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Virginia Commonwealth University, behrhorstkl@vcu.edu

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Building a Bond: Longitudinal Relations between Interpersonal School Climate, Student Awareness and Reporting of Violence, and Peer Victimization and Aggression in Adolescents

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science
at Virginia Commonwealth University.

By

Kathryn Behrhorst,

Bachelor of Science

University of North Carolina at Chapel Hill, May 2012

Director: Terri N. Sullivan, Ph.D.,
Professor, Department of Psychology

Virginia Commonwealth University

Richmond, VA

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Abstract

BUILDING A BOND: LONGITUDINAL RELATIONS BETWEEN INTERPERSONAL SCHOOL CLIMATE, STUDENT AWARENESS AND REPORTING OF VIOLENCE, AND PEER VICTIMIZATION AND AGGRESSION IN ADOLESCENTS

By Kathryn Behrhorst, B.S.

A thesis submitted in partial fulfillment of the requirements for the Masters of Science at Virginia Commonwealth University.

Virginia Commonwealth University, 2017

Major Director: Dr. Terri N. Sullivan, Ph.D.
Professor, Developmental Psychology

High prevalence rates and negative outcomes of peer-based aggression and victimization during early adolescence underscore the need to identify causes and consequences of these outcomes. Limited research has examined the impact of environmental and contextual factors, such as school climate, on peer aggression and victimization. Few studies have addressed relations between school climate and specific subtypes of physical and relational aggression and victimization. Although school climate has been assessed via interpersonal subsystems (i.e., student-student and student-teacher relationships), little research has incorporated the role of student awareness and reporting of violence and safety concerns. Further, studies are needed that consider the bi-directional relations between school climate and peer aggression and victimization over time. To address these limitations, the current longitudinal study examined associations between school climate (i.e., student-student and student-teacher relationships and awareness/reporting) and peer aggression and victimization over six months among a sample of 265 middle school students.

Introduction

Peer aggression and victimization is unfortunately prevalent among youth in the United States. A nationally representative survey of adolescents found that 28% of boys and 17% of girls reported being in a physical fight in the 12 months prior to the survey (Kann et al., 2015). Furthermore, 25% of females and 16% of males reported being bullied at school in the past year, and 6% were absent from school because they felt unsafe at school or traveling to and from school (Kann et al., 2015). In a study by Card and Hodges (2008), prevalence rates of peer victimization peak during the middle school years with 30% to 60% of students reporting victimization experiences. These statistics reflect the public health concern of youth violence which resulted in almost three quarters of a million youth ages 10 to 24 being treated in emergency departments for violence-related injuries in 2011 (CDC, 2012). Lastly, the percentage of youth involved in the juvenile justice system based on violent offenses is also high with 14% of all violent crime arrests being juveniles under eighteen years of age (CDC, 2012). These statistics highlight the need to better understand risk factors for and outcomes of peer aggression and victimization.

Limitations of Literature Assessing Peer Aggression and Victimization

Important gaps exist in the current literature assessing causes and consequences of peer aggression and victimization. Physical and relational subtypes of peer aggression and victimization are linked to a wide range of negative consequences (e.g., peer rejection, poor social status, internalizing and externalizing symptoms, loneliness, and social anxiety) (Card & Hodges, 2008; Hawker & Boulton, 2000; Sullivan, Farrell, & Kliewer, 2006). However, comparatively few studies in this area have assessed subtypes of relational and physical aggression and victimization separately. Many researchers have measured these constructs using

composite measures of physical, verbal, and/or relational subtypes of aggression and victimization (Shechtman, 2006; Guhn et al., 2013; Leadbetter, Sukhawathanakul, Smith, & Bowen, 2015). Although this provides a more global assessment of these behaviors and experiences, measurement studies have highlighted that physical and relational aggression and victimization are separate constructs (Farrell, Sullivan, Goncy, & Le, 2015) with distinct etiologies (Crick & Bigbee, 1998). In a study of 5,532 adolescents representing 37 middle schools in 4 sites across the United States (49% male; 48% Black, non-Hispanic, 21% Hispanic, and 18% White, non-Hispanic), a seven-factor model of problem behaviors was supported using confirmatory factor analyses that included separate constructs for physical aggression, relational aggression, physical victimization, and relational victimization. Physical and relational aggression have important distinctions in their form and function. Physical aggression encompasses physical acts of violence (e.g., hitting, pushing, or shoving) or threats of these acts. In contrast, relational aggression is comprised of behaviors that are meant to harm the social relationships of the victim (e.g., through manipulation, exclusion, or rumors and gossip).

From an etiological standpoint, relational and physical aggression and victimization may differ in important ways by sex. Some studies suggest that relational aggression is perceived as more painful and damaging by girls whereas physical aggression is viewed as more painful and damaging by boys (Galen & Underwood, 1997; Paquette & Underwood, 1999). For girls, the salience of social bonds and the tendency to form small, more intimate friendship groups may make relational aggression particularly painful (Crick & Bigbee, 1998). Overall, these factors underscore the importance of considering physical and relational subtypes separately in identifying the causes and consequences of peer aggression and victimization.

Although a number of studies have identified causes and consequences of physical and relational aggression and victimization at the individual-, family-, and peer-levels, little research has addressed environmental and contextual factors. For example, risk factors for physical and relational aggression are documented at the individual-level (e.g., impulsivity, school failure, depression, antisocial behaviors, favorable attitudes towards violence), peer-level (e.g., associations with peers who engage in delinquent behaviors, peer pressure to engage in aggression, peer approval of aggression), and family-level (e.g., poor family management practices, poor parent involvement and bonding, child maltreatment) (Valois et al., 2002). Similarly, risk factors have been identified for physical and relational victimization at the individual-level (e.g., low levels of prosocial behaviors, low self-concept, and internalizing symptoms), peer-level (e.g., low peer acceptance and few friends), and family-level (e.g., child abuse, overprotectiveness, and threats of parental rejection) (Card & Hodges, 2008). However, relatively fewer studies have assessed relations between environmental and contextual factors and physical and relational subtypes of aggression and victimization.

School climate is an important environmental and contextual factor to consider that may both influence and be influenced by peer aggression and victimization. This construct has been defined a number of ways. Some studies conceptualized school climate as students' or teachers' perceptions of connectedness or belonging to school (Loukas & Pasch, 2013; Wilson, 2004). School connectedness is often used interchangeably with school belonging, school attachment, and school bonding and reflects students' closeness with other people at school as well as their sense of belonging to the school (Resnick et al., 1997). A disadvantage of this definition is that it does not assess the quality of relationships between individuals in specific subsystems in the school context. The quality of student-student and student-teacher relationships is central to

defining school climate and represents a key aspect of the school social environment (Bizumic et al., 2009). Awareness and reporting of violence and school safety concerns is another aspect of school climate which has been found to predict lower individual levels of physical aggression among students (Henry et al., 2011). Awareness and reporting has been defined as students' perceptions that teachers recognize and respond to aggression among students (e.g., "teachers know when students are being picked on or being bullied"), and support students in reporting incidents (e.g., "students are encouraged to report bullying and aggression"). Thus, student-student relationships, student-teacher relationships, and awareness/ reporting form three essential components of school climate to consider in relation to peer aggression and victimization.

Socio-Ecological and Social-Cognitive Theory

From a social-ecological perspective, school climate represents a key environment and context for adolescents that can play a role in promoting positive relationships and preventing peer aggression and victimization (Swearer et al., 2010). Bronfenbrenner's social-ecological theory (1979) emphasizes complex contextual factors, including individual and environmental contexts that influence human development and behaviors. A series of systems including microsystems (e.g., peers, families, schools), mesosystems (e.g., interrelations between peers, families, and schools), exosystems (e.g., student and teacher perceptions of the school environment), and macrosystems (e.g., social norms) comprise the environment that affects each individual person. Understanding the role of ecological factors (i.e., school climate) as potential causes and consequences of peer aggression and victimization may help to illustrate a more complete picture of the risk factors and outcomes for these constructs (Nickerson, Singleton, Schnurr, & Collen, 2014). In particular, the socio-ecological model of child development

suggests that quality interactions for children (e.g., with youth and adults) within their proximal environments influence developmental outcomes (Bronfenbrenner, 1977).

The school climate within middle school may be particularly important to examine given the differences in its contextual and environmental dynamics as compared to elementary school and the juxtaposition of the transition to middle school with development in early adolescence. Middle schools are typically larger, have a more bureaucratic administration, additional teachers, a more complicated class schedule, and increased demands for independence and organizational skills as compared to elementary school (Nansel, Haynie, & Simons-Morton, 2003). Although guidance provided by adults remains significant, youth are shifting to peer-centered relationships and increasingly derive emotional and instrumental support from peers (Prinstein, Boergers, & Vernberg, 2001). Lastly, social cognitive growth (e.g., in empathy and perspective-taking) allows adolescents to view and understand their relationships with peers and teachers in more sophisticated and nuanced ways (Maccoby, 1998). Given the intersection between these contextual and development changes, a better understanding of relations between school climate and peer aggression and victimization in middle school is needed.

Social-cognitive models are relevant in understanding potential bi-directional influences of school climate on peer aggression and victimization. Social-cognitive theory posits that learning takes place when a person observes behaviors that are modeled by others as well as the consequences that follow the behaviors (Bandura, 1977). For example, it is likely that many teachers serve as role models for students by demonstrating how to develop healthy, positive, and caring relationships. Particularly for students at higher risk for engaging in aggression, teachers may provide a framework to model pro-social behaviors including handling conflicts in a healthy way and coping with emotional distress and suffering (Mihalas, Witherspoon, Harper,

& Sovran, 2012). In addition, school policies for reporting aggressive behaviors and their implementation in a way that supports students and encourages teacher responsiveness may shape behaviors, school norms, and outcome expectancies. This is important as student's social-cognitive beliefs of peers' and teachers' acceptability of aggression (i.e., how much other children feel that aggression and victimization are acceptable behaviors) contributes to their social experiences (Berg & Aber, 2015).

Relations between Peer Aggression and Victimization and School Climate

In this section, empirical studies that have assessed associations between peer aggression and victimization, and school climate are reviewed. Because of the limited research testing these relations, studies were included that encompassed broad conceptualizations of relationships between individuals within specific subsystems of the school (e.g., student-student relationships, student-teacher relationships), addressed school policies and their implementation (e.g., awareness/reporting), and considered interpersonal aspects of school climate more generally (e.g., school connectedness, authoritative structure, student order, and student support). Studies were also included that defined peer aggression and victimization based on separate subtypes (i.e., relational and physical) or via composite measures. Studies assessing peer aggression and victimization and school climate that did not fall within the parameters above were excluded. For example, studies were excluded if they included measures of school climate that did not broadly focus on interpersonal school climate and/or awareness and reporting. Of the studies reviewed assessing relations between school climate and peer aggression and victimization, no known longitudinal studies have examined these variables using the specific subtypes of (a) student-reported and teacher-report of students' physical and relational victimization and aggression, and (b) student-student relationships, student-teacher relationships, and awareness/reporting.

Concurrent Relations between Peer Victimization and School Climate

Several cross-sectional studies focusing on early childhood and elementary school students have explored relations between peer victimization and aspects of school climate. In a study of 2,792 youth ($M_{\text{age}} = 9.7$) in 72 Canadian elementary schools, positive relations with adults and peers moderated the relation between adjustment difficulties (e.g., depressive symptoms, low self-esteem, low life satisfaction) and victimization for girls but not boys. The associations between adjustment difficulties and victimization were attenuated for girls who reported higher versus lower levels of positive relationships with adults and peers (Guhn, Schonert-Reichl, Gadermann, Hymel, & Herman, 2013). In another study of elementary school students in Israel, social factors, including support and encouragement from teachers, was negatively related to the frequency of peer victimization. In contrast, other components of classroom climate (i.e., rules and control) were unrelated to peer victimization (Shechtman, 2006). Lastly, among 1,075 elementary school students attending four socioeconomically diverse schools in North Carolina, no significant direct relation was found between students' perceptions of their relationships with teachers and peer victimization. However, a significant moderating effect was found based on students' race/ethnicity. For Hispanic youth, students' perceptions of positive relationships with teachers was related to higher levels of peer victimization. In contrast, students' perceptions of positive relationships with teachers was related to lower rates of peer victimization for White students (Wang, Leary, Taylor, & Derosier, 2016). Overall, these studies found some evidence of negative relations between positive student-teacher and student-student relationships and peer victimization. However, this was qualified by moderating effects that showed benefits for specific subgroups of youth (i.e., girls and White students) and detrimental effects for others (i.e., Hispanic students).

Two concurrent studies examined relations between school climate and peer victimization among middle school students. Mihalas, Witherspoon, Harper and Sovran (2012) found that perceived teacher support moderated the associations between relational victimization and depression among 153 middle school students in Central Florida ($M_{age} = 12.9$). More specifically, for students who reported medium to high as compared to lower levels of relational victimization, perceived teacher support weakened the association between relational victimization and depressive symptoms. In another study, Hung, Luebbe, and Flaspohler (2015) examined associations between aspects of students' perceptions of school climate including authoritative structure, student order, and student support and a composite measure of peer victimization among 2,108 sixth to eighth graders ($M_{age} = 12.1$). Authoritative structure pertains to actions of teachers and school staff including aspects of high expectations, clear rules, responsiveness, and caring, while student order assesses behaviors of peers at school including noisy, disruptive, and disrespectful behaviors. Student support assessed perceptions of peers' kindness, respectfulness, and helpfulness. Lower levels of perceived authoritative structure and student order were associated with higher frequencies of peer victimization, and higher levels of perceived student support were related to lower frequencies of peer victimization. These findings suggest that social as well as structural and organizational aspects of school climate were important in relation to the frequency of victimization that middle school students experienced.

Longitudinal Relations between Peer Aggression and Victimization and School Climate

Eight longitudinal studies were identified that examined relations between peer aggression and/or victimization and school climate. Of these, three focused only on elementary school samples. Among 377 pre-k through first grade Australian students, Runions and Shaw (2013) found that students with high versus low levels of student-teacher conflict in pre-k were

more likely to be victimized in first grade. A study of relations between classroom-level aggression and student-teacher relationships was conducted among 4,179 elementary school students ages five to eight ($M_{\text{age}} = 6.4$) (Thomas, Bierman, & Powers, 2011). Study findings showed that lower levels of student aggression in first grade were associated with more positive ratings of student-teacher relationships through the end of second grade.

Leadbetter, Sukhawathanakul, Smith, and Bowen (2015) examined bidirectional relations between a composite measure of peer victimization and student-student and student-teacher relationships in a sample of 1,764 third and fourth graders ($M_{\text{age}} = 9.3$) in rural Canadian schools. Positive parent-reported student-teacher relationships predicted lower frequencies of peer victimization among students over two years, and the reciprocal relation was found as well. In contrast, students who experienced higher frequencies of peer victimization at the beginning of the school year reported less positive student-student relationships at the end of the year. These findings underscored the protective influence of strong relationships with teachers in decreasing peer victimization experiences during elementary school, and also the impact of peer victimization experiences on student-student and student-teacher relationships.

Two studies spanned a wider range of ages and school contexts. Among 4,742 students in third through twelfth grades within a New England school district, Gage, Prykanowski, and Larson (2014) examined relations between bullying victimization and subtypes of school climate over three years. Adult support was found to predict decreased bullying victimization among elementary students. While among middle school students, peer support resulted in subsequent declines in bullying victimization. Measures of peer support in elementary school students and adult support in middle school students were not associated with bullying victimization. These study findings suggested that peer support may play a stronger role in decreasing frequencies of

peer victimization for older as compared to younger students. This may reflect the developmental shift to peer-centered relationships in early adolescence (Nansel et al., 2003).

Another study explored whether specific domains of school climate have a stronger association with victimization among middle and high school students. Among 492 seventh through tenth grade Australian students ($M_{age} = 15$), Turner, Reynolds, Lee, Subasic, and Bromhead (2014) examined relations between aspects of school climate (i.e., academic support and group support) and physical and verbal sub-types of peer victimization over three years. They found that academic and group support were the aspects of school climate that most strongly predicted changes in peer victimization frequency as compared to measures of school identification (e.g., connectedness or belonging). As positive perceptions of academic and group support increased, rates of peer victimization decreased. The results of this study suggest that specific types of student support may be particularly relevant in changing rates of peer victimization.

The final three studies focused solely on middle school samples. Loukas and Pasch (2013) studied how the subtypes of physical and relational victimization were associated with school connectedness. In a sample of 490 sixth and seventh grade students in a suburban school district in central Texas ($M_{age} = 11.7$), both physical and relational victimization were significantly and negatively associated with school connectedness across a one-year period. Although this study does not investigate interpersonal domains of school climate, it does highlight the relations between one broader aspect of school climate and specific sub-types of physical and relational victimization. In another study, Elsaesser, Gorman-Smith, and Henry (2013) assessed longitudinal associations between relational victimization and aggression and aspects of school climate including student-teacher relationships, student-student relationships,

and student awareness/reporting among 5,625 middle school students. Study findings indicated that positive student-student relationships predicted lower frequencies of relational victimization but student-teacher relationships were not associated with this outcome. However, positive interpersonal relations (i.e., both student-teacher and student-student relationships) were linked to decreases in the frequency of relational aggression. In comparison, student awareness/reporting was not related to changes in either relational victimization or aggression. Results suggest that interpersonal relationship dynamics within the school environment influenced rates of relational victimization and aggression, which further emphasizes the importance of examining school-level factors.

A final study by Henry, Farrell, Schoeny, Tolan, and Dymnicki (2011) also examined school-level climate variables (i.e., student-student relationships, student-teacher relationships, and awareness/reporting) as predictors of physical aggression in middle school students. A sample of 5,106 middle school students across four sites and 37 schools provided data across four time points. School climate was measured at the school-level while aggression was assessed at the individual-level. These researchers found that positive student-student and student-teacher relationships predicted decreased levels of physical aggression for boys and girls. Higher levels of awareness and reporting predicted lower levels of physical aggression among girls but not boys.

In summary, the studies that were reviewed showed some consistent findings. Cross-sectional research revealed direct associations between positive student-student and student-teacher relationships and lower rates of peer victimization (Hung et al., 2015; Shechtman, 2006) with some moderating effects by race/ethnicity (Wang et al., 2016). Several prospective studies found direct effects between positive student-student and student-teacher relationships and

decreases in peer victimization (Elsaesser et al., 2013; Gage et al., 2014; Leadbetter et al., 2015; Turner et al., 2014). Peer victimization was also shown to be negatively associated with positive student-student and student-teacher relationships and school connectedness over time (Leadbetter et al., 2015; Loukas & Pasch, 2013). Lastly, positive student-student and student-teacher relationships predicted reductions in the frequency of peer-based aggression (Elsaesser et al., 2013; Henry et al., 2011; Thomas et al., 2011). Overall, these studies showed the role of positive interpersonal relationships at school in decreasing the frequency of peer aggression and victimization, and the reciprocal relation as well.

However, several limitations exist in this literature that highlight directions for future research. First, only one study considered bi-directional relations between school climate and peer victimization (Leadbetter et al., 2015). Study findings showed significant bi-directional relations, underscoring the importance of assessing bi-directional relations between these constructs. Second, only one study addressed longitudinal relations between both peer aggression and victimization, but focused solely on the relational subtype (Elsaesser et al., 2013). Additionally, just two studies have measured relations between awareness/reporting and peer aggression and victimization (Elsaesser et al., 2013; Henry et al., 2011). The mixed findings within these studies highlight the need to conduct additional research to clarify this relation. Lastly, no study to date has assessed longitudinal associations between physical and relational aggression and victimization and aspects of school climate including student-student and student-teacher relationships, and awareness/reporting.

The Current Study

The current study addressed some limitations in this literature by examining bi-directional relations between aspects of school climate (i.e., student-student and student-teacher

relationships, and awareness/reporting) and peer-based physical and relational aggression and victimization over six-months among middle school students. By focusing on school climate, this study adds to the emerging literature on environmental and contextual factors that may be a cause and/or consequence of peer aggression and victimization. One novel contribution of the study is that the constructs of peer aggression and victimization are assessed separately based on physical and relational subtypes. This allows determination of the extent to which these two key subtypes of aggression and victimization, differing in form, function, and etiology, are associated with school climate over time. The current study also assesses an understudied dimension of school climate, awareness and reporting of school-based violence and safety concerns. Lastly, the longitudinal nature of the present study extends cross-sectional efforts in this area.

Hypotheses

The present study included two aims designed to evaluate the longitudinal and bidirectional relations of student-reported and teacher-report of students' peer victimization, peer aggression, and school climate.

Aim 1: Longitudinal relations between student-report and teacher-report of students' victimization and school climate. The first goal of the study was to examine whether student- and teacher-report of students' rates of relational and physical victimization were associated longitudinally and bi-directionally with student-student relationships, student-teacher relationships, and awareness and reporting of violence across six months of middle school.

Hypothesis 1a. Based on previous studies (e.g., Elsaesser et. al., 2013; Leadbetter et al., 2015), it was anticipated that higher frequencies of both student- and teacher-report of students' relational

and physical victimization would be associated with lower levels of student-student and student-teacher relationships, and awareness and reporting of violence from Time 1 to Time 2.

Hypothesis 1b. Based on prior research (e.g., Loukas & Pasch, 2013), it was expected that student-reported measures of school climate (i.e., positive student-student and student-teacher relationships, and awareness and reporting of violence) would be associated with lower frequencies of relational and physical victimization from Time 1 to Time 2.

Aim 2: Longitudinal relations between student-report and teacher-report of students' aggression and school climate. The second goal of the study was to examine whether longitudinal relations between student- and teacher-report of students' rates of relational and physical aggression were associated longitudinally and bi-directionally with student-student relationships, student-teacher relationships, and awareness and reporting of violence across six months of middle school.

Hypothesis 2a. Based on previous studies (e.g., Henry et al., 2011; Elsaesser et. al., 2013), it was anticipated that both student- and teacher-reported measures of relational and physical aggression would be associated with lower levels of school climate (i.e., student-student relationships, student-teacher relationships, and awareness and reporting of violence) from Time 1 to Time 2.

Hypothesis 2b. Based on previous studies (e.g., Henry et al., 2011; Elsaesser et. al., 2013), it was anticipated that student-reported measures of school climate (i.e., student-student relationships, student-teacher relationships, and awareness and reporting of violence) would be associated with lower frequencies of relational and physical aggression from Time 1 to Time 2.

Methods

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 spanning approximately six months (October 2010-March 2011). 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 old ($M_{\text{age}} = 12.3$, $SD = 1.0$) and half were female. Most participants identified themselves as African-American (82%), 8% were Multiracial, 3% Hispanic, and 1% White. A large proportion of students attending this school (88%) during the 2010-2011 school year were eligible for a federally subsidized school lunch program.

All study procedures were approved by a university institutional review board. Prior to data collection, written parental permission and student assent was 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. Participating students were part of a larger study evaluating the effectiveness of a violence prevention program, *Second Step: Student Success Through Prevention Program* (Committee for Children, 2008). The *Second Step* curriculum included topics of bullying and substance abuse prevention, empathy and communication, and emotion management in sixth, seventh, and eighth grade.

Measures

Behavior subscales of the student- and teacher-report Problem Behavior Frequency Scale (Farrell et al., 2015) were used to provide cross-informant measures of relational aggression, physical aggression, relational victimization, and physical victimization. The student-reported

positive student-student relationships subscale, positive student-teacher relationships subscale, and awareness and reporting subscale of the Vessels School Climate Scale (Vessels, 1998) were used to assess interpersonal aspects of school climate and awareness/reporting.

Student-report of Aggression and Victimization. Physical and relational aggression and victimization was assessed using four subscales of the Problem Behavior Frequency Scale – Student (Farrell et al., 2015). Students rated items on a 6-point Likert scale based on how frequently each behavior occurred (1 = *Never*, 2 = *1-2 times*, 3 = *3-5 times*, 4 = *6-9 times*, 5 = *10-19 times*, 6 = *20 or more times*). The Physical and Relational Aggression subscales were assessed using the prompt, “In the last 30 days, how many times have you...?” The Physical Aggression subscale included six items (e.g., “Hit or slapped someone,” and “Threatened to hit or physically harm someone”; Time 1 $\alpha = .81$; Time 2 $\alpha = .80$). The Relational Aggression subscale included six items (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 $\alpha = .81$; Time 2 $\alpha = .65$). The Physical and Relational Victimization subscales used the stem, “In the last 30 days, how many times has this happened to you?” The Physical Victimization scale included six items (e.g., “Another kid tried to get you to fight” and “Been pushed or shoved by another kid”; Time 1 $\alpha = .80$; Time 2 $\alpha = .82$). The Relational Victimization subscale included six items (e.g., “Had a kid try to keep others from liking you by saying mean things about you”; Time 1 $\alpha = .83$; Time 2 $\alpha = .89$).

Teacher-report of Students’ Aggression and Victimization. Physical and relational aggression and victimization were assessed using four subscales of the Problem Behavior Frequency Scale – Teacher (Farrell, Sullivan, Goncy, & Le, 2015). Teachers rated items on a 4-point Likert scale based on how frequently each behavior occurred (1 = *Never*, 2 = *Sometimes*, 3 = *Often*, 4 = *Frequently*). The Physical and Relational Aggression subscales were assessed using

the prompt, “In the last 30 days, how frequently does this student engage in the following behavior...?” The Physical Aggression subscale included six items (e.g., “Hit or slapped someone,” and “Thrown something at someone to hurt them”); Time 1 $\alpha = .81$; Time 2 $\alpha = .85$). The Relational Aggression subscale included six items (e.g., “Said things about another kid to make other kids laugh” and “Spread a false rumor about someone”); Time 1 $\alpha = .81$; Time 2 $\alpha = .85$). The Physical and Relational Victimization subscales used the stem, “In the last 30 days, how frequently have these things happened to this student...?” The Physical Victimization scale included six items (e.g., “Been hit by another kid” and “Been pushed or shoved by another kid”); Time 1 $\alpha = .79$; Time 2 $\alpha = .83$). The Relational Victimization subscale included six items (e.g., “Been left out on purpose by other kids when it was time to do an activity”); Time 1 $\alpha = .85$; Time 2 $\alpha = .88$).

School Climate. School climate was assessed using three measures: positive student-student relationships, positive student-teacher relationships, and awareness and reporting of violence from the Vessels’ School Climate Survey (Vessels 1998). All subscales were rated on a 4-point scale: 1 = *strongly agree*, 2 = *agree*, 3 = *disagree*, 4 = *strongly disagree*. For the current study, items were re-coded such that higher scores reflected more positive relationships and higher levels of awareness and reporting. In the student-student relationships subscale, students reported the degree to which students get along with each other in school (Time 1 $\alpha = .83$; Time 2 $\alpha = .86$). 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 items reflected the degree to which students and teachers have positive relationships, and examples of items include, “Teachers treat students with respect,” and “Teachers take the time to help students work out their differences” (Time 1 $\alpha = .79$; Time 2 $\alpha =$

.81). The awareness and reporting of violence scale was intended to measure 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 $\alpha = .85$; Time 2 $\alpha = .88$).

Data Analysis

The distribution of study variables was first examined in IBM SPSS Version 23 software (IBM Corp, 2013) before being exported into *M-Plus 7.3* (Muthen & Muthen, 2013). For each variable, the range of responses was examined to make sure it fell within the acceptable range of responses for the scale. A number of variables were skewed and/or kurtotic based on the criteria of having values that were greater than 2 or less than -2 (George, 2010) and included teacher-report of students' physical aggression and overt victimization at Times 1 and 2, relational aggression and victimization at Time 1, student-reported relational aggression and victimization at Times 1 and 2, and overt victimization at Time 2. Because these variables were non-normally distributed, these variables were log transformed prior to being imported into *M-Plus 7.3* (Muthen & Muthen, 2013). Then, means, standard deviations, and correlations were calculated for all study variables in *M-Plus*.

To test longitudinal relations between aggression, victimization, and school climate variables, four separate models were run using the full sample. The first model assessed bi-directional relations between student-reported physical and relational victimization and the measures of school climate (i.e., student-student relationships, student-teacher relationships, and awareness and reporting of violence). The second model examined longitudinal relations

between teacher-report of students' physical and relational victimization and school climate. Covariates for models one and two included age, gender, intervention condition, and baseline levels of student- and teacher-report of students' physical and relational aggression, respectively. The third model explored longitudinal relations between student-reported physical and relational aggression and school climate. The fourth and final model tested longitudinal relations between teacher-report of students' physical and relational aggression and school climate. Covariates for models three and four included age, gender, intervention condition, and baseline levels of student- and teacher-report of students' physical and relational victimization, respectively. The fit of each model was evaluated using Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and χ^2 values. Models with an adequate fit have CFI values of .95 or higher (Hu & Bentler, 1999) and RMSEA values of 0.07 or below (Steiger, 2007). The significant standardized regression coefficients were reported. The confidence intervals for the pathways were examined using bootstrap resampling (5,000 iterations). Analyses where the 95% confidence interval does not cross zero are significant at $p < .05$. Missing data was handled using the maximum likelihood estimation.

Results

Descriptive Statistics

Means, standard deviations, and correlations were run for all study variables. In Table 1, relations between student- and teacher-report of students' victimization and school climate variables are shown. In Table 2, associations between student- and teacher-report of students' aggression and the school climate variables are depicted. Each study variable (i.e., student- and teacher-report of students' physical and relational victimization and aggression and school

climate) was positively correlated with itself from Time 1 to 2 (r s ranged from .36 to .70). In Table 1, student-reported physical victimization at Time 1 was positively associated with student-teacher relationships ($r = .19$) and awareness and reporting of violence ($r = .22$) at Time 2. Student-reported relational victimization at Time 1 was not associated with any school climate measures at Time 2. Teacher-report of students' physical victimization at Time 1 was negatively associated with student-student relationships ($r = -.18$) at Time 2. Student-student relationships ($r = -.19$) and awareness and reporting of violence ($r = -.25$) at Time 1 were negatively associated with teacher-report of students' physical victimization at Time 2. Student-teacher relationships at Time 1 were not significantly associated with Time 2 student or teacher-report of students' physical or relational victimization.

Additionally, in Table 2, student-reported physical ($r = -.18$) and relational victimization ($r = -.17$) as well as teacher-report of students' relational victimization ($r = -.21$) at Time 1 were negatively associated with student-student relationships at Time 2. Student-report and teacher-report of students' aggression measures at Time 1 were not significantly associated with student-teacher relationships or awareness and reporting of violence at Time 2. However, awareness and reporting of violence at Time 1 was negatively associated with student-reported physical aggression ($r = -.19$), student-reported relational aggression ($r = -.18$), and teacher-report of students' relational aggression ($r = -.18$) at Time 2. Finally, student-student relationships at Time 1 were negatively associated with teacher-report of students' relational aggression ($r = -.17$) at Time 2.

For student-reported aggression, 83.1% and 81.1% of adolescents reported engaging in at least one act of physical aggression in the past 30 days at Time 1 and Time 2, respectively. Prevalence rates ranged from around 5% for threatening someone with a weapon (5.2% at Time

1 and 4.5% at Time 2) to approximately two-thirds of students reporting pushing or shoving someone (70.9% at Time 1 and 68.3% at Time 2) or hitting or slapping someone (64.1% at Time 1 and 66.2% at Time 2). A total of 78.3% of students at Time 1 and 72.2% at Time 2 reported engaging in at least one act of relational aggression in the past 30 days. Approximately one-fourth of adolescents reported telling someone they wouldn't like them unless they did what they wanted them to do (23.8% at Time 1 and 20.5% at Time 2), left another kid out on purpose when it was time to do an activity (27.3% at Time 1 and 26.7% at Time 2), or tried to keep others from liking another kid by saying mean things about him or her (29.8% at Time 1 and 27.0% at Time 2). Prevalence rates for relational aggression ranged from around one-fourth of youth reporting the above behaviors to over half of students endorsing that they said things about another kid to make other kids laugh (63.0% at Time 1 and 57.1% at Time 2).

For student-reported victimization, 77.4% and 66.5% of youth reported experiencing overt victimization at least once in the past 30 days at Time 1 and Time 2, respectively. Prevalence rates varied from around 5% of youth reporting being threatened or injured with a weapon (4.8% at Time 1 to 5.9% at Time 2) to approximately 40% to 50% of adolescents indicating they had been pushed or shoved by another kid (51.2% at Time 1 and 39.7% at Time 2), hit by another kid (51.8% at Time 1 and 41.6% at Time 2), been yelled at or called mean names by another kid (51.4% at Time 1 and 41.1% at Time 2), or having another kid try to get them to fight (55.5% at Time 1 and 44.1% at Time 2). For relational victimization, 68.7% and 58.3% reported experiencing relational victimization at least once in the past 30 days, at Times 1 and 2, respectively. Prevalence rates ranged from around 15% to 20% of youth reporting another kid had said they wouldn't like them unless they did what he or she wanted (21.9% at Time 1 and 19.0% at Time 2) or a kid who was mad at them tried to get back at them by not letting them

be in their group anymore (22.2% at Time 1 and 16.9% at Time 2) to 48.0% and 43.4% having someone spread a false rumor about them, at Time 1 and Time 2, respectively.

Table 1

Means, Standard Deviations, and Correlations for 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. SPv T1	----													
2. SRv T1	-.32***	----												
3. TPv T1	-.05	.09	----											
4. TRv T1	-.04	.22**	.62***	----										
5. SSR T1	.08	-.12*	-.34***	-.28***	----									
6. STR T1	.16*	.03	-.10	-.08	.07	----								
7. AR T1	.15*	-.07	-.10	-.12	.15*	.67***	----							
8. SPv T2	.58***	.33***	-.12*	.01	.04	.13	.05	----						
9. SRv T2	.26**	.57***	.04	.24*	.00	-.05	-.06	.45***	----					
10. TPv T2	-.08	.07	.62***	.40***	-.19**	-.15	-.25***	-.12*	.07	----				
11. TRv T2	.03	.29***	.39***	.43***	-.12*	-.08	-.18**	.04	.19*	.51***	----			
12. SSR T2	.11	-.04	-.18**	-.13*	.45***	.07	.15*	.04	-.07	-.28***	-.22***	----		
13. STR T2	.19**	.06	-.10	-.003	.13	.37***	.32***	.23**	.03	-.16*	-.10	-.01	----	
14. AR T2	.22**	.05	-.13*	-.10	.14*	.34***	.40***	.24**	.10	-.16*	-.05	.03	.73***	----
<i>M</i>	2.44	1.82	1.42	1.31	1.97	17.51	10.33	2.26	1.62	1.53	1.40	2.07	16.25	9.47
<i>SD</i>	1.08	.87	.53	.41	.66	4.89	3.23	1.02	.82	.58	.46	.59	5.22	3.30

Notes. SPv = Student-reported Physical Victimization; SRv = Student-reported Relational Victimization; TPv = Teacher-report of students' Physical Victimization; TRv = Teacher-report of students' Relational Victimization; SSR = Student-reported Positive Student-Student Relationships; STR = Student-reported Positive Student-Teacher Relationships; AR = Student-reported Awareness and Reporting. T1 = Time 1 (fall); T2 = Time 2 (spring). N = 265.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2

Means, Standard Deviations, and Correlations for Aggression and School Climate Variables among Urban Middle School Students

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. SPa T1	----													
2. SRa T1	.99***	----												
3.TPa T1	.22**	.23**	----											
4.TRa T1	.19**	.19**	.02	----										
5. SSR T1	-.15**	-.16**	-.08	-.32***	----									
6. STR T1	-.12	-.11	.06	-.14*	.08	----								
7. AR T1	-.16*	-.15*	.03	-.13*	.15*	.67***	----							
8.SPa T2	.70***	.69***	.16*	.15*	-.06	-.17*	-.19**	----						
9.SRa T2	.69***	.68***	.17*	.14*	-.06	-.16*	-.18**	.99***	----					
10.TPa T2	.07	.07	.65***	.00	.06	-.06	-.03	.15*	.16*	----				
11.TRa T2	.25***	.24***	.03	.51***	-.17**	-.06	-.18**	.19**	.19**	-.05	----			
12.SSR T2	-.18**	-.17**	-.004	-.21***	.45***	.07	.15*	-.14*	-.14*	-.01	-.31***	----		
13. STR T2	-.05	.06	.05	.00	.13	.36***	.32***	-.03	-.01	.05	-.04	-.02	----	
14. AR T2	-.02	-.02	.04	-.13	.13	.34***	.40***	-.10	-.08	.07	-.04	.03	.73***	----
<i>M</i>	2.07	2.05	1.65	1.28	1.97	17.51	10.33	2.02	2.01	1.50	1.40	2.07	16.25	9.47
<i>SD</i>	1.04	1.02	.86	.42	.66	4.89	3.23	1.00	.99	.84	.52	.59	5.22	3.30

Notes. SPa = Student-reported Physical Aggression; SRa = Student-reported Relational Aggression; TPa = Teacher-report of students' Physical Aggression; TRa = Teacher-report of students' Relational Aggression; SSR = Student-reported Positive Student-Student Relationships; STR = Student-reported Positive Student-Teacher Relationships; AR = Student-reported Awareness and Reporting. T1 = Time 1 (fall); T2 = Time 2 (spring). N = 265.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Longitudinal Relations between Physical and Relational Victimization and School Climate

In order to test the first study aim, I examined longitudinal relations between student-reported physical and relational victimization and school climate in model 1 (See Figure 1). The model fit the data adequately: $\chi^2(9) = 18.57, p = 0.03$; CFI = 0.99, and RMSEA = 0.06 (0.02 - 0.10, 90% CI). Covariates included age, gender, intervention condition, and baseline levels of student-reported physical and relational aggression. Examination of the covariates indicated that older students reported lower frequencies of physical victimization, ($\beta = -.20; p < .001$; 95% CI [-.30, -.09]) as compared to younger students. Additionally, girls reported higher rates of relational victimization than did boys, ($\beta = -.11; p = .03$; 95% CI [-.21, -.01]). All autoregressive paths were significant. Higher levels of overt victimization at Time 1 predicted increased relational victimization at Time 2 ($\beta = .28; p = .01$; 95% CI [.05, .50]). Student-reported awareness and reporting of violence at Time 1 predicted increases in positive student-teacher relationships at Time 2 ($\beta = .29; p = .04$; 95% CI [.09, .52]).

The second model examined longitudinal relations between teacher-report of students' physical and relational victimization and school climate. This model fit the data adequately: $\chi^2(9) = 17.55, p = 0.04$; CFI = 0.99, and RMSEA = 0.06 (0.01 - 0.10, 90% CI; see Figure 2). Covariates included age, gender, intervention condition, and baseline levels of teacher-report of students' physical and relational aggression. Older students reported lower rates of positive student-teacher relationships in model 2 ($\beta = -.13; p = .04$; 95% CI [-.25, -.004]). All autoregressive paths were significant. Teacher-report of students' physical victimization at Time 1 predicted subsequent increases in teacher-report of students' relational victimization at Time 2 ($\beta = .23; p = .002$; 95% CI [.09, .38]). Higher levels of student-teacher relationships at Time 1 predicted decreased teacher-report of students' relational victimization at Time 2 ($\beta = -.19; p =$

.02; 95% CI [-.36, -.04]). Student-reported awareness and reporting of violence at Time 1 predicted increased levels of student-teacher relationships at Time 2 ($\beta = .30$; $p = .01$; 95% CI [.08, .52]).

Longitudinal Relations between Physical and Relational Aggression and School Climate

In order to test the second study aim, I examined longitudinal relations between student-reported physical and relational aggression and school climate among middle school students in model 3 (see Figure 3). The model fit the data adequately: $\chi^2(9) = 18.32$, $p = 0.03$; CFI = 0.99, and RMSEA = 0.06 (0.02 - 0.10, 90% CI). Covariates included age, gender, intervention condition, and baseline levels of student-reported physical and relational victimization. Older students reported lower rates of positive student-teacher relationships in model 3 ($\beta = -.13$; $p = .04$; 95% CI [-.25, -.01]). All autoregressive paths were significant. Student-reported awareness and reporting of violence at Time 1 predicted (a) decreases in student-reported physical aggression at Time 2 ($\beta = -.28$; $p = .001$; 95% CI [-.46, -.12]), (b) decreases in student-reported relational aggression at Time 2 ($\beta = -.18$; $p = .05$; 95% CI [-.36, -.01]), and (c) increases in student-teacher relationships at Time 2 ($\beta = .29$; $p = .04$; 95% CI [.08, .52]).

The final model examined longitudinal relations between teacher-report of students' physical and relational aggression and school climate. Model four fit the data adequately: $\chi^2(9) = 18.04$, $p = 0.03$; CFI = 0.99, and RMSEA = 0.06 (0.02 - 0.10, 90% CI; See Figure 4). Covariates included age, gender, intervention condition, and baseline levels of teacher-report of students' physical and relational victimization. Age was negatively associated with student-teacher relationships, ($\beta = -.13$; $p = .04$; 95% CI [-.25, -.004]). All the autoregressive paths were significant. Higher levels of student-teacher relationships at Time 1 predicted decreases in

teacher-report of students' physical aggression ($\beta = -.24$; $p = .03$; 95% CI [-.45, -.04]) and teacher-report of students' relational aggression ($\beta = -.19$; $p = .03$; 95% CI [-.37, -.03]) at Time 2. Student-reported awareness and reporting of violence at Time 1 predicted increases in student-reported student-teacher relationships at Time 2 ($\beta = .29$; $p = .01$; 95% CI [.08, .51]).

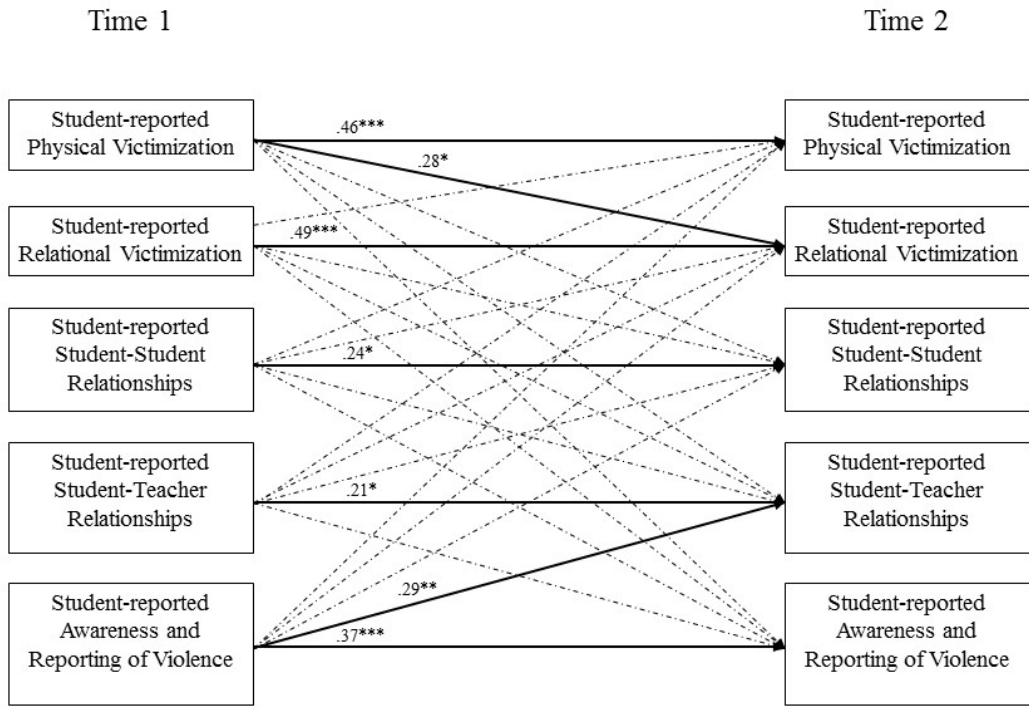


Figure 1. Longitudinal relations between student-reported physical and relational victimization and school climate measures (student-student relationships, student-teacher relationships, and awareness and reporting of violence). *p < .05. **p < .01. ***p < .001.

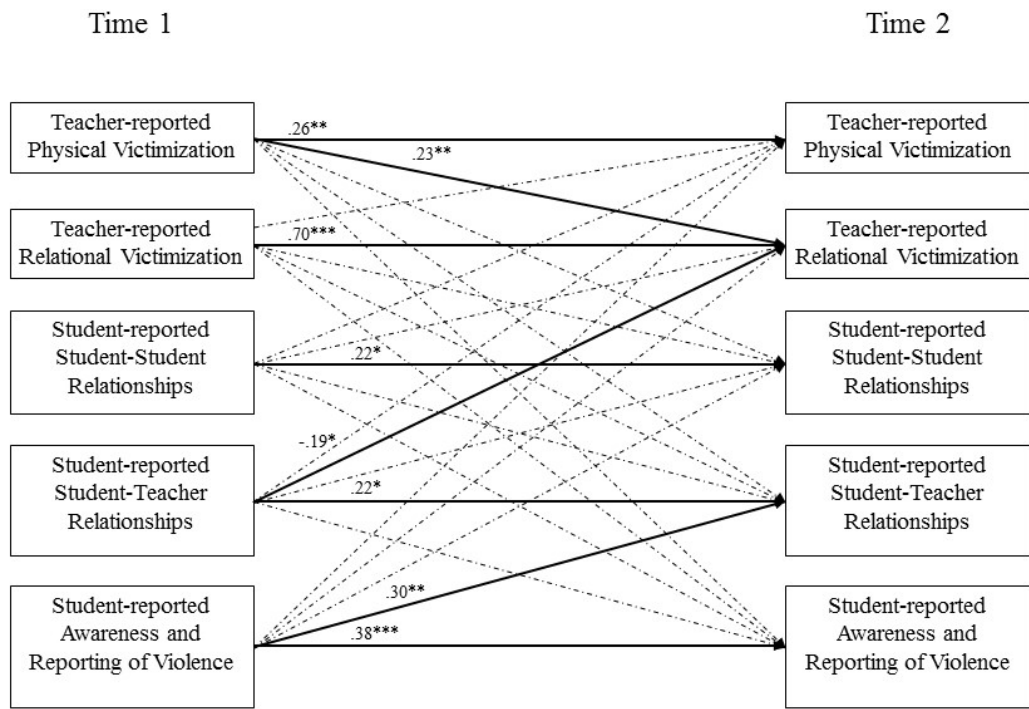


Figure 2. Longitudinal relations between teacher-reported physical and relational victimization and school climate measures (student-student relationships, student-teacher relationships, and awareness and reporting of violence). *p < .05. **p < .01. ***p < .001.

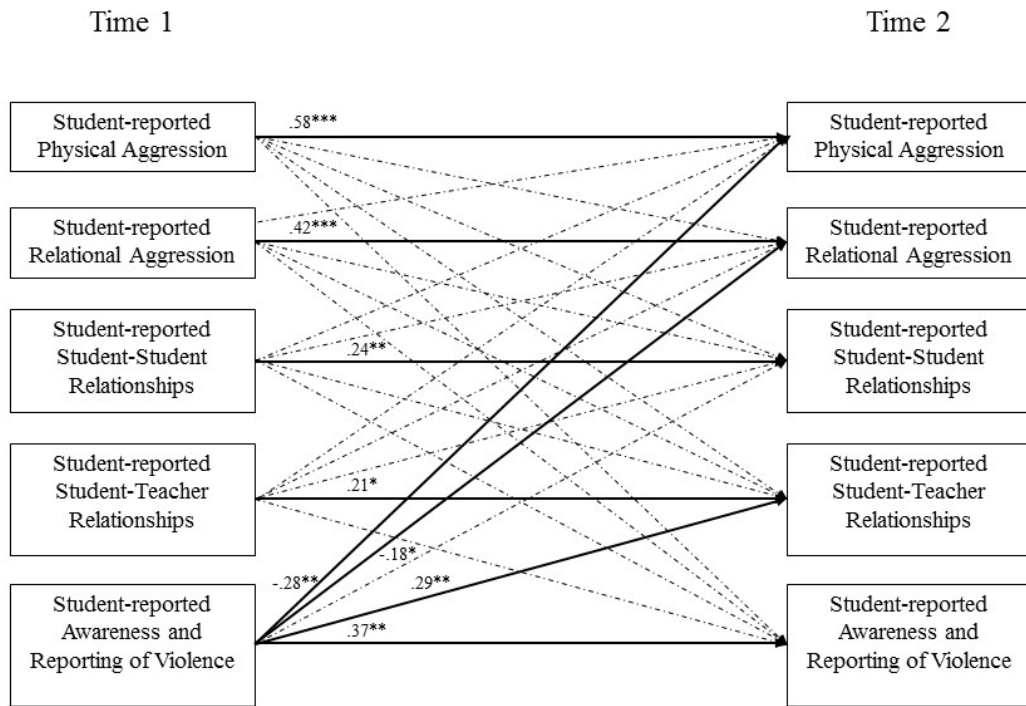


Figure 3. Longitudinal relations between student-reported physical and relational aggression and school climate measures (student-student relationships, student-teacher relationships, and awareness and reporting of violence). * $p < .05$. ** $p < .01$. *** $p < .001$.

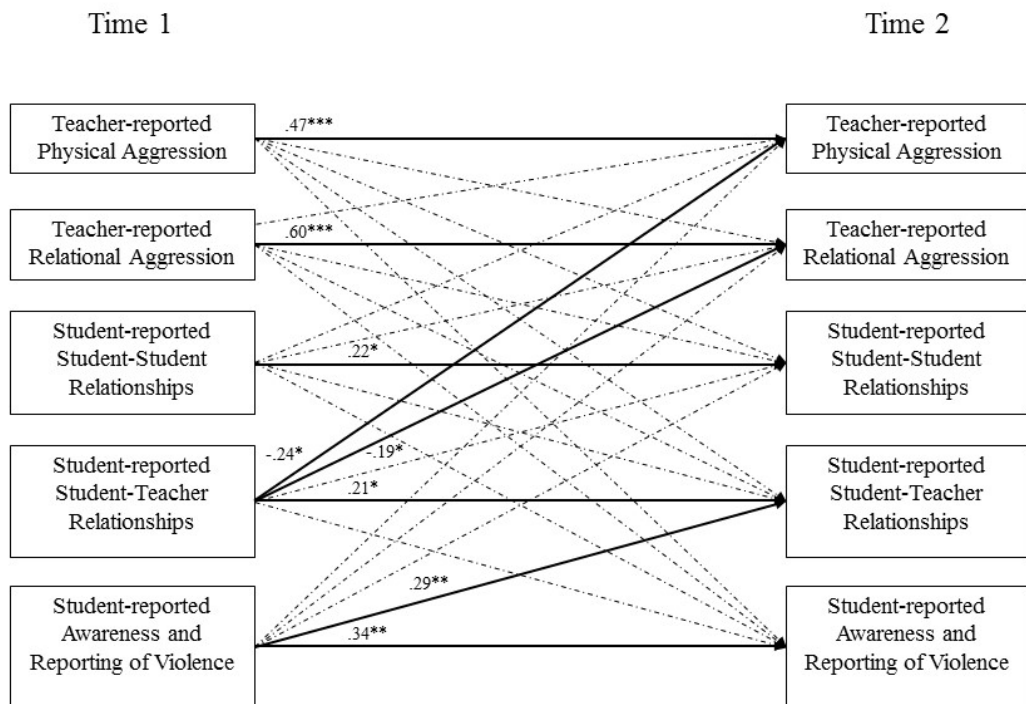


Figure 4. Longitudinal relations between teacher-reported physical and relational aggression and school climate measures (student-student relationships, student-teacher relationships, and awareness and reporting of violence). * $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

Peer aggression and victimization occur frequently among early adolescents and negatively impact youths' social relationships and mental and physical health (Card & Hodges, 2008; Hawker & Boulton, 2000; Reijntjes et al., 2011; Reijntjes, Kamphuis, Prinzie, & Telch, 2011). Numerous studies have identified individual, peer, and family variables as risk factors and/or consequences of peer aggression and victimization (Valois et al., 2002). However, fewer studies have addressed the role of environmental and contextual factors as causes or outcomes of peer aggression and victimization (e.g., Henry et al., 2011; Elsaesser et al., 2013). Socio-ecological theory highlights the influence of environmental and contextual factors on individuals' development and behavior (Bronfenbrenner, 1979). From this perspective, school climate is an important environmental and contextual factor to assess as a potential predictor and/or consequence of peer aggression and victimization.

Although empirical studies have found some evidence of inverse longitudinal associations between aspects of positive school climate (e.g., interpersonal relationships and student awareness/reporting of violence) and peer victimization and aggression (Elsaesser et al., 2013; Henry et al., 2011; Gage et al., 2014; Loukas & Pasch, 2013; Thomas et al., 2011), little research has assessed bi-directional longitudinal relations between school climate and peer aggression and/or victimization (see Leadbetter et al., 2015 for an exception). Further, even though studies have considered prospective relations between interpersonal school climate and subtypes of peer aggression and/or victimization (i.e., physical and relational) (Henry et al., 2011; Elsaesser et al., 2013; Loukas & Pasch, 2013), none to date have addressed both physical and relational subtypes of aggression in the same study. In addition, only two studies to date have examined links between student awareness and reporting of violence and peer aggression and/or victimization over time

(Elsaesser et al., 2013; Henry et al., 2011), and neither considered potential bi-directional relations between these constructs. Lastly, there is a paucity of research on the degree to which different aspects of school climate impact each other over time.

The current study contributed to the literature in this area by examining bi-directional longitudinal relations between several key aspects of school climate (i.e., positive student-student and student-teacher relationships and students' awareness and reporting of violence) and student- and teacher-report of peer aggression and victimization over six months. It also tested the degree to which these aspects of school climate influenced each other over time. Better understanding the direction and strength of relations between school climate variables and peer aggression and victimization could inform youth violence prevention programs focused on school environment interventions and be taken into account in the clinical treatment of adolescents affected by victimization experiences and/or exhibiting aggressive behavior.

Approximately three-fourths of adolescents in the current study reported engaging in at least one act of physical and/or relational aggression in the past 30 days at Time 1 and Time 2. In addition, around two-thirds of youth reported experiencing at least one incident of physical or relational victimization during the same timeframe. It can be difficult to compare prevalence rates of physical and relational aggression and victimization across studies based on differences in their sample characteristics, the severity of items assessed, timeframes used for measuring these constructs, and context(s) in which behaviors are measured (e.g., behaviors occurring in one context such as school versus across several contexts like home, school, and neighborhood). The prevalence rates reported for our sample are somewhat higher than those reported in nationally representative samples of adolescents (Kann et al., 2015) and studies focusing on adolescents living in inner-city urban contexts (Branson & Cornell, 2009; O'Brennan, Bradshaw, & Sawyer,

2009). The student-reported aggression and victimization items for the current study ranged from more commonplace behaviors (e.g., pushing or shoving) to those that are rarer in occurrence (e.g., threatening someone with a weapon), and assessed these behaviors across contexts including home, school, and neighborhood/community. Overall, the high prevalence rates found for physical and relational aggression and victimization highlight the importance of identifying risk factors for and consequences of these behaviors among early adolescents living in urban inner-city contexts.

Peer Victimization and Aggression as a Predictor of School Climate

Contrary to expectations, higher frequencies of student- and teacher-reported relational and physical victimization at Time 1 did not predict poorer student-student or student-teacher relationships, nor did it significantly account for the variability in student awareness and reporting of violence from Time 1 to Time 2. These findings are not consistent with one study that showed higher frequencies of peer victimization predicted less positive student-teacher relationships over two years among elementary school students (Leadbetter et al., 2015) or another that found similar relations between physical and relational victimization and school connectedness over one-year among middle school students (Loukas & Pasch, 2013). Leadbetter and colleagues collected data from elementary school students which may partially explain differences between these findings and those of the current study which focused on a middle school sample. Further, student-teacher relationships were assessed by parent- and not self-report, and parents and students may perceive these relationships differently. Loukas and Pasch assessed school connectedness, not interpersonal relations or awareness and reporting of violence, and thus measured a more global as compared to specific aspects of the school climate, making comparisons more tenuous. Lastly, both studies assessed relations between peer victimization and school climate variables over more extended periods of time (i.e., 1- and 2-years), and therefore the negative impact of peer victimization on

school climate may take longer to appear or be more likely to be seen as students transition from one grade to another.

Similar to peer victimization, expected longitudinal relations between higher levels of physical and relational aggression at Time 1 and less positive interpersonal relationships and lower levels of student reporting and awareness of violence at Time 2 were not found. This finding was inconsistent with another study that found lower frequencies of aggression predicted more positive student-teacher relationships over time in elementary school (Thomas et al., 2011). Differences in the age range, measures assessed, and timeframe between assessment points may offer some explanation for the discrepant findings. However, more research is needed to test whether the current study findings are replicated in other early adolescent samples.

School Climate as a Predictor of Peer Aggression and Victimization

The current study findings study partially supported hypotheses that subtypes of school climate at Time 1 would predict decreased frequencies of physical and relational victimization at Time 2. More positive student-teacher relationships at Time 1 led to decreased frequencies of teacher- but not student-reported relational victimization at Time 2. Positive student-student relationships and student awareness and reporting of violence at Time 1 did not predict anticipated decreases in self- or teacher-reported physical or relational victimization at Time 2. The current study findings are consistent with those of Leadbetter and colleagues (2015) who found that more positive student-teacher relationships predicted lower frequencies of peer victimization over two years, and Runions and Shaw (2013) who found positive longitudinal relations between student-teacher conflict and peer victimization. However, the present study findings are inconsistent with those of Elsaesser et al. (2013) who found that positive student-student but not student-teacher

relationships led to decreased frequencies of relational victimization among middle school students. Interestingly, Gage et al. (2014) found that adult support predicted decreased bullying victimization in elementary but not middle school. In contrast, peer support resulted in lower frequencies of bullying victimization for middle but not elementary school students. The present study included a combined sample of sixth, seventh, and eighth graders who were followed over time, whereas other efforts tracked a cohort(s) of sixth graders across middle school (Elsaesser et al., 2013). Based on the current study sample size, we controlled for grade but were not able to assess the degree to which relations between school climate variables and peer victimization and aggression may change across grade (e.g., based on the formation of peer groups, changes in peer relationships driven by developmental growth, and acclimation to the middle school context). We also included teacher-report of students' victimization which provided a more circumscribed perspective of students' behavior within the school environment as compared to student-reports of victimization that assessed this construct more broadly.

Hypotheses that positive student-student and student-teacher relationships and student awareness and reporting of violence at Time 1 would predict decreases in the frequency of student- and teacher-report of physical and relational aggression at Time 2 were partially supported. Higher levels of student awareness and reporting of violence at Time 1 led to decreases in the frequencies of student- but not teacher-report of physical and relational aggression at Time 2. A similar pattern of findings was supported by Henry et al. (2011) for physical aggression, but for girls only and with physical aggression assessed using a composite measure of adolescent- and teacher-report of students' aggression. Contrary to our findings, Elsaesser et al. (2013) found that student awareness and reporting of violence did not predict changes in relational aggression among middle school students. Both of the above studies were drawn from the same middle school

sample (Elsaesser et al., 2013; Henry et al., 2011), and thus additional studies are needed to clarify the mixed findings across longitudinal studies assessing these relations to date.

Positive student-teacher relationships at Time1 led to subsequent decreases in teacher-report of student's physical and relational aggression at Time 2. However, positive student-student relationships did not predict changes in either subtype of aggression over six months. Elsaesser et al. (2013) found both student-teacher and student-student relationships predicted decreases in student-reported relational aggression. Henry et al. (2011) also found that positive student-teacher and student-student relationships led to decreased physical aggression, but that relations between these variables weakened over time. These findings highlight consistencies with prior studies in that student-teacher relationships predicted decreased physical and relational aggression but also inconsistencies based on the null findings for positive student-student relationships and the fact that positive student-teacher relationships did not predict student-reported aggression in the current study. Again, the fact that relatively few studies have assessed these specific school climate variables as predictors of physical and relational subtypes of aggression underscores the need for additional research to address the current mixed finding in the literature.

School Climate Variables as Causes and Consequences of One Another

Although not explicitly hypothesized, study findings indicated that higher levels of student awareness and reporting at Time 1 predicted higher levels of positive student-teacher relationships at Time 2. In a cross-sectional study of 7,318 ninth graders, Eliot, Cornell, Gregory, and Fan (2010) found positive associations between supportive student-teacher/school staff relationships and students' willingness to report experiences of bullying behavior or threats of violence. These authors suggested that the supportive school climate created an environment where students were

then more likely to seek adult support, however, the cross-sectional nature of the study precluded determining the direction of these relations. In contrast, findings from the current study highlighted the role of students' awareness and willingness to report violence in leading to more positive student-teacher relationships across six months.

Limitations

The limitations of the current study should be acknowledged. Although current study findings addressed key aspects of school climate and their influence on peer aggression and victimization, the school climate measure was self-report which may introduce limitations related to method variance and potentially social desirability bias. This study assessed three important aspects of school climate, but 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).

The current study focused on a sample of predominantly African American students from an inner-city setting in the Southeastern United States. Differences in relations among study variables may be seen when examining these relations in settings unlike the ones in the present study. School climate can vary widely from school to school and can also differ based on cultural norms and expectations. Based on this, researchers might consider future work in examining relations between these study variables in differing communities and school settings. In addition, this was a short-term longitudinal study, which was limited by having only two time points that spanned six months of middle school. Although the sample encompassed sixth, seventh, and eighth graders, comparisons across multiple school years were not able to be assessed. The

literature would benefit from future studies assessing bi-directional longitudinal relations that span multiple years of middle school in order to gain a better understanding of these associations as students progress through middle school.

Implications and Future Directions

This study has several important implications. Many youth violence prevention programs, such as the Olweus Bullying Prevention Program (OBPP), focus on multiple levels of the school environment (i.e., individual-, classroom-, school- and community-levels). Components of such intervention and prevention programs include classroom and behavior management, social relationships, and school organization. The results of this study suggest that key underlying mechanisms of change hypothesized for school environment interventions like OBPP, including student awareness of and willingness to report violence and positive student-teacher relationships, are salient for decreasing students' involvement in aggressive behaviors as well as their susceptibility to being victimized. By highlighting the role of interpersonal dynamics between adolescents and teachers, administrators, and other school staff, intervention and prevention programs may promote changes in the school climate that can decrease students' levels of exposure and involvement in violent behaviors. Unless there is an established positive and supportive climate at school, learned coping strategies for victimization and aggression may not be effective for students. Further, it is important to establish a positive school climate at the beginning of each school year so that students are able to form positive interpersonal relationships with their teachers. By laying this groundwork, students will be better able to learn and use effective coping strategies if they feel supported and able to rely on adults within the school. They will also be better able to report to teachers and school staff when instances of violent behaviors

are observed which, based on the current findings, may play a critical role in improving student-teacher relationships over time and decreasing the frequency of aggressive behaviors.

The clinical significance of the study findings is also important. Across many presenting problems in research and therapy, it is important to consider a child's environment and struggles that occur within the school context. For instance, a student being seen by a therapist for depression or anxiety may have limited resources and supports within the school context. Students spend the majority of their week in the school environment. If they are having difficulties establishing and maintaining healthy relationships and supports in their school, especially with their teachers, the impact of emotional difficulties may be increased. By considering the impact of school climate, clinicians may better understand what coping strategies and skills can be most beneficial for children and adolescents dealing with peer victimization and/or aggression.

Several directions for future research were identified based on the current study limitations. First, there is a need to address whether there are potential differences in study findings across time as youth progress in grade level, especially when subtypes of relational and physical aggression and victimization are considered together. For example, do these relationships look different during sixth grade versus eighth grade? Additionally, results from the present study used age as a covariate and found significant associations with physical victimization in one model and student-teacher relationships in three models. Therefore, a more detailed and systematic examination of the role of age in the association between school climate and peer aggression and victimization experiences should be explored. As previously mentioned, the urban setting and sample characteristics of the present study may have resulted in different study findings than would be observed in other settings (e.g., rural or suburban) or among youth with different racial/ethnic backgrounds and socioeconomic status. Thus, additional studies are needed to

explore whether these associations hold true across diverse samples and varied settings or whether they are unique to specific settings.

Conclusion

Overall, the current study results highlight the important role that school climate, and student-teacher relationships and student awareness and reporting of violence specifically, play in the positive and healthy development and 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.

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