



# The link between school climate and mental health among an ethnically diverse sample of middle school youth

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## Abstract

School climate consistently relates to adolescent adjustment across academic, socioemotional, and behavioral domains. Although past research highlights the impact of school climate on youths' experience of internalizing symptoms and violent behavior, examination of potential links with specific externalizing processes is limited. The current study examined associations between middle school students' perceived school climate and internalizing and externalizing mental health symptoms. A positive school climate was hypothesized to be inversely related to all mental health measures. Seventh grade students ( $N = 2768$ ; 50% female) were recruited from 24 Texas middle schools. Participants completed baseline self-reports of perceived school climate across three dimensions (student-student relationships, student-teacher relationships, and awareness/need of reporting violence) as well as self-reports of internalizing (i.e., depression and anxiety) and externalizing (i.e., impulsivity and hostility) symptoms. Multilevel regression analyses were implemented to test all hypotheses, controlling for participant sex and race/ethnicity. Results indicated student-student relationships were negatively related to depressive symptoms, student-teacher relationships were positively related to anxiety and negatively linked to hostility, and help-seeking/reporting awareness was inversely related to all four indices of mental health. The current research underscores the impact of school climate on adolescents' psychological adjustment and emphasizes the need to address awareness and responsiveness in reporting concerning school behavior.

**Keywords** Early adolescents · School climate · Mental health · Substance use

## Introduction

School climate is widely recognized by both educators and researchers as a key driver in the promotion of positive student health outcomes (Cohen, 2013). Broadly defined as the perceived quality and character of one's school environment, school climate has been conceptualized several ways to include constructs such as students' sense of safety (e.g., clarity and consistency of rules, attitudes about violence), quality of academic instruction (e.g., extent to which social-emotional learning is valued), and quality of interpersonal relationships (e.g., sense of belonging to the school, strength of the relationships among students and teachers) (Cohen et al., 2009; Wang & Degol, 2016). Sustained positive school climate is positively associated with a vast array of desirable outcomes, including positive child and youth development (Aldridge et al., 2018), health promotion intervention efficacy (Low & Van Ryzin, 2014), and student academic achievement (Daily et al., 2019; Wang et al., 2014). Moreover, inverse associations emerge between healthy

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school climate and student absenteeism (Van Eck et al., 2017), physical dating violence (Jain et al., 2018), bullying (Aldridge et al., 2018; Wang et al., 2014), depressive symptoms (Tong et al., 2019), general mental health concerns (Salle et al., 2018), and conduct problems (Hung et al., 2015; Reaves et al., 2018; Wang & Dishion, 2012). Although school climate is consistently associated with adolescents' educational, safety, socioemotional, behavioral, and health outcomes, research linking subconstructs of school climate and specific mental health concerns is more limited.

Drawing from Bronfenbrenner's ecological systems theory (1992), adolescent development is influenced by dynamic interactions among multiple levels of the environment, such that proximal (e.g., family members) and distal (e.g. parent education) contextual forces work interdependently to impact youth's psychological well-being. The school environment is one such context in an adolescent's immediate environment (i.e., microsystem) that can thus act as a context and vehicle for socioemotional and relational learning, in addition to its scholastic and cognitive educational aims. It stands to reason then that the perceived climate, or one's perceptions about the social interactions, relationships, and values held by students and adults within a school could enhance or hinder adolescent wellbeing (Rudasill et al., 2018). This is particularly important in early adolescence, when the onset of puberty and transition to middle and high school coincides with increased prevalence of several forms of psychopathology such as depression, anxiety, and substance misuse (Costello et al., 2011).

Despite consensus regarding the importance of school climate on student mental health, definitions of this construct vary widely in the research literature across domains of safety, relational community, academics, and institutional environment (Bradshaw et al., 2014; Thapa et al., 2013; Wang & Degol, 2016). Safety dimensions include acceptability and enforcement of school rules, rule clarity, and perceived effectiveness of help-seeking or reporting violence. Relational school climate, or one's sense of connectedness and felt support at school, can be considered at the student-student level (i.e., perceived quality of peer relationships) and the student-teacher level (i.e., perceiving quality of pupil and instructor relationships). Academic school climate refers to the quality of instruction and academic expectations, whereas institutional environment includes components such as the appearance of school buildings and student-to-teacher ratios.

Some components of school climate have garnered more attention than others. A systematic review of the literature by Aldridge and McChesney (2018) identified 48 studies examining the relation between school climate and adolescent mental health. Of these studies, emphasis was placed on exploring the link between relational climate, defined by social connectedness and school relationships, with

mental health (39/48; 81%). In contrast, examinations of school safety, defined by rule enforcement, rule clarity, and help-seeking, and its associations with mental health were more sparse, totaling 14 (29%). In many ways, the focus on relational components of school climate makes sense based on the relevant interpersonal developmental tasks of adolescence: establishing increased autonomy from caregivers while pursuing greater desires for peer belongingness, as well as exploration of intimate peer relationships (Deci & Ryan, 2014; La Guardia & Ryan, 2002; Van Ryzin et al., 2009).

This is also consistent with prior research suggesting that both elements of safety structure (e.g., fairness of rules and actual enforcement of discipline practices) *and* support (e.g., meeting reports of violence with warmth and responsiveness) each contributed to lower rates of campus bullying and victimization (Gregory et al., 2010). Furthermore, past research has also shown that students who perceived their teachers as more supportive also reported more positive attitudes toward help-seeking in response to violence (Eliot et al., 2010). Yet, the field's understanding of ways in which aspects of school safety, or the degree to which students perceive teachers and peers are aware of violent behaviors and will respond accordingly, remains under-researched as it relates to mental health concerns.

### School Climate and Mental Health Symptoms

Aldridge and McChesney (2018) also reported that the majority of identified studies (34/48; 71%) explored the link between school climate and mental health issues (e.g., depressive symptoms, anxiety, body image, and general mental health difficulties), with 23 (48%) examining the link between school climate and risk behaviors (e.g., suicidality, self-harm, and antisocial behaviors). Taken together, 46 of the 48 (96%) identified studies found significant associations between ratings of school climate and adolescent mental health.

The literature points to consistent associations between ratings of relational school climate, or how students perceive the quality of student-student and student-teacher relationships at school, and adolescent internalizing symptoms. For example, longitudinal research with youth ages 12 to 14 show that self-reports of school connectedness, or the extent to which students feel accepted and respected by others at school, moderately related to symptoms of anxiety ( $r = -0.29$  to  $-0.34$ ) and strongly related to depression ( $r = -0.62$  to  $-0.74$ ) concurrently, and these associations were retained one year later when controlling for earlier symptoms (Shochet et al., 2006).

Several studies have also examined subcomponents of relational school climate by exploring the unique role of student-student and student-teacher relationships as distinct

contributors to mental health symptoms. Past research demonstrated that students' perceived quality of student-teacher relationships and student-student relationships related to indices of stress and depressive symptoms among Chinese early adolescents ( $M_{age} = 14.29$ ) (Tong et al., 2019). This is consistent with previous findings concurrently linking adolescent internalizing symptoms with youth ratings of both student-student and student-teacher relationships among high school students in the United States (US) ( $r = -0.21$  to  $-0.32$ ) (Suldo et al., 2012). More positive student-teacher relationships have also been related to less depressive symptoms among Chinese high school students (Liu & Lu, 2012) and US students in 7th through 12th grades (Huang et al., 2018; Joyce & Early, 2014). However, some equivocal findings emerge in the literature. When examining feelings of peer exclusion (an indicator of student-student and student-teacher relationships as separate predictors of adolescent depressed mood in a large, multi-school sample of adolescents from Belgium ( $N = 2896$ ), peer exclusion emerged as a strong predictor, whereas student-teacher relationships explained less than 1% of the variance (Boulard et al., 2012). In sum, although clear links are observed between relational school climate and internalizing symptoms, the distinct importance of student-student relationships and student-teacher relationships deserves replication.

Despite a growing body of research supporting the link between school climate and adolescent internalizing symptoms, gaps remain regarding the link between school climate and specific indices of externalizing symptoms. To date, research has primarily used general measures of externalizing. For example, Suldo et al. (2012) showed an association between broadband externalizing symptoms and relational school climate ( $r = -0.18$  to  $-0.30$ ) using the Youth Self-Report (YSR; Achenbach et al., 2001). Similarly, Hendron and Kearney (2016) found that school climate was inversely related to parent-reported adolescent general oppositional problems in a sample of middle and high school students ( $M_{age} = 14.41$ ). Other research has concentrated on the frequency of particular behavioral markers of externalizing, such as bullying perpetration, dating violence perpetration, and rates of delinquency/conduct problems (e.g., Aldridge et al., 2018). Despite these gains in knowledge, there is a dearth of empirical work exploring the relation of school climate to underpinnings of externalizing psychopathology and disruptive behavior disorders, such as impulsivity (Martel et al., 2017) and hostility; surprising since these dimensions are known contributors to unproductive and unsafe school environments. Moreover, impulsivity and hostility may directly relate to relational school climate. Youth exhibiting higher levels of impulsivity and hostility may experience more frequent interpersonal conflict (Edwards et al., 2001), greater peer rejection and felt loneliness (Hoza et al., 2005; Hoza, 2007; Karababa, 2020), and lower perceived social

support (Arslan, 2009). These deficits likely impair the initiation and continuation of high-quality relationships (Flynn et al., 2018), and may influence ratings of student-student and student-teacher relationships at school.

Impulsivity is a robust risk factor for delinquency and conduct problems among adolescents (Cooper et al., 2003; Neumann et al., 2010). Delinquent acts are known to occur most often on school days and violent crimes committed by teens occur most often in the immediate hours following end of school (OJJDP, 2018). Thus, exploring associations between school climate and impulsivity will contribute to our understanding of how school climate contributes to delinquency by investigating theorized determinants of these acts. Indeed, one study found that school climate moderated the relation between adolescent impulsivity and delinquency among high school adolescents, with greater student-student connectedness associated with decreased odds of substance possession and weapons-carrying on campus (Vogel & Barton, 2013).

Research on middle school students' experience of hostility as an externalizing symptom is even more limited, and commonly focuses on general quality of peer relationships rather than measures of school climate. In one study, observed hostility among 12 to 14 year old peer dyads was negatively associated with friendship quality and satisfaction (Flynn et al., 2018). As a proxy for hostility, adolescent anger dysregulation among 8th grade Swedish students was linked to 9th grade in-school bullying perpetration and victimization, as well as off-campus peer violence perpetration and victimization (Dickson et al., 2019). When grouped by level of violence perpetration, US adolescents exhibiting more violent and conduct-disordered behavior were significantly more likely to perceive school policies as "unfair," reported lower levels of school connectedness, and were less likely to suppress their anger (Thomas & Smith, 2004). In a sample of US 4th grade students, youth ratings of school connectedness were negatively associated with trait-anger and externalized anger (Rice et al., 2008). However, no study to the researcher's knowledge has directly examined the potential link between school climate and trait hostility among adolescents.

## Current Study

Using a large sample of ethnically diverse middle school students, we aim to replicate and extend past research linking school climate to early adolescent psychological health. This study adds to the literature in a few ways, namely extending the limited body research on student perceptions of school responses to violent incidents (i.e., perceived safety) as they relate to mental health symptoms, as well as by examining relations between school climate and theorized determinants of conduct problems. Extant literature highlights

problematic differences in ratings of school climate, with racial and ethnic minority adolescents reporting more negative perceptions of school relational climate and perceived safety than their White peers (e.g., Voight et al., 2015). However, one recent study found that Black/African American high school students perceived their school climate more favorably than White and Hispanic peers across ratings of student-student relationships, student-teacher relationships, and environmental structure and safety (Bryson & Childs, 2018). Furthermore, minority youth are more likely than White youth to access mental health services exclusively through educational services (i.e., at school) (Ali et al., 2019). Thus, thorough examination of the link between school climate and mental health symptoms necessitates input and data from diverse samples of teens.

Based on consistent links between school climate and adolescent internalizing symptoms, we hypothesize that student reports of school climate (rated on subscales of perceived quality of student-student relationships, quality of student-teacher relationships, and awareness/need to report violence) will be associated with self-reports of depression and anxiety. We extend past research by examining potential links between school climate and adolescent externalizing processes. Based on documented links between school climate and youth conduct problems and aggression, we hypothesized that student reports of school climate will be negatively associated with self-reports of impulsivity and hostility.

## Methods

### Participants

The results presented utilize baseline data from a longitudinal randomized controlled trial designed to evaluate the effectiveness of a dating violence prevention program among middle school students. The sample was drawn to ensure adequate statistical power to test the intervention effect on the main study outcomes resulting in a sample size of 2768 middle school students (50% female) attending 24 middle schools in southeast Texas. As shown in Table 1, students were sampled from the 7th grade ranging in age from 12 to 14 years old and represented diverse racial and ethnic backgrounds (37% Hispanic, 26% Black, 7% White, 14% Asian, 5% Multiple, 11% Other). The results presented utilize baseline data from a longitudinal randomized controlled trial designed to evaluate the effectiveness of a dating violence prevention program among middle school students. For the current study, we exclusively use baseline data collected in spring 2018, prior to the implementation of any intervention activities and prior to the COVID-19 pandemic.

**Table 1** Sample demographics

	<i>N</i>	% (Valid)
Gender		
Female	1394	50.4
Male	1373	49.6
Age		
12 or under	1131	41.0
13	1398	50.7
14	229	8.3
Race/Ethnicity (Mutually Exclusive)		
Hispanic	1025	37.0
Non-Hispanic White	200	7.2
Non-Hispanic Black	709	25.6
Asian	389	14.1
Other	316	11.4
Multiple	129	4.7

### Procedure

Participants were recruited during school hours through mandated classes (e.g., health, science, physical education). Students who returned signed parental consent forms and gave assent completed paper-and-pencil surveys in class. A total of 3738 students were recruited and 3028 completed the baseline survey (Response Rate: 81.0%). Of the 3028 students who complete the baseline survey, 260 did not meet the study inclusion criteria (vast majority due to not being in the 7th grade) yielding a baseline sample of 2768. Participants received \$10 gift cards for participating in the baseline survey. The study was approved by the last author's Institutional Review Board. Upon completion of the study, data will be available via <https://dash.nichd.nih.gov/>.

### Measures

**School Climate** Consistent with recent research (Behrhorst et al., 2020; Henry et al., 2011), we used the Classroom Climate Scale (Multisite Violence Prevention Project, 2004; Vessels, 1998) to measure three aspects of school climate. Using a 4-point scale anchored by 1 (strongly disagree) and 4 (strongly agree), participants rated the following three dimensions of school climate: students' perception of 1) student-to-student relationships (7 items; e.g., "students stop other students who are unfair or disruptive at school"; 2) student-to-teacher relationships (4 items; e.g., "teachers treat students with respect"); and 3) awareness of the need for reporting violent incidents (7 items; e.g., "students feel free to ask for help from teachers if there is a problem with a student"). This instrument was developed for this study. The latter subscale included students' perceptions of how aware school staff is of bullying and aggression, how

acceptable it is to report these behaviors to adults, and the degree to which students trust teachers will take action to address violence. Cronbach's  $\alpha$  for the three subscales were student-to-student ( $\alpha = 0.88$ ), student-to-teacher ( $\alpha = 0.87$ ) and awareness/reporting ( $\alpha = 0.90$ ). Consistent with past research (e.g., Bradshaw et al., 2014), ICCs for school climate subscales ranged from .04 to .07, suggesting that perceptions of school climate from students at the same school were modestly correlated.

**Anxiety Symptoms** The Generalized Anxiety Disorder subscale of the Screen for Child Anxiety Related Emotional Disorders (Birmaher et al., 1997) measured symptoms of anxiety. On a 3-point scale anchored by 1 (not true or hardly ever true) and 3 (very true or often true) participants rated how they perceived themselves in general situations (9 items; e.g., "I worry about how well I do things"). This scale achieved a Cronbach's  $\alpha$  of .85 for the current study. In past research this measure demonstrated convergent and discriminant validity against the Child Behavior Checklist internalizing and externalizing scales, respectively (Monga et al., 2000). Further, this scale has been shown to effectively measure anxiety symptoms in ethnically diverse youth (Skriner & Chu, 2014).

**Depressive Symptoms** The Center for Epidemiologic Studies Short Depression Scale (Andresen et al., 1994; Bradley et al., 2010) measured symptoms of depression. Participants reported on a scale of 1 [rarely or never (less than 1 day)] to 4 [more or all of the time (5–7 days)] on how often they experienced 10 depressive symptoms during the past week (e.g., "I was bothered by things that usually don't bother me"). This scale achieved a Cronbach's  $\alpha$  of .75. This scale demonstrated criterion validity in past research as it accurately detected adolescents meeting for Major depressive disorder (Yang et al., 2018). Finally, this scale has been shown to effectively assess symptoms of depression in ethnically diverse youth (Skriner & Chu, 2014).

**Hostility** Was measured with the Symptom Checklist-90 (Derogatis et al., 1976). Using a scale anchored by 1 (never) and 4 (most of the time), participants responded to six items (e.g., "feel easily annoyed or irritated") using the stem "in general, how often do you...?". This scale had a Cronbach's  $\alpha$  of .84. Hostility scores using this measure have shown moderate associations with perceived criticism from family (Nelis et al., 2006) and depressive symptoms (McGough & Curry, 1992) in adolescent samples. As one of the most widely used measures of psychological distress (including hostility), this scale has consistently been used cross-culturally (e.g., Preti et al., 2019).

**Impulsivity** Was measured with the Impulsiveness Subscale from the Teen Conflict Survey (Bosworth & Espelage, 1995). Participants responded to 4 items (e.g., "I start things but have a hard time finishing them") on a scale of 1 (never) to 5 (always). This scale had a Cronbach's  $\alpha$  of .73. As evidence of criterion validity, scores on this subscale positively predicted increases in bullying perpetration among ethnically diverse US adolescents across 6th through 10th grade (Espelage et al., 2018).

## Data Analysis

Multilevel linear regression analyses were used to explore the relationship between each mental health outcome (i.e., anxiety, depression, impulsivity, and hostility) and school climate measure (i.e., student-to-student, student-to-teacher, and awareness/need of reporting). We adjusted for the potential intra-class correlation (ICC) present among students sampled from the same school. Specifically, estimates from these models were adjusted for the non-independence of observations that may arise from clustered sampling designs (e.g., students clustered within schools) and provided corrected standard error estimates, which avoids the risk of inflated type I error rates. Each mental health outcome was modeled separately with the primary focus placed on the relationship between each outcome and the three school climate scales. A regression approach was used to allow for the inclusion of covariates (e.g., gender, race/ethnicity) that may confound or mask the relationship between the mental health measures and school climate. Analyses were carried out in STATA 15.1.

## Results

Table 2 provides the descriptives within the sample for each of the study outcomes. Anxiety symptoms were scored as the mean of nine items taking on a range between 1 and 3.

**Table 2** Descriptive of outcome measures

Outcome	Scale Range	Mean	Standard Deviation
<b>Mental Health</b>			
Anxiety	1 to 3	1.76	0.49
Depression	1 to 4	1.79	0.52
Hostility	1 to 4	1.84	0.67
Impulsivity	1 to 5	2.34	0.95
<b>School Climate</b>			
Student-to-Student	1 to 4	2.55	0.68
Student-to-Teacher	1 to 4	2.68	0.82
Awareness/Reporting	1 to 4	2.60	0.78

The mean anxiety symptom score was 1.76 with a standard deviation of 0.49. The depressive symptom scale ranged from 1 to 4 based on the reported frequency of ten depressive symptoms (mean = 1.79, SD = 0.52). Hostility was scored based on the mean of the six scaled items. The composite score ranged from 1 to 4 (mean = 1.84, SD = 0.67). The impulsivity scale was scored as the mean of four items with a scale range from 1 to 5 (mean = 2.34, SD = 0.95). The school climate measures all ranged from 1 to 4 representing the mean of items representing student-to-student (7 items, mean = 2.25, SD = 0.68), student-to-teacher (4 items, mean = 2.68, SD = 0.82) and awareness/reporting (7 items, mean = 2.60, SD 0.78).

Associations between school climate and internalizing symptoms (Hypotheses 1 & 2)

**Depression** As shown in Table 3, student-to-student relationships was significantly associated with depression ( $B = -0.079$ ,  $p < 0.001$ , indicating that more positive perceptions of peer relationships were associated with fewer symptoms of depression. The same pattern was observed for help-seeking/reporting awareness ( $B = -0.119$ ,  $p < 0.001$ ). A significant association did not emerge between student-to-teacher relationships and depression.

**Anxiety** Was significantly associated with student-to-teacher relationships ( $B = 0.039$ ,  $p = 0.025$ ) and help-seeking/reporting awareness ( $B = -0.061$ ,  $p = 0.001$ ), but unrelated to student-to-student relationships. More favorable student-to-teacher relationships were associated with a higher anxiety score, while a higher score on help-seeking/reporting awareness was associated with a lower anxiety score.

Associations between school climate and externalizing symptoms (Hypotheses 3 & 4)

**Hostility** More favorable perceptions of student-to-teacher relationships ( $B = -0.072$ ,  $p = 0.002$ ) and help-seeking/reporting awareness ( $B = -0.117$ ,  $p < 0.001$ ) were associated

with lower scores on the hostility scale. A significant association did not emerge between student-to-student relationships and hostility.

**Impulsivity** A more favorable score on the help-seeking/reporting awareness subscale of the school climate measure was inversely associated with impulsivity ( $B = -0.128$ ,  $p = 0.001$ ). There was no significant association with respect to impulsivity and student-to-student relationships or student-to-teacher relationships.

## Discussion

In a large ethnically diverse sample of middle school students, we examined the link between school climate and a host of mental health symptoms. Results showed some support for hypotheses, including that positive student-teacher relationships and positive student-student relationships were associated with fewer symptoms of hostility and depression, respectively. Further, the awareness of support options and resources to report harmful incidents emerged as the strongest link to more favorable outcomes related to symptoms of anxiety, depression, hostility, and impulsivity. Indeed, this subscale exhibited the largest effect sizes across the four mental health outcomes. These findings add to the growing body of empirical work linking school climate to adolescent internalizing concerns (i.e., depression and anxiety) and extends past research to include externalizing dimensions (e.g., hostility and impulsivity). The latter point is especially important given the documented link of hostility, impulsivity, and other externalizing factors to school violence, including bullying, fighting, and dating violence (Bollmer et al., 2005; Jimerson, 2004; Walters & Espelage, 2018; Yen et al., 2014).

Contrary to expectations, student-student relationships were not associated with anxiety and, surprisingly, more positive ratings of student-teacher relationships were linked to *more* symptoms of anxiety. These findings stand in contrast to previous studies with similarly aged youth (Shochet et al., 2006; Suldo et al., 2012). One interpretation is that students with greater anxiety are inherently relying on teacher

**Table 3** Multilevel regression models

	Anxiety Beta (SE)	Depression Beta (SE)	Hostility Beta (SE)	Impulsivity Beta (SE)
Student to Student	-0.029 (0.021)	-0.079 (0.022)***	-0.050 (0.028)	-0.029 (0.040)
Student to Teacher	0.039 (0.017)*	0.014 (0.018)	-0.072 (0.023)**	-0.049 (0.034)
Awareness/ Reporting	-0.061 (0.019)**	-0.119 (0.020)***	-0.117 (0.026)***	-0.128 (0.038)**

All models were adjusted for gender and race/ethnicity, ICC across the measures of anxiety, depression, hostility, and impulsivity ranged from 0.00 to 0.02

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

support, warmth, and praise to endure stress, and therefore may speak highly of student-teacher relationships. It may also be that generalized anxiety (measured in the current study) is less important to peer relationships than more specific symptoms like social anxiety, panic, and relational self-consciousness. On the other hand, anxiety symptoms were inversely associated with help-seeking/reporting awareness, suggesting that knowledge of resources and procedures to seek help when needed and trust in teachers to care for students' safety may reduce youth's feelings of anxious distress. These findings highlight the critical role of health promotion and prevention education that educates students on help-seeking and supports in efforts to improve school climate and reduce anxiety. Further research is needed to explore the impact of prevention education and student resource knowledge on mental health. Specifically, future research would benefit from examining potential changes in school climate as a mechanism of treatment effects when evaluating violence prevention and social-emotional school-based interventions.

Given that depressive symptoms were related to student-student relationships, it is somewhat surprising that this was not the case for student-teacher relationships. The importance of peer relationships in the onset and maintenance of adolescent depression is well-supported by prior literature (see e.g., Prinstein et al., 2005), so it follows that perceived high-quality student-student relationships were inversely related to symptoms of depression. That teacher-student relationships were not related to depressive symptoms is inconsistent with existing research identifying that positive teacher relationships moderate the risks of conflictual parent-child relationships and low adolescent effortful control (Wang et al., 2013). Thus, the current (lack of) finding warrants replication, and may be explained, at least in part, to the current study's distinction between teacher-student relationships as separate from perceptions of peer relationships (rather than an aggregate perception of school relational climate).

Impulsivity was not related to either measure of relationship quality (student-student or student-teacher) but did relate to help-seeking/reporting awareness. It is possible that early adolescent impulsivity may be more responsive to structures as opposed to supportive relationships. Thus, middle schools that communicate safety and clarity of rules and expectations may serve to both functionally address student impulsivity as well as establish a culture of safety denouncing violence. It is also possible that the quality of student-student and student-teacher relationships serves as a moderator the link between impulsivity and conduct disordered behaviors (e.g., vandalism, property damage, aggression), rather than operate in direct relation to impulsivity. Consistent with this reasoning, past research has found that links between impulsivity and serious school conduct violations

(e.g., weapon-carrying) were moderated by student-student connectedness in a national sample of US 7th through 12th graders (Vogel & Barton, 2013). Further research is warranted to examine this possibility.

It is intriguing that students' level of hostility was related to student-teacher relationships and help-seeking/reporting awareness, but not student-student relationships. On one hand, we might expect hostility to associate with all interpersonal interactions, both with peers and teachers. However, our findings may reflect a pattern of anger dysregulation that is specific to authoritative forces, in that positive, warm, and responsive relationships with teachers (i.e., authority figures) and perceived consistency and fairness around school rules regarding violence serves to create an environment that reduces perceived hostility. Given the novel inclusion of hostility in this study, replication is warranted, and additional research may elucidate the role hostility plays with respect to school climate and, in turn, behavioral aggression among adolescents. Future research could examine potential mechanisms of this link; for example, it is possible that a school climate marked by a strong awareness of the need for reporting relates to decreased rates of aggression and victimization, which in turn contributes to better mental health outcomes for youth.

Importantly, help-seeking/reporting awareness was the school climate piece that most consistently and robustly related to all of the measured mental health variables. This was a somewhat surprising finding given that past research has paid relatively greater attention to the importance of social connectedness and relational functioning aspects of school climate (Aldridge & McChesney, 2018). Nevertheless, these findings support previous research linking perceptions of school safety with depressive symptoms (Gase et al., 2017), risk behaviors (Kidger et al., 2015; Noble et al., 2011; Pisani et al., 2012; Reid et al., 2006) and mental health issues (Kidger et al., 2015; Nijs et al., 2014; Ormerod et al., 2008; Suldo et al., 2012) – especially with respect to awareness of and education about help-seeking and reporting harmful behaviors. One explanation for this pattern of results is that the perceived responsiveness and support within the school environment may be a reflection of other related microsystems in a youth's ecosystem (e.g., the broader neighborhood in which an adolescent resides). This idea is consistent with findings from Nalls et al. (2009), who did *not* show an association between school safety and adolescent depressive symptoms or substance use whereas links did emerge when looking at ratings of neighborhood safety. Thus, teens who perceive that their broader context, including the school environment, is aware of and responsive to reports of violence or misconduct may be especially buffered against internalizing and externalizing difficulties. Furthermore, specific items on the help-seeking/reporting awareness subscale dealt directly with students' perceptions

of how aware school staff is of bullying and aggression, how acceptable it is to report these behaviors to adults, and the degree to which students trust teachers will take action to address the violence.

Strengths of the present research include the exploration of multiple internalizing (depression and anxiety) and externalizing (hostility and impulsivity) measures in relation to specific subconstructs of school climate in a large, ethnically and racially diverse sample of middle schoolers. Despite these strengths, there are some noteworthy limitations. Due to the cross-sectional nature of this research, directionality and temporality of results cannot be established. It remains unclear the extent to which adolescents' mental health influences their perception of school climate (e.g., depressive symptoms introduce a negative attribution bias reflected in adverse school climate ratings or impulsivity exhibited in the classroom environment impacts teacher response to that teen and ultimately teacher-student relationship satisfaction) or vice versa (e.g., a positive school climate buffers against negative psychological adjustment). Notably, however, at least one study has demonstrated that while school climate predicts internalizing symptoms over time, the reverse finding did not emerge, such that mental health symptoms were not associated with perceptions of school climate one year later, when controlling for earlier reports (Shochet et al., 2006). Additionally, the use of a single assessment captures only one time sampling of student perceptions, and there is evidence that middle school students' views of school climate change over time (Way et al., 2007). Given the substantial developmental and interpersonal growth occurring during early adolescence, longitudinal designs are necessary to examine dynamic links between school climate and psychological functioning. Further, the study did not include all traditional dimensions of school climate (e.g., academic environment, physical institution characteristics) and lacked measures of school neighborhood safety perception, which are additional predictors of climate.

Although this study was conducted with US students, fear of school violence victimization is a global phenomenon in need of attention (Akiba, 2008). Despite evidence of unique predictors of student perceptions of school safety across countries (Akiba, 2008), extant literature linking mental health symptoms with perceptions of school climate is dominated by Western samples (Aldridge & McChesney, 2018). Future research is warranted to understand if this pattern of results generalizes across global contexts.

## Implications

In efforts to decrease dropout rates, reduce bullying, and promote healthy relationships, UNICEF, the US Department of Education, Centers for Disease Control and Prevention, Institute for Educational Sciences, and many State

Departments of Education have stressed the importance of a positive school climate (CDC, 2021; Osher et al., 2009; Rumberger et al., 2017; Voight & Hanson, 2017). However, these calls often promote school climate improvement as an idealized, aspirational goal absent of actionable programming to change daily campus behaviors. Given that all mental health measures were related to students' perceptions of awareness of options and supports to report harm, efforts to enhance support and offer trusting resources on campuses appears especially relevant to these aims. Qualitative research highlights adolescents' dissatisfaction with perceived lack of action in response to reports of bullying and harassment on campus (Thomas & Smith, 2004). It stands to reason that a child unaware or untrusting of reporting policies and possible responses to reported violence is unlikely to feel protected or supported. Thus, beyond simply establishing effective and efficient reporting systems on campuses, communicating those values explicitly and implicitly to students via routes such as intervention programming, peer support, visible signage, and one-on-one rapport-building is paramount to meaningfully enhancing campus culture. It is likely that efforts to improve harm reporting systems and build supportive connections function synergistically, such that student-teacher relationships are positively impacted by best-practice authoritative discipline strategies (i.e., consistent and responsive enforcement of clear rules) and vice versa.

Community-school partnerships are another avenue that may simultaneously promote mental health and function to improve school climate. Established referral processes between schools and community agencies for students identified as high-risk for behavioral health concerns (e.g., showing indications of internalizing or externalizing issues, involved in incidents as victim or perpetrator) could engender trust that problems brought to campus personnel not only result in appropriate on-campus responses, but are met with appropriate and evidence-based mental healthcare services in the community. This, in turn, could support student perceptions that their broader environment is working together for their benefit and well-being, consistent with ecological systems theory.

## Conclusion

Findings add to the growing body of evidence showing the importance of a positive school climate and its association with student mental health. Among middle school students, perceptions of their school's awareness and need for reporting student aggression was consistently and robustly related to all measured indices of mental health, underscoring the importance of constructing campus cultures marked by



openness and responsiveness when it comes to reporting school violence.

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**Data Availability** Data will be made available via a data repository 6 months after grant is completed.

## Declarations

**Ethics Approval** This research was approved by the last author's Institutional Review Board.

**Consent to Participate** Informed parental consent and youth assent was obtained from all individual participants included in this study.

**Conflict of Interest** The authors have no conflict of interest to report.

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