The Impact of Classroom Climate on Aggression and Victimization in Early Adolescence

Kathryn L. Behrhorst[1] (iD), Terri N. Sullivan[1], and Kevin S. Sutherland[1]

Abstract
Identifying factors that influence peer aggression and victimization is important because of their high prevalence rates and associated negative outcomes during early adolescence. Limited research has examined the impact of environmental and contextual factors, such as school climate, on peer aggression and victimization. This study longitudinally examined bidirectional relations between school climate and peer aggression and between school climate and victimization over 6 months. Participants were 265 sixth-, seventh-, and eighth-grade students (50% female; 82% African American). Bidirectional path regression analyses showed that students who reported higher levels of positive student-teacher relationships at Time 1 engaged in lower frequencies of aggression and experienced less victimization at Time 2. Students who reported higher levels of awareness and reporting of violence at Time 1 had more positive student-teacher relationships and engaged in lower frequencies of aggression at Time 2.

Keywords
school climate, aggression, victimization, early adolescence, awareness and reporting of violence

[1]Virginia Commonwealth University, Richmond, USA

Corresponding Author:
Kathryn L. Behrhorst, Department of Psychology, Virginia Commonwealth University, 806 W. Franklin Street, Richmond, VA 23284, USA.
Email: behrhorstkl@vcu.edu

Introduction

Peer aggression and victimization are prevalent, and some researchers found that the highest rates of these behaviors and experiences, respectively, occur during early adolescence (Card & Hodges, 2008; Marcus, 2007). Between 30% and 60% of middle-school students reported peer victimization experiences (Card & Hodges, 2008). Among adolescents living in urban, low-income communities, 50% to 96% of youth reported witnessing aggression or experiencing victimization (Zimmerman & Messner, 2013). Peer aggression and victimization can result in physical injury, psychosocial maladjustment, and difficulties in academic and social domains (Centers for Disease Control and Prevention, 2012; Reijntjes, Kamphuis, Prinzie, & Telch, 2010). Although studies have identified risk and protective factors for peer aggression and victimization at the individual level (e.g., emotion regulation, social, and coping skills), family level (e.g., parental involvement and family relationships and environment), and peer level (e.g., peer support, behaviors, and attitudes toward aggression), fewer studies have incorporated environmental and contextual factors (Card & Hodges, 2008; Espelage, 2014; Valois, MacDonald, Bretous, Fischer, & Drane, 2002). School climate (i.e., student-student relationships, student-teacher relationships, and awareness and reporting of violence) is an environmental and contextual factor which may influence and be influenced by peer aggression and victimization. This study is the first to our knowledge to examine longitudinal bidirectional relations between these variables among early adolescents in middle school.

School climate is defined a number of ways. Some studies conceptualize school climate as an individual's perspective about their own experiences of being connected, belonging, or attached to school (Loukas & Pasch, 2013; Wilson, 2004). A disadvantage of this definition is that it does not assess the overall quality of relationships between individuals (i.e., peers, teachers, and administrators) at their school. The quality of student-student relationships and student-teacher relationships is central to defining school climate, as these relationships represent primary social supports within the school environment (Bizumic, Reynolds, Turner, Bromhead, & Subasic, 2009). Students' perception of the level of awareness and reporting of violence at their school is another important aspect of school climate. It has been conceptualized as perceptions that teachers support students in reporting violent incidents (e.g., "students are encouraged to report bullying and aggression"). In addition, it is conceptualized as teachers' recognition and response to aggressive incidents among students (e.g., "teachers know when students are being picked on or bullied"). This construct is important because it reflects the degree to which students perceive that social controls to address peer aggression are in

place and active at their school. It also represents the extent to which they perceive that teachers will be receptive and intervene to help students if they disclose incidents of violence. These three aspects of school climate are fundamental in supporting students' prosocial behavior and safety (Vessels, 1998). Middle school is a particularly relevant time to examine these aspects of school climate. There are differences in environmental and contextual dynamics compared to elementary school, and prevalence rates of peer aggression and victimization tend to be higher. In contrast to elementary schools, middle schools are typically larger in size. Students experience more complicated class schedules (e.g., many class changes), and teachers have higher expectations for student organizational skills and independence (Nansel, Haynie, & Simons-Morton, 2003).

Theory

Social-ecological models (Bronfenbrenner & Kiesler, 1977) posit that individuals influence each other through their behavior in school contexts. An act of student aggression will impact not only the aggressor and victim, but also the youth who witness or hear about the incident. A number of students may know about an aggressive incident and the action or inaction of teachers to resolve it and administer consequences. Similarly, prosocial student-student interactions and student-teacher interactions are experienced and witnessed by other students. Students also see whether teachers reinforce prosocial behavior between students. Through these experiences and observations, youth form perceptions about the quality of student-student relationships and student-teacher relationships at their school. For example, youth may perceive that their teachers treat students fairly with caring and respect. In addition, youth may perceive that students at their school are kind, respectful, and get along well together. These perceptions can result in more positive social interactions between students and with their teachers and lower frequencies of peer aggression and victimization (Roeser & Eccles, 1998).

Consistent with socio-ecological models (Bronfenbrenner & Kiesler, 1977), several studies found that the quality of interpersonal relationships predicted decreased peer aggression in samples that included early adolescents (Elsaesser, Gorman-Smith, & Henry, 2013; Henry, Farrell, Schoeny, Tolan, & Dymnicki, 2011; Turner, Reynolds, Lee, Subasic, & Bromhead, 2014). Turner et al. (2014) found that as perceptions of school-based group support from students and adults increased, the frequency adolescents engaging in aggression decreased. Similarly, high-quality student-student relationships and student-teacher relationships led to subsequent decreases in the frequencies of relational and physical aggression across middle school

(Elsaesser et al., 2013; Henry et al., 2011). Although these studies provided some evidence that high-quality interpersonal relationships at school predicted lower rates of peer aggression, none examined the reciprocal path regressing peer aggression on these school climate factors.

Studies that included early adolescents found prospective relations between high-quality interpersonal relationships at school and lower frequencies of peer victimization (Elsaesser et al., 2013; Turner et al., 2014). For seventh to tenth graders, increased perceptions of group support at school (e.g., that people listen to and are not mean to each other) resulted in decreased peer victimization (Turner et al., 2014). Elsaesser et al. (2013) found that positive student-student relationships but not student-teacher relationships led to lower frequencies of relational victimization from sixth to eighth grade.

Individuals' experiences and observations of student and teacher behaviors informs their perceptions of behavioral expectations, norms, and consequences at their school (Ajzen & Madden, 1986; Bandura, 1977). These perceptions, in turn, may influence behavior. Social learning theory (Bandura, 1977) conceptualizes learning as a process that takes place when a person observes behaviors that are modeled by others, and the consequences that follow those behaviors (Bandura, 1977). Consistent with social learning theory, higher levels of student awareness and reporting of violence may decrease peer aggression based on observing negative consequences for students who engage in aggression. Furthermore, according to planned behavior theory (Ajzen & Madden, 1986), one factor that affects youth behavior is the perceived social controls in place which may support or deter aggression. Students who perceive that teachers are responsive to reports of aggressive incidents and act to stop this behavior may be less likely to engage in aggressive behavior. In contrast, high rates of peer aggression were linked to perceptions that social controls to deter aggression (e.g., teacher responsiveness to aggressive incidents) are lacking in a school (Ajzen & Madden, 1986).

A couple of studies have examined the relations between student perceptions of awareness and reporting of violence and between peer victimization and/or peer aggression. One study found that perceived awareness and reporting of violence was not related to changes in relational victimization or in relational aggression (Elsaesser et al., 2013). Another study found that higher rates of student perceptions of awareness and reporting of violence resulted in decreased physical aggression for girls but not boys (Henry et al., 2011). Although a paucity of research exists on these relations, related research findings showed that victimized students were less likely to seek support, and aggressive students were less likely to receive support from peers and teachers (Demaray & Malecki, 2003; Furlong, Chang, Bates, & Morrison, 1995). These mixed findings highlight the need for future efforts in this area to clarify these

longitudinal relations. For example, the findings may be different because one study focused on relational aggression and victimization, and the other on physical aggression (Elsaesser et al., 2013; Henry et al., 2011). It is also important to assess whether higher levels of peer aggression or victimization decrease the rates of perceived awareness and reporting of violence over time.

Transactional theory (Sameroff, 1983) provides a framework for understanding longitudinal, bidirectional relations between peer aggression and victimization and the quality of interpersonal relationships at school. This helps to offer a more complete picture of how these constructs influence each other over time (Nickerson, Singleton, Schnurr, & Collen, 2014). To illustrate, transactional theory helps us understand how individual experiences in a particular environment are shaped by, and shape, the development of individual behavior (Sameroff & Mackenzie, 2003). Applied to school contexts, transactional theory suggests that high rates of student aggression and/or victimization may develop through negative and coercive patterns of interaction with peers and/or teachers. These patterns can be maintained by teacher characteristics such as insufficient classroom management skills, inappropriate expectations, or a lack of experience handling problem behaviors (Sutherland & Oswald, 2005). For students who report high rates of peer aggression and/or victimization, these negative patterns of interactions with peers and/or teachers may lead to heightened perceptions of poor-quality student-student relationships and student-teacher relationships at their school. Among youth who experience high rates of peer victimization, these negative interaction patterns may contribute to perceptions that teachers will not support their needs. These perceptions may then inhibit students' willingness to seek help for school violence (Leadbeater, Sukhawathanakul, Smith, & Bowen, 2015).

One study considered bidirectional relations between the quality of interpersonal relationships and peer victimization (Leadbeater et al., 2015). However, this study focused on elementary school students (i.e., third and fourth graders) instead of middle school. Results supported bidirectional relations, in which higher frequencies of peer victimization predicted low-quality student-teacher relationships based on parent report, and low-quality student-teacher relationships led to increased peer victimization. In contrast, students who reported high frequencies of peer victimization experienced decreased quality in self-reported student-student relationships over time, but the reciprocal relation was not found.

The Present Study

The main contribution of this study is the examination of bidirectional, longitudinal relations between three key aspects of school climate (i.e., student-student

relationships, student-teacher relationships, and student perceptions of awareness and reporting of violence) and peer aggression and victimization among early adolescents in middle school. It contributes to the literature by providing a better understanding of the direction and strength of the relations between school climate variables and students' aggression and victimization. Study findings may inform universal youth violence-prevention programs and highlight potential leverage points for intervention in the school environment. The three aspects of school climate we assessed represent key proximal outcomes for widely used school environment interventions focusing on youth violence prevention such as the Olweus Bullying Prevention Program (Olweus, Limber, & Mihalic, 1999).

Our study questions were to determine the following: (a) the extent to which the school climate variables predicted changes in peer aggression and peer victimization and (b) the extent to which peer aggression and victimization predicted changes in the school climate variables over a 6-month period. The hypotheses were as follows: (1) high-quality student-teacher relationships will predict decreased peer aggression and victimization, (2) high-quality student-student relationships will predict decreased peer aggression and victimization, (3) higher levels of student awareness and reporting of violence will predict decreased peer aggression and victimization, (4) higher frequencies of peer victimization will lead to poor-quality student-student relationships and student-teacher relationships, and lower rates of student awareness and reporting of violence, and (5) higher frequencies of peer aggression will lead to poor-quality student-student relationships and student-teacher relationships, and lower rates of student awareness and reporting of violence. This study goal was to identify the direction and strength of these relations among early adolescents in middle school.

Method

Participants

Data were collected from 265 sixth-, seventh-, and eighth-grade students who attended an urban, public middle school in the southeastern United States at two time points that spanned approximately 6 months (October 2010-March 2011). Participating students were part of a larger study that evaluated the effectiveness of a violence-prevention program, *Second Step: Student success through prevention program* (Committee for Children, 2008). The total school enrollment was 604. For the intervention, 12 classes (4 per grade) were randomly assigned to the intervention or control conditions. Of the 354 students who were eligible to participate in the study, 272 (77%) enrolled and

265 (97%) completed data collection at Time 1. Participants ranged in age from 11 to 15 years ($\bar{X}$ age = 12.3, *SD* = 1.0) and half were female. Most participants identified themselves as African American (82%), 8% were multiracial, 3% Hispanic, and 1% white. A total of 22 core academic teachers (i.e., math, history, English, or science) participated at Time 1 and Time 2 and reported on student behaviors. One core academic teacher for each student was randomly assigned to complete the student behavior ratings at both Times 1 and 2. Teachers only reported on students whom they encountered in at least one of their core-taught classes. Teachers rated an average of 12 students, ranging from 3 to 21. A large proportion of students who attended this school (88%) during the 2010-2011 school year were eligible for a federally subsidized school lunch program, and many students lived in economically disadvantaged neighborhoods. All study procedures were approved by a university institutional review board. Prior to data collection, written parental permission and student assent were obtained from all participants. Students received a $10 gift card for completing a computer-based survey at school. They were able to both read and listen to the survey questions.

Measures

Behavior subscales of the self-report and teacher-report Problem Behavior Frequency Scale (PBFS; Farrell, Sullivan, Goncy, & Le, 2016) were used to provide data from two informants (i.e., self-report and teacher-report) measures of aggression and victimization. The self-reported student-student relationships subscale, student-teacher relationships subscale, and awareness and reporting subscale, modified from the Vessels School Climate Scale (Vessels, 1998), were used to assess the quality of interpersonal relationships and student perceptions of awareness and reporting of violence.

Self-report of aggression and victimization. Aggression and victimization were assessed using four self-reported subscales of the Problem Behavior Frequency Scales—Student (Farrell et al., 2016). These measures assess the students' own aggressive behavior toward others and the students' own personal experiences with victimization by others. Students rated items on a 6-point Likert-type scale based on how frequently they exhibited aggressive behaviors (1 = *Never*, 2 = *1 or 2 times*, 3 = *3 to 5 times*, 4 = 6 to 9 times, 5 = *10 to 19 times*, 6 = *20 or more times*). The Aggression subscale used the prompt, "In the last 30 days, how many times have you . . .?" It combined six items from the Physical Aggression subscale (e.g., "Hit or slapped someone," and "Threatened to hit or physically harm someone") and six items from the Relational Aggression subscale (e.g., "Not let another kid be in your group

anymore because you were mad at them" and "Spread a false rumor about someone"; Time 1 α = .87; Time 2 α = .84). The Victimization subscale used the prompt, "In the last 30 days, how many times has this happened to you?" It combined six items from the Physical Victimization scale (e.g., "Another kid tried to get you to fight" and "Been pushed or shoved by another kid") and six items from the Relational Victimization subscale (e.g., "Had a kid try to keep others from liking you by saying mean things about you"; Time 1 α = .88; Time 2 α = .91).

Teacher-report of aggression and victimization. Aggression and victimization were assessed using four subscales of the Problem Behavior Frequency Scales—Teacher (Farrell, Goncy, Sullivan, & Thompson, 2018). Core academic teachers (i.e., English, history, math, and science) rated items on a 4-point Likert-type scale based on how frequently each behavior occurred (1 = *Never*, 2 = *Sometimes*, 3 = *Often*, 4 = *Frequently*). The Aggression subscale was assessed using the prompt, "In the last 30 days, how frequently does this student engage in the following behavior . . .?" It combined six items from the Physical Aggression subscale (e.g., "Hit or slapped someone," and "Thrown something at someone to hurt them") and six items from the Relational Aggression subscale (e.g., "Said things about another kid to make other kids laugh" and "Spread a false rumor about someone"; Time 1 α = .89; Time 2 α = .89). The Victimization subscale used the stem, "In the last 30 days, how frequently have these things happened to this student . . .?" It combined five items from the Physical Victimization scale (e.g., "Been hit by another kid" and "Been pushed or shoved by another kid") and six items from the Relational Victimization subscale (e.g., "Been left out on purpose by other kids when it was time to do an activity"; Time 1 α = .87; Time 2 α = .91).

School climate. School climate was assessed using three measures: student-student relationships, student-teacher relationships, and awareness and reporting of violence adapted from the Vessels' School Climate Survey (Vessels, 1998). All subscales were rated on a 4-point scale: 1 = *Strongly agree*, 2 = *Agree*, 3 = *Disagree*, and 4 = *Strongly disagree*. For this study, items are re-coded such that higher scores reflect perceptions of more positive relationships and higher levels of awareness and reporting of violence. In the student-student relationships subscale, students reported on perceptions of the degree to which students get along with each other in school using seven items (Time 1 α = .83; Time 2 α = .86). Examples of items include, "Students get along well together most of the time," and "Students respectfully listen to each other during class discussions." The teacher-student relationships subscale

included four items that reflected perceptions of the degree to which students and teachers have positive relationships, and examples of the items include, "Teachers treat students with respect," and "Teachers take the time to help students work out their differences" (Time 1 α = .79; Time 2 α = .81). The awareness and reporting of violence scale included seven items and measured perceptions of teachers' responsiveness when they hear about or witness aggression and their encouragement of students to report such incidents (e.g., "Teachers know when students are being picked on or being bullied," and "Students feel free to ask for help from teachers if there is a problem with a student"; Time 1 α = .85; Time 2 α = .88).

Data Analysis

Data analyses were conducted using *M-Plus*, 7.3 software (Muthén & Muthén, 2013). Some of the variables assessing self-report and teacher-report of student aggression and victimization were skewed and/or kurtotic (i.e., self-reported aggression at Time 1, teacher-reported victimization at Time 1, and self-reported victimization at Time 2) based on having values for skewness and/or kurtosis that were greater than 2 or less and −2 (George, 2010). Thus, maximum likelihood estimation with robust standard errors (MLR estimate) was used when conducting analyses in *M-Plus*, as it adjusts for nonnormally distributed data. As the data come from an intervention program, we tested the potential impact of the violence-prevention curriculum on self-reported and teacher-reported aggression and victimization and on the school climate variables and no significant intervention effects were found. In addition, potential sex differences were assessed using multiple group analyses and the strength of associations between study variables over time did not differ as a function of sex.

To assess longitudinal relations between student aggression, victimization, and school climate, two separate models were run using the full sample. The first model assessed bidirectional relations between self-reported victimization, aggression, and the three aspects of school climate (i.e., student-student relationships, student-teacher relationships, and awareness and reporting of violence). The second model examined bidirectional relations between teacher-report of students' victimization, aggression, and the school climate variables. Two additional models examining subtypes of physical and relational aggression and victimization were included as sensitivity analyses in the Supplemental Appendix. Covariates for Models 1 and 2 included age, sex (dummy-coded 0 = *female* and 1 = *male*), intervention condition (dummy-coded 0 = *control* and 1 = *intervention*), and baseline levels of self-report and teacher-report of students' aggression and victimization, respectively.

The fit of each model was evaluated using the comparative fit index (CFI) and root mean square error of approximation (RMSEA). Models with an adequate fit have CFI values of 0.95 or higher (Hu & Bentler, 1999) and RMSEA values of 0.07 or below (Steiger, 2007).

Missing data were handled using the maximum likelihood estimation. Data were collected for 265 youth at Time 1 and 225 youth (85%) at Time 2. For peer aggression, the percentage of missing data was 6% at Time 1 and 17% at Time 2 for self-report and 0.4% at Time 1 and 9% at Time 2 for teacher-report data. For peer victimization, the percentage of missing data was 7% at Time 1 and 18% at Time 2 for self-report and 0.4% at Time 1 and 9% at Time 2 for teacher-report data. For the school climate variables, the percentage of data missing was 11% at Time 1% and 26% at Time 2 for student-student relationships, 8% at Time 1 and 23% at Time 2 for student-teacher relationships, and 11% at Time 1 and 26% at Time 2 for awareness and reporting of violence.

For Models 1 and 2, we assessed the invariance of the intervention condition on the bidirectional relations between the measures over time. For both models, a saturated unconstrained model, where standardized path coefficients were allowed to vary for youth in the intervention and control conditions was compared to a model where paths were constrained to be equal across intervention condition. For the first model, both the versions controlling for the intervention, $\chi^2 (7) = 12.33$, $p = .09$; CFI = 0.99; RMSEA = 0.05, and not controlling for the intervention, $\chi^2 (12) = 17.86$, $p = .12$; CFI = 0.99; RMSEA = 0.04, fit the data well. The Satorra Bentler scaled chi-square difference test was not significant, $\Delta\chi^2 (47) = 30.56$, *ns* (not specified). For the second model, both the versions controlling for the intervention, $\chi^2 (7) = 15.58$, $p = .03$; CFI = 0.99; RMSEA = 0.07, and not controlling for the intervention, $\chi^2 (12) = 21.34$, $p = .12$; CFI = 0.99; RMSEA = 0.05, fit the data adequately. The Satorra Bentler scaled chi-square difference test was not significant, $\Delta\chi^2 (47) = 43.06$, *ns* (not specified). This indicated that for both models, there were no significant differences in parameter estimates for relations between study variables when comparing youth in the intervention versus control condition.

Results

Descriptive Statistics

Means, standard deviations, and correlations were assessed for all study variables. We included the prevalence rates in the past 30 days to provide a point of comparison to other studies assessing rates of peer aggression and

victimization in adolescence. For aggression, 81% of participants reported engaging in at least one act of aggression at Time 1. For victimization, 73% of participants reported experiencing at least one incident of victimization at Time 1. Prevalence rates in this sample are comparable to those found by Zimmerman and Messner (2013) in urban, low-income communities (i.e., 50%-96%).

Correlations

Correlations between self-reported and teacher-reported student aggression, victimization, and school climate are depicted in Table 1. Correlations among the variables range from weak (i.e., $<.3$) to strong (i.e., $>.7$) in absolute terms. Students with more positive perceptions about the relationships between students and teachers reported lower levels of aggression over time ($r = -.18$). These students also had lower levels of aggression ($r = -.15$) and victimization ($r = -.13$) over time based on data reported by teachers. Students with more positive perceptions about the relationships between students reported lower levels of aggression over time ($r = -.18$). These students had lower levels of aggression ($r = -.26$) and victimization ($r = -.20$) over time based on teacher-reported data as well. Student with higher perceptions of awareness and reporting of violence experienced lower levels of aggression over time based on self-reported ($r = -.24$) and teacher-reported ($r = -.16$) data. The school climate variables were positively correlated with one another at Times 1 and 2 (r values ranged from .32 to .82). Correlations between school climate variables within a specific time point (i.e., Time 1 or Time 2) were strong (r values ranged from .67 to .82), whereas correlations across time points were weaker (r values ranged from .32 to .46).

Longitudinal Path Regression Analyses

The model assessing relations between self-reported aggression and victimization and school climate fit the data adequately, $\chi^2 (7) = 12.33$, $p = .09$; CFI $= 0.99$; RMSEA $= 0.05$ (Figure 1). All autoregressive paths were significant from Time 1 to Time 2 with the exception of student-teacher relationships. In line with our hypotheses, student awareness and reporting of violence at Time 1 led to subsequent decreases in aggression ($\beta = -.25$, $p < .01$) and increases in positive student-teacher relationships at Time 2 ($\beta = 0.31$, $p < .01$).

The model-assessing relations between teacher-report of student aggression and victimization and school climate fit the data adequately, $\chi^2 (7) = 15.58$, $p = .03$; CFI $= 0.99$; RMSEA $= 0.07$ (Figure 2). All autoregressive paths

Table 1. Means, Standard Deviations, and Correlations for Aggression, Victimization, and School Climate Variables among Urban Middle-School Students.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. SA T1	—													
2. SA T2	.62***	—												
3. SV T1	.45***	.32***	—											
4. SV T2	.19**	.32***	.63***	—										
5. TA T1	.28***	.18**	.10	.01	—									
6. TA T2	.26***	.23***	.08	.04	.62***	—								
7. TV T1	.24***	.17**	.18*	.19**	.71***	.46***	—							
8. TV T2	.18**	.17**	.22**	.16*	.46***	.66***	.58***	—						
9. SSR T1	-.08	-.15*	.06	-.04	-.11	-.15*	-.08	-.13*	—					
10. SSR T2	.09	-.02	.06	.04	-.08	-.15*	-.03	-.14	.37***	—				
11. STR T1	-.10	-.18**	-.02	-.03	-.11	-.26***	-.08	-.20**	.67***	.32***	—			
12. STR T2	.00	-.08	.04	.09	-.13	-.14	-.10	-.11	.34***	.73***	.40***	—		
13. AR T1	-.09	-.24***	.10	.02	-.07	-.16*	-.04	-.12	.73***	.34***	.77***	.43***	—	
14. AR T2	.06	-.02	.13	.11	-.03	-.11	.03	-.09	.38***	.82***	.39***	.81***	.46***	—
X̄	3.82	3.61	3.48	3.17	1.51	1.67	2.56	2.78	17.47	16.23	10.33	9.45	17.86	16.66
SD	1.75	1.50	1.59	1.56	0.61	0.68	0.72	0.89	4.88	5.21	3.23	3.28	5.41	5.56

Notes. T1 = Time 1 (fall); T2 = Time 2 (spring). $N = 265$. SA = self-reported aggression; SV = self-reported victimization; TA = teacher-report of students' aggression; TV = teacher-report of students' victimization; SSR = student-student relationships; STR = student-teacher relationships; AR = awareness and reporting of violence.
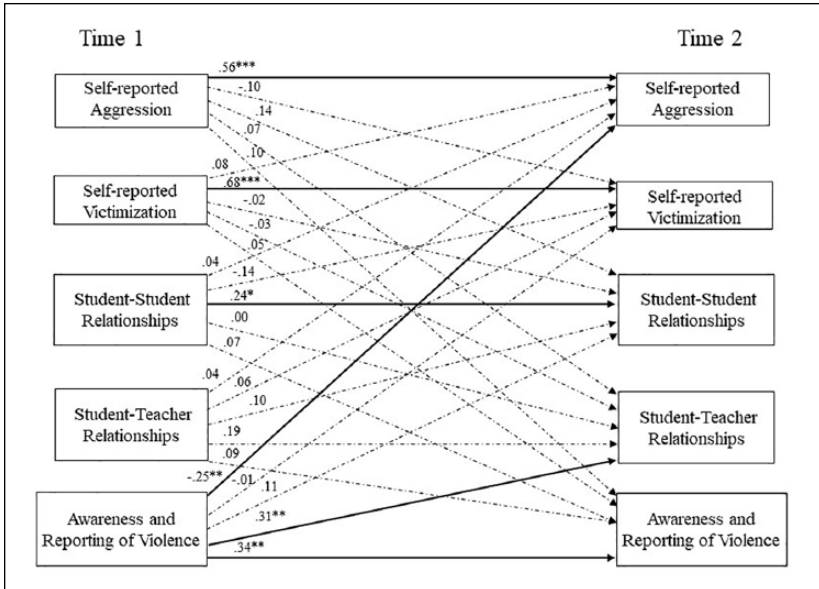$*p < .05.$ $**p < .01.$ $***p < .001.$

Figure 1. Longitudinal relations between self-reported aggression, victimization, and school climate measures (student-student relationships, student-teacher relationships, and awareness and reporting of violence).
Betas (β) are shown. The dotted lines represent a nonsignificant path; the solid lines indicate a significant path.
*p < .05. **p < .01. ***p < .001.

were significant from Time 1 to Time 2. Positive student-teacher relationships at Time 1 predicted lower levels of aggression (β = –.23, p < .01) and victimization (β = –.18, p = .04) at Time 2, which was in line with our hypotheses. Student perceptions of awareness and reporting of violence at Time 1 predicted increases in positive student-teacher relationships at Time 2 (β = 0.31, p < .01), as expected based on our hypotheses.

Discussion

This study examined bidirectional longitudinal relations between school climate (i.e., the quality of student-teacher relationships and student-student relationships, and student perceptions of awareness and reporting of violence) and peer aggression and victimization over 6 months. Overall, findings highlighted the key role of teachers' behavior (e.g., teachers' positive
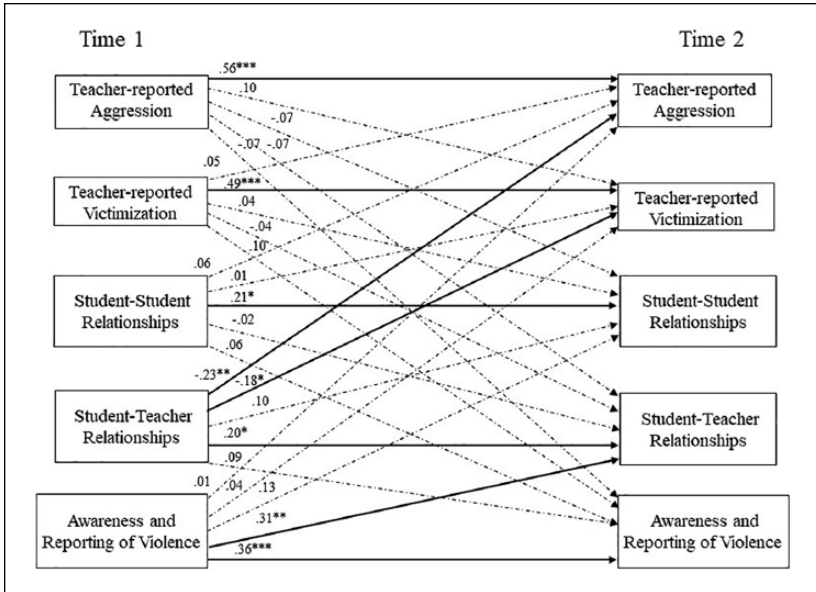
Figure 2. Longitudinal relations between teacher-reported aggression, victimization, and school climate measures (student-student relationships, student-teacher relationships, and awareness and reporting of violence).
Betas (β) are shown. The dotted lines represent a nonsignificant path; the solid lines indicate a significant path.
*$p < .05$. **$p < .01$. ***$p < .001$.

relationships with students and teacher responsiveness to student reports of violence) and the way this behavior is perceived by early adolescents in decreasing peer aggression and/or peer victimization. Adolescents actively monitor and evaluate their teachers' actions more generally and in response to conflict situations (Aceves, Hinshaw, Mendoza-Denton, & Page-Gould, 2010). They form perceptions about whether teachers recognize and will be effective in assisting them with conflicts at school. Adolescents also form more general perceptions about the quality of student-teacher relationships at their school. These perceptions influence adolescents' own behavior and may determine whether or not students will seek help from teachers. This study findings showed that higher levels of student perceptions of awareness and reporting of violence predicted decreased peer aggression over time. In addition, student perceptions of high-quality student-teacher relationships led to lower frequencies of peer aggression and victimization.

Longitudinal Relations Between School Climate Factors and Peer Aggression

We expected that high-quality student-teacher relationships would predict decreased peer aggression, and this hypothesis was supported for teacher-reported data. These findings are consistent with studies that showed high-quality student-teacher relationships led to decreased physical and relational aggression (Elsaesser et al., 2013; Henry et al., 2011). Students who perceive more positive student-teacher relationships may have a higher level of trust and respect for teachers. Thus, they may be more likely to follow teachers' rules and meet their behavioral expectations (Yablon, 2010). In addition, students may observe and model positive student-teacher interactions (Bandura, 1977).

We anticipated that positive student-student relationships would result in lower frequencies of peer aggression, but this hypothesis was not supported. Our findings are inconsistent with studies that showed that perceptions of positive student-student relationships led to decreased frequencies of physical and relational aggression (Elsaesser et al., 2013; Henry et al., 2011). A potential explanation for our null findings is that more proximal peer environments (e.g., peer groups and friendships) may play a stronger role in determining physically aggressive behavior than early adolescents' global perceptions of student-student relationships at their middle school (Berger & Rodkin, 2012). Some researchers assessed the relation between the quality of student-student relationships and physical aggression among cohorts of sixth graders across middle school (Elsaesser et al., 2013; Henry et al., 2011). In contrast, we followed a combined sample of sixth, seventh, and eighth graders over the course of a school year. Thus, the influence of positive student-student relationships on decreased physical aggression may be more evident in cohorts of students who were together across longer periods of time.

We anticipated that high levels of perceived awareness and reporting of violence would predict lower frequencies of peer aggression, and this hypothesis was supported for self-reported data. Perceptions that students will report aggressive incidents and that teachers are responsive to these reports may decrease peer aggression based on anticipated negative consequences (Ajzen & Madden, 1986). In addition, more aggressive incidents may be reported, addressed, and resolved, thus lowering rates of student aggression. The spillover of conflicts from home and neighborhood to school has been documented in qualitative research among early adolescents living in high-burden neighborhoods (Farrell et al., 2006). Thus, students may report violent incidents to teachers that are occurring more broadly in school, home, and/or

neighborhood settings. In these cases, the potential impact of this aspect of school climate on lowering student aggression may be reflected more broadly across contexts for self-reported versus teacher-reported student aggression. Study findings in this area are mixed, supporting relations between high levels of student perceptions of awareness and reporting of violence and decreased physical aggression (for girls only), but not relational aggression (Elsaesser et al., 2013; Henry et al., 2011). Additional research is needed to clarify these relations for different subtypes of aggression (i.e., physical and relational) and across different informants (i.e., students and teachers).

We considered the present findings for both student perceptions of awareness and reporting of violence and positive student-teacher relationships. Together, these findings suggested the need to consider positive student-teacher relationships as a potential mediator of relations between perceived awareness and reporting of violence and peer aggression and victimization. This study found that higher levels of student perceptions of awareness and reporting of violence predicted more positive student-teacher relationships 6 months later. In addition, positive student-teacher relationships resulted in decreased peer aggression and victimization. External resources including teachers can be particularly important for youth in under resourced neighborhoods and schools and may offer one explanation for the significant impact of student-teacher relationships and awareness and reporting of violence on decreased peer aggression and/or victimization (Reddy, Rhodes, & Mulhall, 2003). Therefore, one direction for future efforts is to assess this potential mediating role for positive student-teacher relationships and assess for the generalizability of these findings in samples with differing socioeconomic, racial/ethnic, or geographic composition.

Longitudinal Relations Between School Climate Factors and Peer Victimization

We found that high-quality student-teacher relationships predicted lower frequencies of peer victimization, based on teacher-reported data. Student who perceive high-quality student-teacher relationships may be more comfortable seeking teacher support and resources for peer victimization experiences. These actions could result in decreased frequencies of peer victimization. Our findings were supported for teacher-report but not self-report data. These results are consistent with Elsaesser et al. (2013) who found that positive student-teacher relationships did not predict changes in relational victimization across middle school using self-report data. One possible explanation for the different findings by informant is that teachers provided a more circumscribed perspective of students' behavior within the school environment.

Comparatively, self-report data provided a broader perspective of peer victimization across contexts.

We anticipated that positive student-student relationships would predict lower rates of peer victimization; however, this hypothesis was not supported. Our findings are consistent with a study that did not find significant associations between the quality of student-student relationships and peer victimization for elementary school students (Leadbeater et al., 2015). Consistent with the findings for peer aggression, it is possible that student-student relationship measures which reflect perceptions of overall relations between students within a particular school are not reflecting aspects of the interpersonal relationships most relevant for predicting change in aggressive behaviors and victimization experiences. Further research is needed to better understand the relation between these variables for middle-school students. Comparisons of overall perceptions of peer relationships in a school versus more proximal (e.g., close friendships) relationship perceptions as well as cohort studies are needed.

Contrary to expectations, higher levels of perceived awareness and reporting of violence were not associated with changes in the frequency of peer victimization. This finding is consistent with prior research that found no longitudinal associations between this aspect of school climate and relational victimization among middle school students (Elsaesser et al., 2013). Some youth who experience higher levels of victimization may perceive that teachers will be receptive and responsive if an aggressive incident is reported. However, other factors such as fear of peer retaliation could prevent them from seeking help from teachers that may decrease their victimization experiences (Wilson, 2004). In addition, youths' cognitive attributions such as self-blame may deter them from seeking adult support when victimized (Visconti, Sechler, Kochenderfer-Ladd, 2013).

Longitudinal Relations Between Peer Aggression and Victimization and School Climate Factors

Another goal of this study was to assess whether self-report and teacher-report of students' aggression and victimization predicted changes in the school climate variables. Contrary to our hypotheses, aggression and victimization experiences were not associated with changes in any of the three aspects of school climate. This study findings were not consistent with a prior study that showed higher frequencies of peer victimization predicted lower perceived quality student-teacher relationships based on parent-report and low-quality student-student relationships based on self-report over time among elementary school students (Leadbeater et al., 2015). Leadbeater et al.

(2015) study focused on elementary school children, whereas our study focused on early adolescents in middle school. Thus, our study reflected a different developmental period and school context. Furthermore, research has shown that youth who reported higher levels of peer aggression and/or victimization may be more likely to be marginalized or rejected by peers (Zimmer-Gembeck et al., 2013) or experience difficulty in forming positive relationships with teachers (Lee & Bierman, 2018; Sutherland & Oswald, 2005). In addition, these individual experiences may impact perceptions of the quality of youths' own student-student and student-teacher relationships but not their overall perceptions of the quality of interpersonal relationships at the school level. Furthermore, our findings suggested that the direction of relations between the study variables were such that some school climate variables predicted peer aggression and victimization. However, additional studies are needed to further clarify the direction of these relations among early adolescents.

Limitations and Future Directions

Several limitations of this study should be acknowledged. Although findings of this study addressed key aspects of school climate, this measure was assessed via self-report which reflects only the student and not the teacher perspectives on school climate. One limitation of our study was that we only assessed three aspects of school climate. Additional studies are needed to assess longitudinal relations between peer aggression and victimization and other aspects of school climate such as belongingness, school rules and disciplinary structure, and student engagement (Cornell, Shukla, & Konold, 2015; Loukas & Pasch, 2013; Wilson, 2004). Our sample included predominantly African American students from primarily economically disadvantaged neighborhoods who attended inner-city schools in the southeastern United States. Thus, our findings may not generalize to schools representing different compositions of students or geographic areas (e.g., rural or suburban). School climate can vary from school to school, for example, differing based on cultural and contextual norms and expectations. Researchers might consider future work to examine relations between the constructs assessed in this study in other schools to explore whether these associations hold true across diverse samples and varied settings.

We conducted a short-term longitudinal study with a combined sixth-, seventh-, and eighth-grade sample. Thus, we were not able to address changes in relations between peer aggression and victimization and school climate variables across longer periods of time or as cohorts of students moved from one grade to another. Future studies assessing bidirectional longitudinal relations

across the middle-school years are needed to gain a better understanding of associations between study variables as students progress through middle school. Another direction for future studies is to conduct longitudinal research using person-centered analyses to examine the degree to which patterns of aggression and victimization among early adolescents predict changes in school climate and vice versa. Finally, a more detailed and systematic examination of the role of age and grade in the associations between school climate and peer aggression and victimization should be explored.

Implications

This study has several important implications. Some youth violence-prevention programs, such as the Olweus Bullying Prevention Program (Olweus et al., 1999), focus on multiple levels of the school environment (i.e., individual, classroom, school, and community levels). Components of such school environment interventions include addressing classroom behavior, social relationships among students and teachers, and developing school-level plans to address peer aggression and victimization. Current study findings highlight the relevance of components of school environment interventions (e.g., positive student-teacher relationships and student perceptions of awareness and reporting of violence) for addressing peer victimization and aggression. From a social-ecological perspective, a supportive school climate may contribute to learning and more effectively using coping strategies for peer victimization and aggression when faced with challenging situations. To illustrate, students who feel supported within a positive school climate may be better able to communicate to teachers and school staff when instances of violent behaviors are observed. Based on the current findings, this may play a critical role in improving student-teacher relationships over time and decreasing the frequency of aggressive behaviors.

Findings from this study have important implications for professional development for teachers and intervention development focusing on school climate issues. Aspects of the school climate addressing teacher roles and behavior (i.e., student-teacher relationships and student perceptions of awareness and reporting of violence) were stronger predictors of decreased peer aggression and victimization than those focused solely on students (i.e., student-student relationships), highlighting the salience of teacher-student relationships as a potential leverage point for intervention. Furthermore, schools may be particularly interested in interventions and professional development for teachers that target improving relationships with students early in the school year. This may maximize the beneficial effects of positive student-teacher relationships across the school year.

Conclusions

Overall, this study results highlight the important role that school climate, specifically, positive student-teacher relationships and student perceptions of awareness and reporting of violence, play an important role in the dynamics of healthy social relationships and the safety of adolescents in middle school. These findings support the theorized protective influence of these aspects of school climate in decreasing peer aggression and/or victimization experiences during middle school.

ORCID iD

Kathryn L. Behrhorst https://orcid.org/0000-0002-1280-946X

Supplemental Material

Supplemental material for this article is available online.

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Author Biographies

Kathryn L. Behrhorst is a graduate student at the Virginia Commonwealth University. She received her Master of Science in Psychology from the Virginia Commonwealth University. Her research interests include adolescent aggression and victimization, interpersonal school climate, and depression.

Terri N. Sullivan is a professor of Psychology at the Virginia Commonwealth University. She received her doctorate from the Virginia Commonwealth University. Her major research interests include dating and peer relationships in adolescence, youth violence prevention, and adolescent social and emotional development.

Kevin S. Sutherland is a professor of Counseling and Special Education at the Virginia Commonwealth University. He received his doctorate from Vanderbilt University, and his major research interests include investigating interventions for children and youth with problem behavior, treatment integrity research, and factors associated with teacher implementation of evidence-based practices and programs.