered spaces (Day et al., 2018; Murchison et al., 2019). Consequently, trans/non-binary LGBTQ+ youth can experience bias-based victimization on account of both their gender identity and sexual orientation. Accordingly, these models include gender identity to account for the fact that some LGBTQ+ youth in the sample also identify as trans/non-binary.

Current Study

Among a large national US sample of cisgender and trans/non-binary LGBTQ+ youth, the current study tests two models of the associations among youth's reported sexual orientation identity outness, bias-based victimization, and academic performance, while considering the buffering effects of perceived teacher support and affirmation. Model 1 (Fig. 1a), a mediation-only model, tests several hypotheses. It is hypothesized that greater sexual orientation identity outness will be associated with greater victimization and that greater victimization will be associated with poorer reported academic performance. A significant indirect association between sexual orientation identity outness and academic performance through victimization is further hypothesized.

Model 2 (Fig. 1b) then considers the roles of perceived teacher support and affirmation. It is hypothesized that greater perceived teacher support and affirmation will attenuate the association between sexual orientation identity outness and victimization, as well as the association between victimization and reported academic performance. In turn, the indirect association between sexual orientation identity outness and academic performance is expected to be attenuated by perceived teacher support and affirmation.

Method

Data Source and Participants

Participants in the current study were 11,268 LGBTQ+ youth (66% White; 37% gay or lesbian; $M_{\text{age}} = 15.5$ years, $SD = 1.3$ years). Of these youth, 7523 (67%) identified as cisgender LGBTQ+ youth and 3745 (33%) identified as trans/non-binary LGBTQ+ youth. Participants were located across all 50 states. Additional demographic details are presented in Table 1.

Participants were youth who had participated in the [LGBTQ National Teen Survey], conducted between April

Table 1 Participant demographics

Demographic Variable	<i>N</i> (%)
Sexual Orientation	
Gay or lesbian	4227 (37.5)
Bisexual	3900 (34.6)
Queer	491 (4.4)
Pansexual	1578 (14.0)
Asexual	535 (4.7)
Questioning	287 (2.5)
Another identity	250 (2.2)
Gender Identity	
Cisgender female	5058 (44.9)
Cisgender male	2465 (21.9)
Trans-female	106 (0.9)
Trans-male	848 (7.5)
Transfeminine/non-binary	270 (2.4)
Transmasculine/non-binary	2521 (22.4)
Race or Ethnicity	
White, non-Hispanic	7448 (66.1)
Black or African American	504 (4.5)
Native American or Alaskan Native	51 (0.5)
Asian or Pacific Islander	430 (3.8)
Latino, Hispanic, or Mexican American	1135 (10.1)
Biracial or multiracial	1491 (13.2)
Another identity	194 (1.7)
No response	15 (0.1)
Parent Education	
Less than high school or GED	328 (2.9)
High school or GED	1368 (12.1)
Some college	1805 (16.0)
College graduate or higher	7175 (63.7)
No response, "unknown", or "not applicable"	592 (5.3)
Grade Level	
7 th Grade	154 (1.4)
8 th Grade	761 (6.8)
9 th Grade	1712 (15.2)
10 th Grade	2342 (20.8)
11 th Grade	2747 (24.4)
12 th Grade	2655 (23.6)
No response	897 (8.0)
US Region of Residence	
Northeast	2028 (18.0)
South	4113 (36.5)
Midwest	2685 (23.8)
West	2442 (21.7)

and December of 2017. Eligibility criteria for the full project included self-identification as a sexual and/or gender minority young person between the ages of 13 to 17 years living in the United States. Recruitment efforts were made

through multiple social media outlets and from organizations and a number of youth and adult “influencers” (e.g., individuals on social media with a large number of followers or subscribers) as well as through community-based organizations and word-of-mouth. The data were not treated as nested (e.g., youth nested within schools) because the recruitment strategy did not include contacting specific schools to attain a certain number of participants in them and youth did not report the school they attended. The survey was designed to prevent bots from completing it. On average, youth took 28 min to complete the survey. The project was granted a waiver of parent consent from [University of Connecticut] to avoid the risk of outing some youth to their caregivers and discouraging them from participating, which could lead to a biased and unrepresentative sample. Youth provided their assent prior to completing the online survey. Participants were eligible to receive a wristband and raffle entry for gift cards.

There were several inclusion criteria for the present analyses that resulted in the final sample of 11,268 youth. Potential duplicate responses and surveys whose validity could be suspect were eliminated. In addition, only youth who had completed at least half of the survey were retained. Finally, given this study’s focus on sexual orientation identity outness, current academic performance, and the roles of teachers, surveys were not included from youth who reported that they were not in school or who reported that they were in college or trade school, or youth who identified as heterosexual.

The overall amount of missing data was 7.5%, ranging from 0 to 14% across individual items. Most participants (75.6%) were not missing any data. The data were not missing completely at random ($\chi^2 = 1442.66$, $df = 759$, $p < 0.001$). Therefore, as opposed to listwise deletion, missing data were handled with full information maximum likelihood (FIML) so as to include all participants in the analyses. Data were no more likely to be missing for white youth or youth of color ($ps = 0.25$ to 0.95) and statistically significant differences between cisgender and trans/non-binary LGBQ+ youth were negligible based on effect sizes (all $\eta_p^2 < 0.01$, ranging from $\eta_p^2 < 0.001$ to $\eta_p^2 = 0.002$).

Measures

Sexual orientation identity

Youth reported their sexual orientation identity based on the item, “How would you describe your sexual identity?” Response options were *gay or lesbian*, *bisexual*, *straight (that is, not gay)*, and *something else*. Youth who selected *something else* were further prompted with, “By something else, do you mean...” with response options of *queer*, *pansexual*, *asexual*, *questioning*, or another identity which

they could type into a response box. Using a skip-logic function in the online survey, youth who identified as straight did not receive the items asking about LGBQ+ identity outness and thus were not included in this study.

Gender identity

Youth reported their gender identity based on a check-all-that-applies item that asked whether participants identified as *male*, *female*, *transgender male/boy*, *transgender female/girl*, *non-binary*, *genderqueer*, or another write-in option, as well their sex assigned at birth on a separate item (*male* or *female*). Based on the various combinations of responses provided by participants on the two items, the following groups were formed for demographic reporting purposes: cisgender female, cisgender male, transgender female/girl, transgender male/boy, transfeminine/non-binary, and transmasculine/non-binary. In the analyses, all youth who identified with non-cisgender identities were included in the trans/non-binary group, and all youth who identified with cisgender identities (cisgender female, cisgender male) were included in the cisgender group.

Sexual orientation identity outness

Only youth who reported a minority sexual orientation identity received an adapted version of the Outness Inventory (Mohr & Fassinger, 2000) to indicate the extent to which they were out to others in their lives. Questions were preceded by the stem, “For each of the following groups, how many people currently do you think know of your sexual orientation? If you don’t have any people like this in your life, please select ‘not applicable’”. Of the original 12 items completed by participants, five of the items most closely relevant to the school context were included for the present analyses: (a) LGBTQ friends, (b) non-LGBTQ friends, (c) classmates at school, (d) teachers and adults at school, and (e) athletic coaches. Response options were *none*, *a few*, *some*, *most*, and *all* (on a scale of 0 to 4). When adolescents responded ‘not applicable,’ the value was set to missing for that item. Their internal consistency estimate was $\alpha = 0.84$.

Victimization

Youth responded to three items assessing their experience of victimization at school. The items were: (a) how often have you been teased or treated badly by other students at your school because of your sexuality, (b) how often have you been teased or treated badly by other students at your school because of your gender, and (c) how often have you been teased or treated badly by other students at your school because of how masculine or feminine you are? Response

options were *never*, *rarely*, *sometimes*, *often*, and *very often* (on a scale of 0 to 4). The internal consistency estimate for these three items was $\alpha = 0.73$.

Perceived teacher support and affirmation

Youth responded to two items related to teacher support and affirmation. The first item was, “Do you agree or disagree that your teachers really care about you and give you encouragement and support?” with response options of *strongly disagree*, *disagree*, *agree*, and *strongly agree* (on a scale of 0 to 3), and another option of *I’m not sure*, which was treated as missing. The second item was, “How many of the teachers and staff at your school do you think are supportive of LGBTQ people?” with response options of *none of them*, *some of them*, *most of them*, and *all of them* (on a scale of 0 to 3), and another option of *I don’t know*, which was treated as missing. The two variables were significantly correlated ($r = 0.41$).

Academic performance

Students responded to two items which assessed their self-reported academic performance, one assessing their academic grades and one assessing their GPA. The item for grades was modeled on the item from the CDC’s Youth Risk Behavior Survey (CDC, 2019). The item was, “Which of the following best describes your grades?” with response options of *mostly A’s*, *mostly B’s*, *mostly C’s*, *mostly D’s*, and *mostly F’s* (on a scale of 1 to 5, such that higher scores represent better grades). An *I don’t know* response option also was offered, which was treated as missing. The item for GPA was, “What is your approximate current GPA?” with response options of *below 2.0*, *2.0–2.4*, *2.5–2.9*, *3.0–3.4*, *3.5–4.0*, and *above 4.0* (which was on a scale of 1 [below 2.0] to 6 [above 4.0], such that higher scores represent a higher GPA). Two other response options also were offered, including *my school doesn’t use GPA* and *I don’t know my GPA*. Both responses were treated as missing. The two items were highly correlated ($r = 0.75$).

Other covariates

Youth reported their current school *grade level* and *race/ethnicity*, with response options and descriptive data reported in Table 1. In the analyses, racial and ethnic minority youth were included in a common single group due to the complexity of the models, where white youth served as the reference group. *Parental highest education attainment* was based on the highest value of two items for which youth indicated the highest level of education of their first (and potentially second) parent or primary caregiver, indicating education of less than high school, high school,

some college, and college graduate or higher. Based on youth’s reported state of residency, their *regional location in the country* was coded, also reported in Table 1. The Northeast region served as the reference group in the analyses.

Analytic Strategy for Latent Modeling

For the primary analyses, latent structural equation models were tested using Mplus 8.4 (Muthen & Muthen, 2019). The models were estimated using maximum likelihood estimation with robust standard errors. Mplus uses full information maximum likelihood (FIML) to handle missing data in the analyses. A three-step approach (Maslowsky et al., 2015) was followed to test a series of models, beginning with a measurement model, followed by a latent mediation-only model (Model 1), and finally a latent moderated-mediation model (Model 2). Although the models conceptually convey a longitudinal process that is grounded in the extant theoretical and empirical literature, the temporal ordering of variables should still be interpreted cautiously, given the reliance on cross-sectional data. In these models, the five outness items were indicators of the latent sexual orientation identity outness factor, the three victimization items were indicators of the latent victimization factor, the two teacher support and affirmation items were indicators of their corresponding latent factor; and youth’s grades and GPA were indicators of the academic performance latent factor.

After testing an initial measurement model that included the latent variables, the mediation-only model (Model 1) was tested, which also included all covariates (participant’s race, gender identity, grade level, regional location, and parent’s highest education) as predictors of victimization and reported academic performance. When presenting the results of Models 1 and 2 graphically in the figures, the covariate results are omitted for parsimony and ease of readability, but are reported in the tables. In the mediation-only and moderated-mediation models, the results for the covariates were consistent with prior empirical studies or were not statistically significant.

The moderated-mediation model was tested in Model 2, with teacher support and affirmation as a moderator of the association between (a) sexual orientation identity outness and victimization and (b) victimization and reported academic performance. The latent moderating effects (*outness* \times *support* and *victimization* \times *support*) were formed using the XWITH function in Mplus, while specifying the analysis type as random with an integration algorithm and continuing to use maximum likelihood estimation with robust standard errors. Typical fit indices are not available when testing latent interaction models, and standardized effects are not provided. Therefore, following recommended

practices (Maslowsky et al. 2015), indicator variables were standardized in order to attain standardized coefficient estimates for the model, and the foundational mediation-only model was used to demonstrate adequate fit.

When significant moderation effects in the moderated-mediation models were documented, the Johnson-Neyman procedure was used to calculate and plot these conditional associations. This procedure displays the association between two continuous variables (e.g., sexual orientation identity outness and victimization) over a range of values of perceived teacher support and affirmation (in this case, based on two standard deviations below and above the mean of perceived support), along with their 95% confidence bands.

Results

Correlations among each of the items that served as indicator variables for the latent models are presented in Table 2. A MANOVA also identified significant differences between cisgender LGBQ+ youth and trans/non-binary LGBQ+ youth on these individual items, Wilks' $\Lambda = 0.79$, $F(12, 3555) = 79.91$, $p < 0.001$, $\eta_p^2 = 0.21$. Follow-up ANOVAs indicated that trans/non-binary LGBQ+ youth reported greater sexual orientation identity outness than cisgender LGBQ+ youth on all five items ($ps < 0.05$ to < 0.001 ; $\eta_p^2 = 0.001$ to 0.03); greater victimization on all three items ($ps < 0.001$; $\eta_p^2 = 0.03$ to 0.17); lower perceived teacher support on both items ($p = 0.02$ and $p < 0.001$; $\eta_p^2 = 0.002$ and 0.007); and lower reported grades and GPA ($ps < 0.001$; both $\eta_p^2 = 0.01$). Effect sizes indicated that these differences were small to negligible, except for victimization.

In testing the measurement model, the initial model fit indices were not within traditionally acceptable ranges (Hu and Bentler, 1999; CFI = 0.89; TLI = 0.84; RMSEA = 0.089, 90% CI [0.087, 0.091]; SRMR = 0.05), and the modification indices suggested allowing the indicators of outness to LGBTQ friends and non-LGBTQ friends to covary, as well as outness to teachers/adults and athletic coaches to covary. This resulted in substantially improved model fit that was well within acceptable ranges (CFI = 0.97; TLI = 0.96; RMSEA = 0.047, 90% CI [0.044, 0.049]; SRMR = 0.03). These covariances were retained in subsequent analyses. The factor loadings are reported in Table 3.

All latent factors were significantly correlated in the measurement model. Greater sexual orientation identity outness was associated with greater victimization ($r = 0.28$, $p < 0.001$), poorer reported academic performance ($r = -0.12$, $p < 0.001$), and greater perceived teacher support and affirmation ($r = 0.25$, $p < 0.001$). Greater teacher

support and affirmation was associated with lower victimization ($r = -0.35$, $p < 0.001$) and better reported academic performance ($r = 0.16$, $p < 0.001$). Greater victimization was associated with poorer reported academic performance ($r = -0.17$, $p < 0.001$).

The primary results of the mediation-only model can be seen in Fig. 2, with full results including those of the covariates in Table 4. The model demonstrated an acceptable fit on all indices (CFI = 0.92; TLI = 0.90; RMSEA = 0.054, 90% CI [0.052, 0.055]; SRMR = 0.04). As hypothesized, greater sexual orientation identity outness was associated with greater victimization, and victimization was associated with poorer reported academic performance. The indirect association between greater sexual orientation identity outness and poorer reported academic performance via greater victimization was small but statistically significant ($\beta = -0.02$, 95% CI [-0.03, -0.01], $p < 0.001$).

Next the latent moderated-mediation model was analyzed. As hypothesized, greater perceived teacher support and affirmation attenuated the association between levels of reported sexual orientation identity outness and victimization; it also attenuated the association between levels of victimization and reported academic performance (Fig. 3 and Table 5). The association between sexual orientation identity outness and victimization, across values of perceived teacher support and affirmation, is presented in Fig. 4. The association between sexual orientation identity outness and victimization was smaller for LGBQ+ youth who reported higher levels of perceived teacher support and affirmation (lower support: $\beta = 0.378$, $p < 0.001$; higher support: $\beta = 0.231$, $p < 0.001$). The association between victimization and reported academic performance, across values of perceived teacher support and affirmation, is presented in Fig. 5. The association between victimization and reported academic performance was significant at low levels of perceived teacher support and affirmation, but became non-significant at average levels of support (lower support: $\beta = -0.116$, $p = 0.008$; average support: $\beta = -0.005$, $p = 0.82$). Finally, as hypothesized, the indirect association between greater sexual orientation identity outness and poorer reported academic performance was significant at lower levels of perceived teacher support and affirmation ($\beta = -0.044$, $p = 0.008$) but reached statistical non-significance at average levels of support ($\beta = -0.002$, $p = 0.82$).

Discussion

Many LGBQ+ youth continue to face victimization at school, some at even greater rates than others, which can carry a range of health and academic consequences. Studies have not adequately considered the various protective roles

Table 2 Correlations among indicator variables and descriptive information

	Out1	Out2	Out3	Out4	Out5	Vic1	Vic2	Vic3	Tsup1	Tsup2	Academ1	Academ2
Out1	–											
Out2	0.63***	–										
Out3	0.51***	0.71***	–									
Out4	0.39***	0.52***	0.66***	–								
Out5	0.25***	0.37***	0.50***	0.71***	–							
Vic1	0.22***	0.19***	0.25***	0.24***	0.15***	–						
Vic2	0.12***	0.05***	0.05***	0.13***	0.07***	0.43***	–					
Vic3	0.11***	0.08***	0.15***	0.20***	0.15***	0.55***	0.45***	–				
Tsup1	0.06***	0.09***	0.12***	0.16***	0.08***	–0.18***	–0.15***	–0.15***	–			
Tsup2	0.05***	0.15***	0.15***	0.19***	0.11***	–0.20***	–0.12***	–0.13***	0.41***	–		
Academ1	–0.07***	–0.08***	–0.08***	–0.11***	–0.06***	–0.12***	–0.09***	–0.11***	0.14***	0.05***	–	
Academ2	–0.09***	–0.11***	–0.11***	–0.12***	–0.07***	–0.12***	–0.09***	–0.10***	0.11***	0.04***	0.75***	–
Range	0–4	0–4	0–4	0–4	0–4	0–4	0–4	0–4	0–4	0–3	1–5	1–6
<i>M</i> (<i>SD</i>)	3.21 (1.22)	2.50 (1.31)	1.86 (1.28)	1.01 (1.19)	0.44 (1.07)	1.52 (1.28)	0.99 (1.19)	1.43 (1.31)	2.65 (1.23)	1.53 (0.65)	4.43 (0.77)	4.71 (1.04)
Skewness	–1.41	–0.40	0.16	1.06	2.47	0.37	0.95	0.46	–0.91	0.13	–1.42	–1.06
Kurtosis	0.68	–1.07	–1.05	0.14	4.85	–0.89	–0.15	–0.92	–0.34	–0.26	2.11	1.46

Out1 = out to LGBTQ friends; Out2 = out to non-LGBTQ friends; Out3 = out to classmates; Out4 = out to teachers/adults at school; Out5 = out to athletic coaches; Vic1 = victimization based on sexuality; Vic2 = victimization based on gender; Vic3 = victimization based on masculinity or femininity; Tsup1 = perceived teacher care and support; Tsup2 = perceived teacher support for LGBTQ people; Academ1 = reported grades; Academ2 = reported GPA

*** $p < 0.001$

that teachers may play to disrupt these experiences for LGBTQ+ youth. The current study addressed this issue by considering how greater perceived teacher support and affirmation could buffer the association between sexual orientation identity outness and victimization, as well as the association between victimization and academic concerns for LGBTQ+ youth.

Teacher Support in Relation to Victimization and Academic Performance

Although teachers can provide many forms of support (e.g., social-emotional, instrumental, instructional), these findings

Table 3 Factor loadings for measurement model

Factors and their Indicator Variables	Standardized Factor Loadings
Sexual Orientation Identity Outness	
Out1	0.548***
Out2	0.756***
Out3	0.929***
Out4	0.711***
Out5	0.547***
Victimization	
Vic1	0.777***
Vic2	0.572***
Vic3	0.715***
Teacher Support	
Tsup1	0.631***
Tsup2	0.651***
Academic Performance	
Academ1	0.884***
Academ2	0.874***

Out1 = out to LGBTQ friends; Out2 = out to non-LGBTQ friends; Out3 = out to classmates; Out4 = out to teachers/adults at school; Out5 = out to athletic coaches; Vic1 = victimization based on sexuality; Vic2 = victimization based on gender; Vic3 = victimization based on masculinity or femininity; Tsup1 = perceived teacher care and support; Tsup2 = perceived teacher support for LGBTQ people; Academ1 = reported grades; Academ2 = reported GPA

*** $p < 0.001$

highlight social-emotional support and affirmation of LGBTQ+ people as specific forms that could play important protective roles for LGBTQ+ youth. Perceived teacher support and affirmation was associated with lower victimization and better reported academic performance. This is consistent with studies on teacher support and victimization

Table 4 Path estimates for mediation-only model (Model 1)

Variables	Standardized Path Coefficient	95% Confidence Interval
Victimization Predicted By:		
Sexual orientation identity outness	0.233***	(0.207, 0.258)
Gender identity	0.363***	(0.335, 0.390)
Grade level	-0.066***	(-0.088, -0.045)
Race/Ethnicity	-0.003	(-0.025, 0.019)
Parent highest education	-0.067***	(-0.089, -0.044)
Midwest region	0.067***	(0.040, 0.095)
Southern region	0.070***	(0.041, 0.099)
Western region	0.047**	(0.020, 0.075)
Academic Performance Predicted By:		
Sexual orientation identity outness	-0.073***	(-0.097, -0.049)
Victimization	-0.093***	(-0.124, -0.063)
Gender identity	-0.088***	(-0.111, -0.065)
Grade level	-0.033**	(-0.054, -0.012)
Race/Ethnicity	-0.052***	(-0.073, -0.031)
Parent highest education	0.201***	(0.178, 0.224)
Midwest region	-0.053***	(-0.080, -0.027)
Southern region	0.031*	(0.004, 0.058)
Western region	-0.049***	(-0.075, -0.022)

Gender identity was coded as 0 = cisgender, 1 = trans/non-binary; Race/Ethnicity was coded as 0 = white, 1 = racial/ethnic minority; the Northeast region of the United States served as the reference group for youth's regional location

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

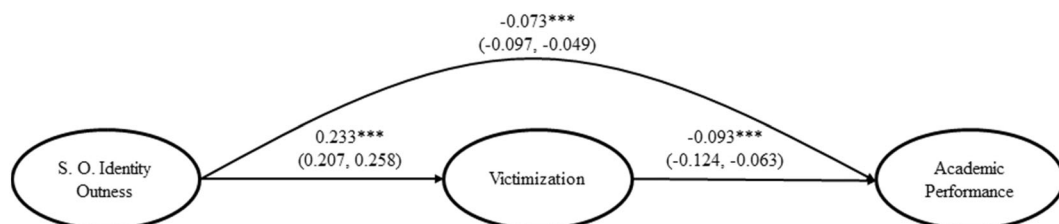


Fig. 2 Results of the mediation-only model (Model 1). *Note.* Path estimates for covariates to victimization and academic performance are omitted in the figure for parsimony, but are reported in Table 4. S.O.

Identity Outness = Sexual orientation identity outness. Values are standardized path coefficients with 95% confidence intervals in parentheses. *** $p < 0.001$

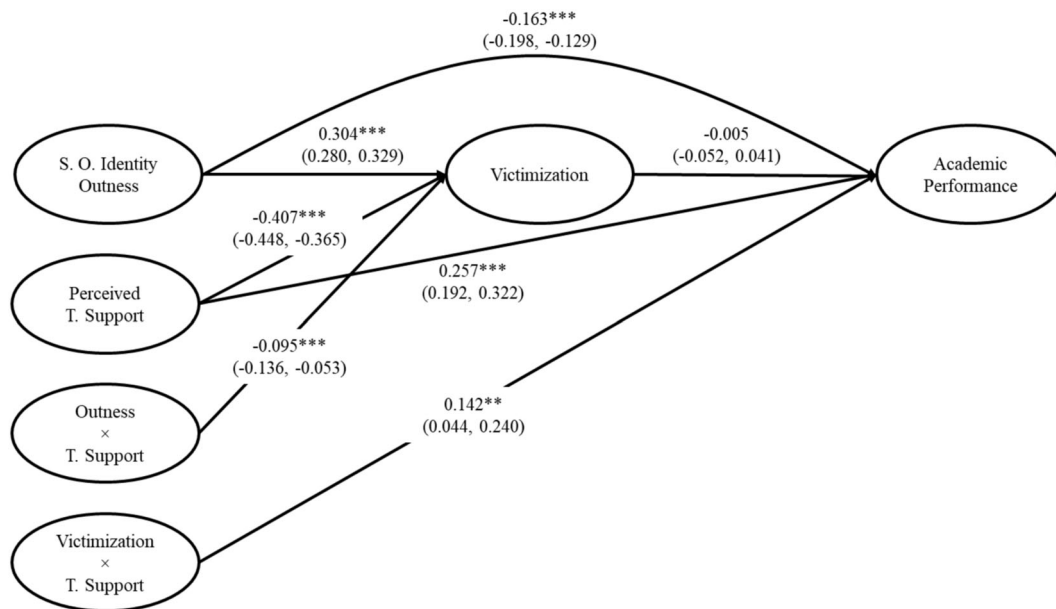


Fig. 3 Results of the moderated-mediation model (Model 2). *Note.* Path estimates for covariates to victimization and academic performance are omitted in the figure for parsimony, but are reported in Table 5. S. O. Identity Outness = Sexual orientation identity outness;

Perceived T. Support = Perceived teacher support. Values are standardized path coefficients with 95% confidence intervals in parentheses. $**p < 0.01$ $***p < 0.001$

in the general literature (Troop-Gordon, 2015). It suggests that teachers who have strong, supportive relationships with LGBQ+ youth and who explicitly affirm LGBQ+ people could guard against LGBQ+ youth's potential victimization. These teachers may do so by modeling and promoting prosocial norms in their classrooms (Hendrickx et al., 2016), especially norms that are affirming of LGBQ+ people.

The association between greater perceived teacher support and affirmation and youth's reported academic performance is also consistent with findings in the general youth population (Thapa et al., 2013) and with LGBQ+ youth (Kosciw et al., 2013). The current findings suggest that the benefits of perceived teacher support for LGBQ+ youth are twofold: social (in relation to victimization) and academic. Teachers may be in a unique position to support LGBQ+ youth in both ways. LGBQ+ youth may see supportive and affirming teachers as trusted sources in whom they can confide to address social and academic stressors. Their conversations with teachers may alert teachers to potential victimization and academic challenges. These teachers then may be more closely involved in protecting LGBQ+ youth against victimization and assisting them with academic needs.

A Basic Indirect Association between Outness and Academics through Victimization

In Model 1, there was a small but significant indirect association between greater sexual orientation identity outness and poorer reported academic performance through

greater victimization. Greater sexual orientation identity outness was associated with greater victimization, in line with prior findings (Kosciw et al., 2015; Russell et al., 2014). Similarly, greater victimization was associated with poorer academic performance, as in other studies (Aragon et al., 2014; Kosciw et al., 2013). Pairing these literature bases together, the current findings showed a small but statistically significant indirect association between outness and academic performance through victimization.

There is robust indication in the literature that discrimination is a major social determinant of health concerns for LGBQ+ youth (Russell & Fish, 2016), and in this case, academic concerns. Thus, factors that place some LGBQ+ youth at greater risk of victimization—here, greater outness about their sexual orientation identity—could ultimately place them at risk for these same health and academic concerns. At the same time, as elaborated on below, these associations were in fact more nuanced and less straightforward than conveyed by this initial mediation-only model. The association between identity outness and victimization, and between victimization and reported academic performance depended on the youth's level of perceived support and affirmation from their teachers.

Greater Complexity: The Multiple Moderating Effects of Teacher Support

The current findings are most novel in documenting multiple moderating effects of perceived teacher support and

Table 5 Path estimates for moderated-mediation model (Model 2)

Variables	Standardized Path Coefficient	95% Confidence Interval
Victimization Predicted By:		
Sexual orientation identity outness	0.304***	(0.280, 0.329)
Teacher support	−0.407***	(−0.448, −0.365)
S.O. identity outness × T. support	−0.095***	(−0.136, −0.053)
Gender identity	0.214***	(0.19, 0.237)
Grade level	−0.008	(−0.022, 0.006)
Race/Ethnicity	0.009	(−0.005, 0.023)
Parent highest education	−0.015*	(−0.030, −0.001)
Midwest region	0.027**	(0.010, 0.044)
Southern region	0.018	(0.000, 0.036)
Western region	0.027**	(0.011, 0.044)
Academic Performance Predicted By:		
Sexual orientation identity outness	−0.163***	(−0.198, −0.129)
Victimization	−0.005	(−0.052, 0.041)
Teacher support	0.257***	(0.192, 0.322)
Victimization × T. support	0.142**	(0.044, 0.240)
Gender identity	−0.091***	(−0.111, −0.071)
Grade level	−0.047***	(−0.066, −0.028)
Race/Ethnicity	−0.050***	(−0.067, −0.032)
Parent highest education	0.155***	(0.134, 0.175)
Midwest region	−0.040***	(−0.062, −0.018)
Southern region	0.036**	(0.014, 0.059)
Western region	−0.043***	(−0.065, −0.021)

S.O. = Sexual orientation; T. support = teacher support. Gender identity was coded as 0 = cisgender, 1 = trans/non-binary; Race/Ethnicity was coded as 0 = white, 1 = racial/ethnic minority; the Northeast region of the United States served as the reference group for youth's regional location

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

affirmation. The associations among sexual orientation identity outness, victimization, and academic performance were buffered by youth's greater perceptions of teacher support and affirmation (in Model 2).

Whereas prior research has shown that sexual orientation identity outness is associated with greater victimization (Kosciw et al., 2015; Russell et al., 2014), there was evidence here that this association was more nuanced. It was weaker at higher levels of perceived teacher support and affirmation. Supportive and affirming teachers may foster LGBQ+ affirming norms in their schools. In doing so, LGBQ+ youth who are more out to others at school—and

thus potentially at greater risk of victimization—may not necessarily experience greater victimization. Also, LGBQ+ youth with stronger social-emotional connections to their teachers may have felt more comfortable reporting victimization when it first occurred, rather than hesitating to do so (Berger et al., 2019). This might have enabled teachers to intercede and prevent more frequent and chronic victimization of LGBQ+ youth who were out and highly visible to others at school.

Perceived teacher support and affirmation also moderated the association between greater victimization and poorer reported academic performance. In fact, at average levels of perceived teacher support and affirmation, the association was no longer statistically significant. It was only at low levels of perceived support that victimization was associated with poorer academic performance. This finding aligns with the stress-buffering model of social support (Cohen & Wills, 1985) and adds important nuance to understanding discrimination as a major social determinant of health (Russell & Fish, 2016) or academic performance (Aragon et al., 2014; Kosciw et al., 2013). Specifically, discrimination may be a social determinant of health and other outcomes *under conditions of inadequate social support*. Supportive and LGBQ+ affirming teachers might have been more likely to reach out to victimized LGBQ+ youth to provide encouragement, refer them to similarly affirming school counselors or community groups, or offer accommodations on assignments. These specific acts of support would reflect social-emotional reassurance and resource provision broadly conceived in the stress-buffering model of social support (Cohen & Wills, 1985). In all, these efforts could have buffered otherwise negative effects of victimization on academic performance (Nakamoto & Schwartz, 2010).

As hypothesized, there was evidence of moderated mediation in this model: the extent to which greater sexual orientation identity outness was associated with poorer reported academic performance through greater victimization was buffered by perceived teacher support and affirmation. In essence, teacher support disrupted this process such that it only applied to LGBQ+ youth who reported low perceptions of support. The indirect association between outness and academic performance was no longer significant at the point of average levels of perceived teacher support and affirmation. By capturing this greater complexity, this finding expands upon extant research focused on bivariate associations between identity outness and victimization or between victimization and academic performance (Nakamoto & Schwartz, 2010; Russell et al., 2014). Ultimately, the findings suggest that teachers, in providing support and affirmation, have an important role in ensuring that LGBQ+ youth can be out to others at school without experiencing a heightened risk of discrimination or academic consequences.

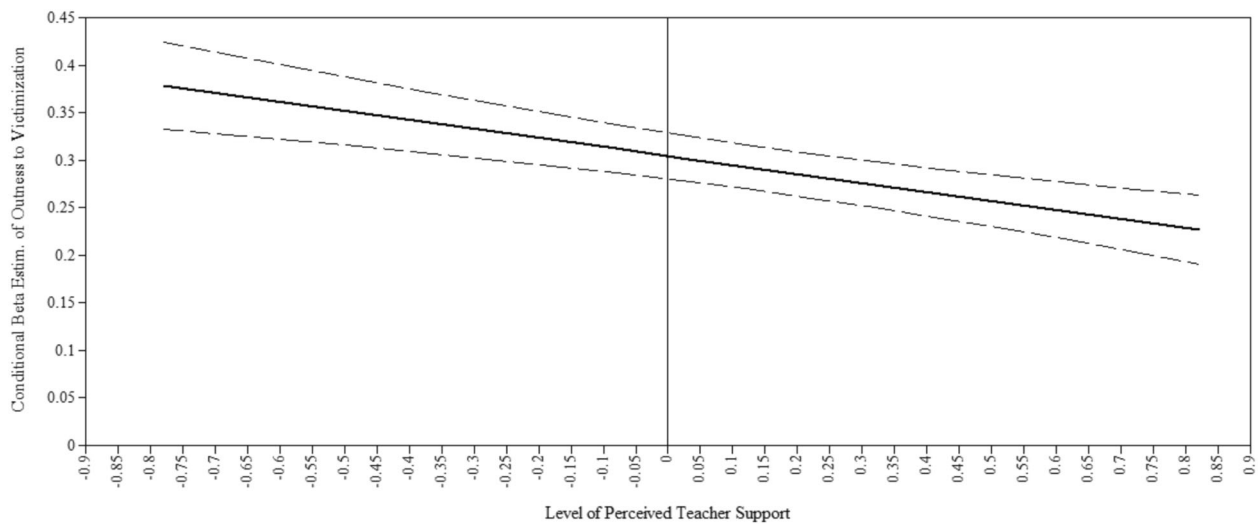


Fig. 4 Johnson-Neyman plot of the association between sexual orientation identity outness and victimization, based on values of perceived teacher support (± 2 SD), with 95% confidence bands

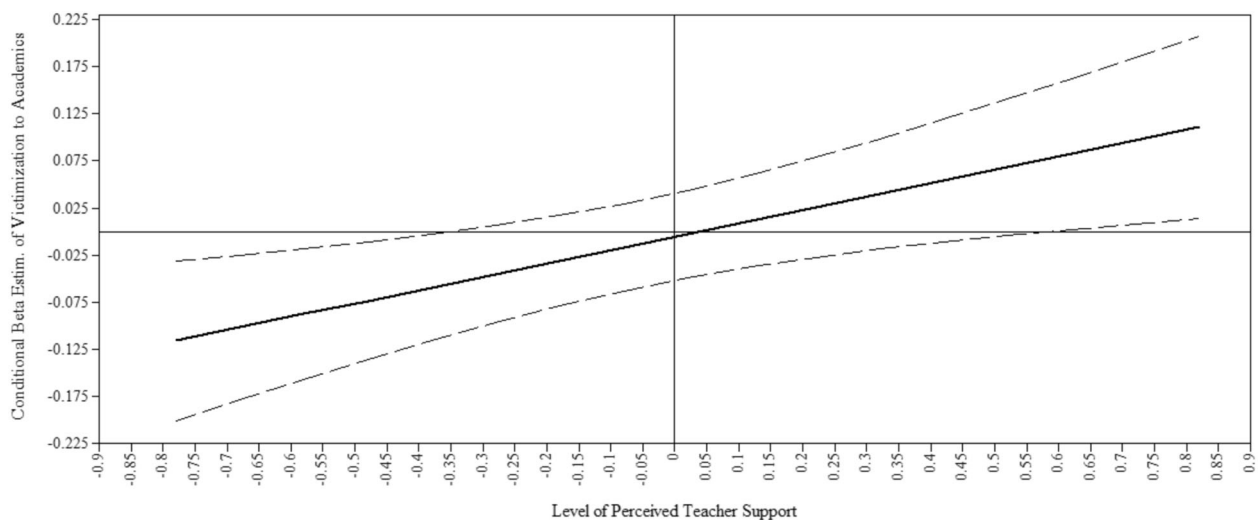


Fig. 5 Johnson-Neyman plot of the association between victimization and academic performance, based on values of perceived teacher support (± 2 SD), with 95% confidence bands

At the same time, the buffering effect of teacher support and affirmation should not be overstated, given its modest size. It is likely that teachers' efforts must be combined with other supportive individuals, policies, and practices at school. Such additional factors could include enumerated anti-bullying policies or support from peers. Collectively, these protective factors could provide an optimal setting wherein LGBQ+ youth can be open about their sexual orientation identities without being placed at greater risk of victimization and academic consequences (Day et al., 2020).

Limitations, Strengths, and Future Directions

Several limitations qualify the current findings. First, the models are grounded in theory and extant research, but the

data are cross-sectional. Longitudinal data would provide stronger evidence of predictive effects and potential reciprocal associations among some variables. For instance, LGBQ+ youth who *initially* experience greater victimization may be less likely to disclose their identity to others; yet, after their identity is known to others (whether at or against their will), this could place them at even greater risk of ongoing victimization. Longitudinal data are needed to capture this broader developmental process that potentially could be experienced by a number of LGBQ+ youth. Also in relation to this, the victimization measure in this study did not specify a time period (e.g., past month), which further prevented the ability to discern the potentially reciprocal temporal order of these variables. Second, given the nature of the data collection, all data were youth self-

reported. Observational, peer-report, or school record data can be useful for triangulation purposes (Pellegrini & Bartini, 2000; Snyder et al., 2003). Meta-analyses do indicate similar associations between victimization and academic achievement based on youth-report or school records (Nakamoto & Schwartz, 2010). Third, the items for teacher support and victimization were limited in number. This may have restricted the ability to fully capture the multiple ways in which youth feel supported by teachers or ways they experienced victimization. For instance, teacher support was indicated by general social-emotional support and identity-specific support, which had small correlations with reported academic performance. Future studies should consider each form of support with multiple indicators and as distinct from one another in order to identify potential differences in how they relate to victimization and academic performance. Also, some participants may have interpreted the gender victimization item more in reference to sexism or misogyny than gender identity or expression. Fourth, there were not data on other protective factors (e.g., school policies or inclusive curricula) that could be included in the model.

There are also several strengths to the study. First, it included a large sample of LGBQ+ youth from across all US states, not limited to a single school district or geographic region. Second, the latent moderated-mediation model provided a more nuanced understanding of how and the conditions under which sexual orientation identity outness was related to victimization and academic performance than in prior studies. Finally, although there is robust research on the health consequences of discrimination for LGBQ+ youth, there remains a paucity of research on their academic performance. The current study gave attention to this issue.

The findings highlight several avenues for future research and theory building. Studies might consider even more comprehensive processes by which victimization may impede academic performance among LGBQ+ youth. Mental health could reflect an additional mediator in the model, wherein victimization directly impairs youth's mental health, which could then lead to ensuing academic concerns. Research also may consider how other school policies and practices (e.g., enumerated anti-bullying policies, inclusive curricula) either enhance or operate in parallel with teacher support to promote the safety and academic success of LGBQ+ youth. Research should consider how peers provide similar or unique forms of support to LGBQ+ youth. Research is needed to understand conditions under which LGBQ+ youth feel comfortable disclosing their sexual orientation identities to others at school and the forms of support that they most value from adults and peers in this process. Qualitative self-report data from youth could go far in providing a deeper understanding of

practices that may be either helpful or harmful, and the circumstances under which they may be best provided.

Whereas this study focused on outness around sexual orientation identity in a sample of cisgender and trans/non-binary LGBQ+ youth, ongoing work should give focused attention to trans/non-binary LGBQ+ youth. For instance, it would be important to consider how trans/non-binary LGBQ+ youth navigate coming out to others about their gender identity in addition to their sexual orientation. The models in this study did not include gender identity outness, as this did not apply to the LGBQ+ youth who identified as cisgender. However, the results from these models consistently showed that trans/non-binary LGBQ+ youth reported greater victimization and poorer academic performance than their cisgender LGBQ+ peers. Attention to these dual coming out processes for trans/non-binary LGBQ+ youth could further elucidate the unique biases they encounter and the types of support that could be most protective.

As the findings highlight how teacher support may protect LGBQ+ youth, there is a need to equip teachers to offer such support. Many teachers acknowledge the importance of supporting LGBQ+ youth, but fewer report engaging in supportive or intervening roles on behalf of LGBQ+ youth (Swanson and Gettinger 2016). Teachers also may underestimate the occurrence of bullying against LGBQ+ youth (Crothers et al. 2017). While some efforts are emerging (e.g., Stargell et al., 2020), more program development is needed for teachers, and indeed for all school personnel, to increase their ability to support and respond to the needs of LGBQ+ students.

Conclusion

Within the school setting, educators, administrators, psychologists and other health providers (e.g., school nurses, social workers, counselors) are tasked to meet the social-emotional and academic needs of LGBQ+ youth. The current findings highlight several ways in which perceived teacher support and affirmation—in the form of social-emotional support and validation of LGBQ+ people—could underlie the safety and academic success of LGBQ+ youth. Greater perceived teacher support and affirmation was associated with lower victimization and better reported academic performance. Furthermore, greater perceived teacher support and affirmation attenuated the association between sexual orientation identity outness and victimization, the association between victimization and reported academic performance, and the indirect association between sexual orientation identity outness and reported academic performance via victimization. These results on the buffering effects of perceived teacher support and affirmation

are novel and underscore the important role of teachers for LGBTQ+ youth in schools. Their efforts ultimately may ensure that LGBTQ+ youth experience their schools as affirming and that schools promote their academic success.

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Authors' Contributions V.P.P. conceived of the study, conducted the analyses, and drafted the manuscript; R.J.W. participated in editing the manuscript and interpreting the findings; J.N.F. also participated in editing the manuscript and interpreting the findings. All authors read and approved the final manuscript.

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Data Sharing and Declaration This manuscript's data will not be deposited.

Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. All study procedures were approved by the University of Connecticut IRB board, protocol H16-322.

Informed Consent Informed assent was obtained from all youth participants included in the study. A waiver of parental consent was obtained from the IRB related to this study.

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