ABSTRACT

Title of Thesis: RELATIONS AMONG PEER
                          VICTIMIZATION, AGGRESSION, AND
                          SCHOOL CLIMATE IN ELEMENTARY
                          SCHOOL STUDENTS

                          Kathryn Sullivan, Master of Arts, 2019

Thesis Directed By: Dr. Cixin Wang, Ph.D., Department of
                          Counseling, Higher Education, and Special
                          Education

Peer victimization in schools is a growing concern in China, where prevalence rates

range from 22-26.1% (Han, Zhang, & Zhang, 2017; Cheng et al., 2010). Peer

victimization is linked to many negative outcomes, including increased aggression

(Arsenault et al., 2006; Averdijk et al., 2016). A positive school climate, which

includes factors that support learning, physical and emotional safety, connection,

support, and engagement, may serve as a protective factor against both peer

victimization and its negative outcomes. This study examined the longitudinal

relations between peer victimization, aggression, and school climate by examining

self-report survey data collected from 800 3rd to 6th-grade students in China. Results

indicated that a positive school climate was a significant moderator of the positive

relationship between peer victimization and later aggression. These findings have

important implications for the role of school climate as protective against later

behavioral difficulties for victimized students.

RELATIONS AMONG PEER VICTIMIZATION, AGGRESSION, AND SCHOOL

CLIMATE IN ELEMENTARY SCHOOL STUDENTS

by

Kathryn Elizabeth Sullivan

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Advisory Committee:
Professor Cixin Wang, Chair
Professor Hedwig Teglasi
Professor Jill Jacobson

Table of Contents

Chapter 1: Introduction

Peer victimization (i.e. being a victim of bullying) is an increasingly problematic trend with a global reach. Peer victimization in childhood is implicated in many long-term adverse mental health outcomes including both internalizing (Reijntjes, Kamphuis, Prinzie & Telch, 2010) and externalizing problems (Reijntjes et al. 2011), increased psychopathology, criminality and increased risk for suicide (Klomek, Sourander, and Elonheimo, 2015). Research in Western countries has shown a strong relationship between experiences of peer victimization in youth and later development of aggressive behaviors (Arsenault et al., 2006; Averdijk et al., 2016). Furthermore, studies have determined that longitudinally, peer victimization predicts aggression, but aggression also predicts later peer victimization (Reijntjes et al., 2011).

Currently, the majority of research on this topic has been conducted in Western countries (Wang et al., 2014; Abou-ezzedine et al., 2007). However, as knowledge and interest in the impacts of peer victimization on development have risen, global studies on these factors have also increased (Olweus, 2001). This is true in countries such as China, where peer victimization has become a growing concern (Huang, Hong, & Espelage, 2013). Recent studies of childhood peer victimization have found prevalence rates of 25-26.1%, similar to rates observed in Western countries (Han, Zhang, & Zhang, 2017; Cheng et al., 2010). The increased awareness of bullying has been attributed to rapid changes occurring in Chinese society, such as globalization and changes in family structures (Huang, Hong, & Espelage, 2013).

Recent studies in China have examined relations between peer victimization and aggression, finding evidence for aggression as a correlate to peer victimization (Xu & Zhang, 2008; Schwartz, Chang & Farver, 2001). Longitudinal studies have reported positive relations for both peer victimization and aggression (i.e. peer victimization leads to increased aggression and vice versa) in Chinese middle school students (Lam, Law, Chan, Zhang, & Wong, 2018), although the results have been mixed in some cases (Wang et al., 2014). However, no current studies have examined these connections among Chinese elementary school students, an age where students may be most vulnerable to the negative impacts of peer victimization (Han, Zhang, & Zhang, 2017). Moreover, the formation of aggression could be particularly detrimental in a Chinese context because of the increased cultural emphasis on maintaining social harmony and self-regulation and low cultural tolerance for aggression (Jia et al., 2009; Chen & French, 2008). Therefore, children who display aggressive behavior could be more negatively evaluated by adults and peers (Chen et al., 2010).

A positive school climate, defined as "factors that serve as conditions for learning and that support physical and emotional safety, connection and support, and engagement" (U.S. Department of Education, Office of Safe and Healthy Students, p.1) promotes positive youth development via a safe, supportive school environment. In addition to being predictive of higher academic achievement (Wang et al., 2014), lower rates of suspension (Bear et al., 2018), better mental health outcomes (Leadbeater, Sukhawathanakul, Thompson & Holfeld, 2015), and lower rates of peer victimization (Espelage, Polanin, & Low, 2014), positive school climate is protective

against later behavioral problems (Wang & Dishion, 2012). Only one readily available study has been conducted in China to examine any school climate factors as a moderator of peer victimization and aggression (Lam et al., 2018), and no known studies use a composite school climate variable as a moderator for the relationship between peer victimization and aggression in elementary school children.

This study examined the longitudinal relations between peer victimization experiences, aggression, and school climate during the elementary school years. Furthermore, this study investigated the role of school climate as a buffer against the hypothesized relationship between peer victimization and later development of aggression. This study looked to answer the following questions: 1) What is the impact of school climate on later peer victimization and aggression? 2) Is there a positive, longitudinal relationship between peer victimization and later aggression and between aggression and later peer victimization for Chinese elementary school students? 3) Does a positive perceived school climate moderate the development of aggression for those who have been victimized? and 4) Do these relationships differ by gender? This study investigated these questions among Chinese elementary school students, as there have been few studies examining these factors with this population.

Chapter 2: Literature Review

In order to create a body of knowledge that is valid within different cultural contexts, it is imperative to promote and analyze research based in other countries, while emphasizing differences in a cultural context to prevent overgeneralization (Jensen, 2012). Therefore, this review seeks to further explore the relationship between peer victimization experiences and aggression in middle childhood from an ecological perspective (Bronfenbrenner & Morris, 2006). Furthermore, this review will focus on elementary-age students because of the increased prevalence of peer victimization within that age group (Han, Zhang, & Zhang, 2017; Huang, Hong & Espelage, 2013).

Theoretical Framework

This study has its theoretical basis in Bronfenbrenner's Person-Process-Context-Time model (PPCT; Bronfenbrenner & Morris, 2006), in which interactions between an individual's biological and genetic characteristics, proximal processes, context, and time influence their developmental outcomes. The Person element describes a child's individual-level factors, such as their biological and genetic characteristics. Furthermore, Bronfenbrenner emphasized the personal characteristics that children bring into social situations, such as interactions among peers. The Process conception in the theory refers to proximal processes of development or the reciprocal interactions between an individual and their immediate external environment.

Bronfenbrenner and Morris (2006) describe Context, the third element of the model, as involving four interactive and interrelated system levels: the *micro*, *meso*, *exo*, and *macro*-systems. The microsystem is defined as social roles, activities, and interpersonal relations experienced by an individual in an immediate setting, such as their home or school (Bronfenbrenner, 1977). For a child, these include interactions with teachers, parents, and peers (Hong & Espelage, 2012). The mesosystem describes interactions between two or more micro-systems that include the individual (Bronfenbrenner, 1977), such as the inter-relations between family and school. The exosystem is described as interactions between two or more systems, one of which does not contain the individual. These are further described as developmental influences in which the individual is not immediately present but still affected by, for example, an individual's neighborhood or the mass media (Bronfenbrenner, 1979; 1977). Finally, the macrosystem encompasses the larger culture, beliefs, and values surrounding an individual, which in turn influences all system levels (Bronfenbrenner, 1977).

Finally, the Time element of the PPCT model involves the development of all of the preceding factors (Person, Context, and Process) as they interact over time. This study explored school and peer relations as part of the individual's microsystem and Chinese cultural values and norms as part of the macrosystem within the child's context. This study also investigated potential processes that influence developmental outcomes, and utilized a longitudinal model in order to explicate the influence of time on these factors.

Chinese Cultural Values in the Educational Context

In accordance with Bronfenbrenner's model (1977), cultural values and beliefs present in the macrosystem shape individuals' social behaviors, including the formation of peer relationships and aggression (Chen & French, 2008; Bond, 2004). Chinese traditional and contemporary culture emphasizes social harmony, self-perfection, and respect for adults (Chen et al., 2010). Chinese cultural values and beliefs, such as traditional Confucian values, academic achievement, collectivism as opposed to individualism, and respect for elders, all may impact developing children and their interactions.

Traditional Confucian values are still prominent in China today despite the influence of rapid globalization. Confucianism emphasizes awareness of the group and social dynamics and minimizing conflict (Huang, Hong & Espelage, 2013; Chen & French, 2008). These ideals contribute to the development and behaviors of Chinese children. Importantly, they also promote a school climate that emphasizes these norms and promotes positive student-teacher and peer relationships (Chen et al., 2010).

Schools play an important role in transmitting these cultural values to the students and providing social support (Camicia & Zhu, 2011; Jia et al., 2009; Chen & French, 2008). Chinese schools place greater emphasis on building teacher-student relationships and student-student relationships that prevent behavior problems and motivate learning. This includes often having the same teacher and classmates for multiple years, offering opportunities to make social connections with teachers and peers in the classroom (Chen & French, 2008; Jia et al., 2009). Furthermore, Chinese

students endorse feeling great respect for their teachers (Jia et al., 2009), a response likely borne from the Chinese Confucian ideal of respecting those in authority (Hui, Sun, Chow, & Chu, 2011).

Applying the Ecological Model to Chinese Culture

Recently, researchers have examined peer victimization from an ecological systems perspective in both Western and Chinese reviews (Huang, Hong, & Espelage, 2013; Espelage & Hong, 2012). Huang, Hong, and Espelage (2013) applied the ecological systems framework to peer victimization and bullying in Chinese culture, classifying by system-levels to determine influences on individuals involved in bullying. They attributed the rising rates of bullying and peer victimization in China to several cultural and societal changes occurring in Chinese society. First, the Chinese divorce rate has risen in recent years, creating the potential for psychosocial maladjustment and vulnerability to negative social influences among children. Second, China's One-Child Policy has led to mostly single-child families and only-children could be less adept at social skills and conflict resolution. Third, teachers in China are less likely to focus on behavioral problems in favor of academics, with studies finding that bullies are unlikely to receive any consequences for their actions. Finally, China's growing globalization and Westernization may be contributing to less collectivism, particularly in the cities, and therefore less emphasis on maintaining social harmony so that bullying behavior is less culturally demonized.

It is increasingly important for psychological research to be conducted in environments outside of the United States and other Western countries (Arnett, 2008) in order for the ecological context of child development to be better understood. The

school as an environmental context is extremely impactful in child development, and this could be particularly true for students in China where education is particularly valued (Hong, Huang, & Espelage, 2013). Further, understanding the inter-relations between the individual and his or her social ecology is important for understanding bullying behavior within that particular context and developing culturally relevant interventions.

Peer Victimization

Peer victimization in a school context (i.e. experiencing bullying) is defined as a student being "exposed repeatedly and over time to negative actions on the part of one or more other students" (Olweus, 2001; pg. 5). According to the social-ecological stress-diathesis model (Swearer & Hymel, 2015), being a victim of bullying by peers is regarded as a stressful life event, which in turn can have detrimental effects on development and promote psychosocial difficulties. Research has shown linkages between experiencing peer victimization in childhood and problematic social relationships, and poor educational and financial outcomes in adulthood (Wolke, Copeland, Angold, & Costello, 2013; Klomek, Sourander, and Elonheimo, 2015).

Individual-level differences have been found between those who are victimized and those who are not (McDougall & Vaillancourt, 2015). Adolescents who have experienced peer victimization produce less cortisol in response to stress (Ouellet-Morin et al., 2011a) as well as secrete less cortisol throughout the day compared to non-victimized peers. This pattern of cortisol hyposecretion is consistent with previous studies examining cortisol levels in response to extreme or prolonged

stress (Vaillancourt et al., 2008). Additionally, Ouellet-Morin and colleagues (2011b) found that blunted cortisol response to a psychosocial stress test in peer-victimized adolescents was causally predictive of social and behavioral problems unrelated to genetic or environmental factors.

Previous research conducted with monozygotic twins has been useful in examining outcome differences in those experiencing peer victimization while controlling for genetics and environmental factors (Singham et al., 2017; Arsenault et al., 2008). In a longitudinal, monozygotic twin study of bullying victimization between ages 11 and 16, Singham et al. (2017) found that being bullied at age 11 was causally related to later symptoms of anxiety, depression, hyperactivity and impulsivity, inattention, and conduct problems. This establishes peer victimization as a precipitating factor related to multiple suboptimal outcomes, including externalizing problems and aggression.

International research on peer victimization and bullying has struggled to translate the concept between cultures, as bullying conceptualization can be culturally specific (Hong & Espelage, 2012; Smith et al., 2002). In China, however; the concept of bullying is similar to that of the Chinese word *qifu* (Smith et al., 2002), which is defined as arrogant or unreasonable treatment of others, including physical and relational bullying in order to hurt or harm others (Murray- Harvey et al., 2010). Based on nationally representative samples, recent studies have found rates of peer victimization to range from 25-26.1% in Chinese schools (Han, Zhang, & Zhang, 2017; Cheng et al., 2010). Like Western studies (Singham, 2017; Reijntjes et al., 2011; Arsenault, 2008), Chinese studies have found that peer victimization in early

childhood and elementary school is associated with negative outcomes including the formation of behavioral problems (Hesketh et al., 2011; Wang et al., 2014).

Some aspects of Chinese societal values, such as the emphasis on the collective versus the individual, could be protective against peer victimization. Given that collectivist societies place a high value on social harmony, bullying may be viewed as a threat to harmony and therefore societally discouraged (Li, Wang, Wang, & Shi, 2010). However, other aspects of society, such as increased pressure to achieve academically, could increase vulnerability to peer conflict and victimization (Schwartz et al., 2001; Cheng et al., 2010). For instance, studies conducted in China have found that students with lower academic achievement are more likely to be victimized by peers (Lai, Ye, & Chang, 2008; Abou-ezzedine et al., 2007; Schwartz et al., 2001). Cheng et al. (2010) additionally posited that the increased emphasis on academic achievement may decrease focus on the school's social climate and student social-emotional health.

Peer victimization research conducted in China has largely focused on middle or high school students, despite research indicating that bullying behaviors are more prevalent among elementary school students and could be more consequential for students' adjustment (Han, Zhang & Zhang, 2017; Huang, Hong & Espelage, 2013). Pre-adolescence may be a particularly vulnerable time to experience peer victimization, as children are developing clearer conceptions of their social identities and simultaneously evaluating their peers as more hostile (Troop- Gordon & Ladd, 2005; Cheng et al., 2010).

Aggression

Aggression is defined as "any behavior directed towards another individual with the proximate (immediate) intent to cause harm" (Anderson & Bushman, 2002). For an act to be considered aggressive, there must be "intent to harm" as a goal of the action such that harm caused as a by-product of a helpful action is not considered aggressive. Additionally, the aggressor truly believes that aggressive behaviors will cause harm to the victim and that the victim will be motivated to avoid the actions (Anderson & Bushman, 2002).

Cultural values play a role in the development of behavior, including aggression (Bergeron & Schneider, 2005). Because of the increased cultural emphasis on maintaining social harmony and self-regulation in China (Jia et al., 2009), children who display externalizing behaviors such as aggression could be more negatively evaluated by adults and peers (Chen, 2010). In fact, research has shown that aggressive children are judged more negatively by their peers in China (Xu & Zhang, 2008). While both U.S. and Chinese children are likely to experience negative outcomes resulting from their aggressive behavior, there is evidence that aggressive children in China are at higher risk for serious school maladjustment, being labeled as "problem" children among teachers and classmates and more severe punishment from teachers. Further, they are more likely to report negative self-perceptions stemming from these difficulties (Xu & Zhang, 2008; Schwartz et al., 2001; Chen, 2000). This is additionally supported by a study by Tseng et al. (2013), which found that physical aggression was longitudinally related to peer rejection, lower popularity, and less peer acceptance for fifth-grade students in Taipei, Taiwan.

Relations between Peer Victimization and Aggression

The development of aggressive behavior following peer victimization could be likened to the formation of reactive (i.e. hostile) aggression involving angry, impulsive reactions to perceived provocation (Anderson & Bushman, 2002). These subtypes were developed to capture disparate models of aggression theorized by Bandura (1973) and Berkowitz (1989). Bandura (1973) viewed aggression as learned through imitation and driven by operant conditioning, with individuals committing aggressive acts in the service of a larger goal and so the aggression is reinforced, as in proactive aggression. Furthermore, exposure to violence, such as being a victim of bullying, influences individuals' beliefs about the acceptability of aggression in retaliation to provocation (Bandura, 1973). Conversely, Berkowitz (1989) developed the frustration-anger hypothesis to describe aggressive behaviors that are anger-driven, impulsive and triggered by contextual cues, similarly to reactive aggression. Based on this theory, situations in which an individual is repeatedly angered (e.g. peer victimization) may lead to frustration and then aggression as the individual lashes out (Paquin et al., 2017).

According to Crick and Dodge (1994), children tend to generalize perceptions of individuals to make judgments about larger groups. For instance, those that are victimized by bullies may develop hostile beliefs not only about the bullies themselves but about other peers they encounter (Stellwagen & Kerig, 2018; Olweus, 2001). Troop-Gordon and Ladd (2005) found that elementary school children who were victimized were more likely to develop negative perceptions of their peers, and children who held more negative peer beliefs at the end of fourth grade were more

likely to exhibit later increases in externalizing disorders. This is indicative of changing perceptions and attributions for peer behavior over the course of development.

Both Western studies (Reijntjes et al., 2011; Arsenault, 2006) and studies conducted in China (Lam et al., 2018; Wang et al., 2014; Hesketh et al., 2011) have found that peer victimization in early childhood and elementary school is associated with negative outcomes including formation of behavioral problems. Hesketh et al. (2011), studied Chinese students ages 7-13 and found that being peer victimized was significantly correlated to behavior problems. Additionally, those who were victimized frequently were three times more likely to have behavioral problems compared to those who were victimized infrequently.

Some Western studies have found a significant relationship between aggression and later experiences of peer victimization (Eastman et al., 2018; Cooley, Fite, & Pederson, 2018; Cooley & Fite, 2016). While this topic has been less studied in China, there are some cross-sectional studies that have examined aggression as a correlate to peer victimization (Abu-ezzeddine et al., 2007; Schwartz, Chang & Farver, 2001; Tseng et al., 2013). Schwartz and colleagues (2001) examined concomitant correlates of victimization for Chinese students and found that aggressive behavior was associated with persistent victimization by peers. Furthermore, Abou-ezzeddine et al. (2007) conducted multi-informant, cross-sectional research utilizing peer nominations and teacher ratings with 4th and 5th-grade elementary school students in Tianjin, China to determine relationships between behavioral vulnerabilities (i.e. low pro-social behavior, aggression, and

submissive withdrawn behavior) and later peer victimization. They found that behavioral vulnerabilities significantly predicted later victimization.

While being a victim of bullying is associated with later negative mental health outcomes, levels of pre-existing aggression have also been associated with later becoming a victim in Western studies (Reijntjes et al., 2011; Averdijk et al., 2016). Reijntjes et al. (2011) conducted a meta-analysis of 10 longitudinal studies investigating the prospective linkage between peer victimization and externalizing behaviors such as aggression, misconduct, and attentional difficulties. The meta-analysis affirmed that peer victimization significantly predicts increases in externalizing problems over time. Additionally, externalizing problems significantly predict increases in peer victimization over time.

Only a few studies have examined both pathways between peer victimization and aggression in China (Lam et al., 2018; Wang et al., 2014). A longitudinal study conducted by Wang et al. (2014) followed children in Hong Kong from 3rd or 4th grade to 7th and 8th grade. The resulting study determined that peer victimization significantly predicted later aggression while controlling for earlier aggression. However, in contrast to some earlier studies conducted in Western countries showing significance in both pathways between victimization and later externalizing (Reijntes, 2011), this study did not find a significant relationship between early aggression and later victimization. The researchers posited that although aggression is considered highly socially unacceptable in Chinese culture (Chen & French, 2008), these children may be more likely to be avoided rather than confronted by classmates. Furthermore, there is research using the same Hong Kong-based sample that shows

aggression is associated with higher popularity for 3rd and 4th graders (Schwartz et al.,
2009). This finding is significant in that those who are characterized as aggressive
(with aggression measured by likely peer victimization behaviors such as "pushing or
hitting others"), do not experience social rejection, but rather heightened social status
as a consequence of their bullying perpetration. Children within this context who are
victimized, therefore, may ultimately experience less social support among peers who
are hesitant to confront fellow students exhibiting aggressive behaviors.

Lam et al. (2018) conducted a longitudinal study with 7th and 8th graders in
Hong Kong tested victim-driven, aggressor-driven, and reciprocal models, in which
both aggression and victimization mutually influence each other, over five time
points. The researchers found that the reciprocal model was the best fitting of the
three, indicating that there is a cyclical escalation between victimization and
aggression. However, the study, which collected data every six months across 5-time
points, only found the reciprocal model to be significant at time point four and five.
For the first four time points, only the aggressor-drive model was found to be
significant. Therefore, the aggressor-driven model may be less relevant for younger
students in China.

The Importance of Investigating Protective Factors

While peer victimization has been associated with various negative
developmental outcomes including psychological maladjustment, individuals who
experience early peer victimization are not destined to demonstrate the same
symptoms, breadth or intensity of maladjustment (McDougall & Vaillancourt, 2015).
In order to better understand the individual differences in outcomes, it is essential to

explore the risk and protective factors that buffer relations between peer victimization and aggression. However, there is a dearth of longitudinal studies in this category exploring the risk and protective factors underlying the relationships between peer victimization and later psychological and behavioral maladjustment (Ttofi, Bowes, Farrington, & Lösel, 2014).

School Climate

While school climate has been defined in various ways, researchers agree that a positive school climate includes "factors that serve as conditions for learning and that support physical and emotional safety, connection and support, and engagement" (U.S. Department of Education, Office of Safe and Healthy Students, p.1). Elements that contribute to a school's climate include the relationships between teachers and students, the fairness of school rules, clarity of expectations, school safety, respect for diversity, and school engagement (Bear, Gaskins, Blank, & Chen, 2011). Based on studies conducted in the United States and Canada, a positive school climate has been found to predict higher academic achievement (Wang et al., 2014; Bear et al., 2018), lower rates of suspension (Bear et al., 2018), better mental health outcomes (Leadbeater et al., 2015), and lower rates of bullying victimization (Espelage, Polanin, & Low, 2014).

Studies of school climate have largely been conducted in the U.S., with very few studies being conducted in non-Western countries (Bear et al., 2018; Yang et al. 2013; Jia et al, 2009). Han, Zhang, & Zhang (2017) found that positive teacher relations, one aspect of school climate, protected against peer victimization in Chinese schools. Furthermore, Wang et al. (2018) found that positive school climate

longitudinally predicts better mental health, less internalizing and less peer victimization. Additionally, Bao, Li, Zhang, & Wang (2015) found that lower perceived school climate-related to higher rates of delinquency for adolescents.

School Climate as a Moderator of Peer Victimization and Later Aggression

Given the previous literature, I will be examining the role of school climate as a moderator only for the longitudinal relationship between peer victimization and later aggression. Based on Bronfenbrenner's PPCT theory (Bronfenbrenner & Morris, 2006), school climate is a contextual factor that influences both the individual and proximal processes occurring within the micro-system of the school. Therefore, school climate may serve as an effective buffering factor, given that a positive school climate is an indicator of a larger, more supportive environment. A negative school climate may also appear to promote a "culture or climate of bullying" in which students perceive and share the belief that the school is tolerant or supportive of bullying (Bradshaw & Johnson, 2011). This is related to social disorganization theory (Sampson & Groves, 1989) or the theory that disorganized school environments have higher rates of bullying and peer victimization. Therefore, students identify these schools as less safe, less supervised, and less supportive, which could contribute to student retaliation and resistance to reporting bullying incidents to adults. This process could contribute to increases in aggression following victimization, as students believe that they must fight back or become aggressive themselves in order to reduce future peer victimization (Bradshaw & Johnson, 2011). A positive school climate, however; promotes physical and emotional safety as well as positive relationships with school staff. Therefore, students may feel that have other options,

such as seeking help from teachers, rather than resorting to retaliation when peer victimized.

Another theory that explains the relationship between peer victimization and aggression is similar to the concept of reactive aggression (Dodge, 1991). Research has shown that children who experience victimization and peer rejection are more likely to develop a hostile attribution bias (Crick & Dodge, 1994) that may make them more likely to aggress (Lee & Hoaken, 2007). However, perceiving a positive school climate, and therefore perceiving your environment as safe, fair, and supportive, could help to mitigate this effect.

Research conducted in Western countries has established that a positive school climate is associated with less peer victimization (Waasdorp, Pas, O'Brennan, & Bradshaw, 2011) as well as predictive of decreases in victimization over time (Leadbeater et al., 2015; Turner et al., 2014). Moreover, a study of elementary school students found that children predict how a teacher might react to bullying and use the information to decide how likely a teacher is to help them, influencing their likelihood of reporting (Cortes & Kochenderfer-Ladd, 2014). Maintaining a positive classroom and school environment, therefore; is an important factor in maintaining student safety and ensuring trust between students and teachers (Espelage, Polanin, & Low, 2014).

Previous research conducted in the U.S. has found that a positive school climate is protective against later behavioral problems (Wang & Dishion, 2012) and declines in perceived school climate over time are associated with increases in psychological and behavioral difficulties (Way, Reddy, & Rhodes, 2007). However,

only one known study has investigated relations between peer victimization, aggressive behavior, and any school climate factor in Chinese schools. Lam et al. (2018) found that teacher support suppressed the reciprocal relations between peer victimization and aggression for Chinese adolescents. This indicates that student-teacher relationships play a particularly important role as a protective factor among adolescents in China. However, no study to date has examined a composite variable of school climate as a moderator for the relations between peer victimization and aggression among elementary school students in China.

Gender Differences

Early research on perpetrators and victims of peer victimization in schools was typically conducted with boys (Olweus, 2001). However, research has shown differences in prevalence rates of peer victimization based on gender, with boys more likely to experience bullying in Chinese studies (Han, Zhang & Zhang, 2017; Wu et al., 2015). Additionally, differences in outcomes following peer victimization have been found to differ by gender. According to some studies, boys are more likely to experience externalizing difficulties following peer victimization (Niemelä et al., 2011), while girls are more likely to experience internalizing problems (Luk et al., 2010). However, Arsenault et al. (2006), in their longitudinal twin study conducted in early childhood, found that girls who became pure victims (those who were victims but did not victimize others) had significantly more pre-existing externalizing problems compared to controls, but boys who became pure victims did not. Furthermore, girls who were pure victims later developed significantly more externalizing problems than control subjects, while male pure victims developed them

at a rate similar to controls. Moreover, Pouwels & Cilessen (2012) found that early peer victimization predicted later aggression for girls, but not for boys, in a low-income, urban sample of elementary school children.

Research suggests that girls and boys may view school environments differently (Way, Reddy, & Rhodes, 2007). Furthermore, some studies have found differences in gender trajectories of peer victimization and aggression in samples from the U.S. and China (Wang et al., 2015; Ostrov, 2010), but others have found no differences (Lam et al., 2018). Given these variations, it is necessary to separate the longitudinal trajectories by gender in order to explicate potential differences.

Hypotheses

This study examined relationships between Chinese elementary school students' experiences of peer victimization, aggressive behavior, and perceived school climate over a six-month period. This study endeavored to answer 5 research questions: (a) Does positive school climate at time 1 predict less peer victimization and less aggression at time 2? (b) Does peer victimization at time 1 predict aggression at time 2 when controlling for aggression at time 1? (c) Does aggression at time 1 significantly predict peer victimization at time 2 when controlling for peer victimization at time 1? (d) Does positive perceived school climate moderate the relationship between peer victimization at time 1 and aggression at time 2? (e) Do these relationships differ by gender?

Based on my previous review of the research, hypotheses were as follows: (a) positive school climate at time 1 will significantly predict lower peer victimization and lower aggression at time 2; (b) peer victimization at time 1 will significantly

20

predict aggression at time 2; (c) aggression at time 1 will not significantly predict

peer victimization at time 2; (d) school climate will be a significant moderator

between peer victimization at time 1 and aggression at time 2; (e) gender may

moderate these relationships, but due to limited literature, I did not have a specific

hypothesis about gender.

Chapter 3: Methods

Design

This study is a quantitative, longitudinal design with data collected from Chinese elementary school students. Data were collected from Chinese 3rd to 6th-grade students from five elementary schools at two time points, about six months apart. Surveys were administered in two waves: first in November of 2017, and the second collection in the May of 2018, within the same school year. All collected measures were student self-report. Measures included Chinese versions of the Delaware Bullying Victimization Scale-Student-Chinese version (DBVS-S; Bear et al., 2016; Xie et al., 2016a), a perceived peer victimization scale, selected items from the Me and My School Questionnaire (Deighton et al., 2013) measuring aggression, and the Delaware School Climate Survey-Student-Chinese version (Bear, Gaskins, Blank, & Chen, 2011; Xie et al., 2016b), a scale measuring perceived school climate. Demographic variables such as age, grade level, and gender were collected by student self-report.

Participants

The study participants were 800 3rd to 6th-grade students from five elementary schools in the Zhejiang and Sichuan provinces of China. Only students who completed the survey at both time points and who completed the entire survey without exiting were included in the analysis. While there was some missing data in the sample, only approximately 1% of the data was missing and mean scores were used in place of missing values in these cases. The sample was 56% male (*N*= 448

boys). Participants' ages range from 7 years old to 13 years old (M_{age}= 9.87 years, SD= 1.15 years).

Procedures

The Institutional Review Board initially approved the data collection project. Principals from the five elementary schools in the Zhejiang and Sichuan provinces agreed to participate in the project. Parents in these schools were notified of the study and given the option to withdraw their children from participation. No parents opted their children out.

Students completed Chinese versions of all self-report measures. These measures were completed in their schools' computer lab, and data was de-identified. The students took the surveys online in 20-30 minutes in their school's computer lab. School staff used a prepared script to explain to students that their responses were confidential and that they were able to withdrawal by exiting from the online survey at any time. Staff urged students to respond truthfully to the survey items and that there were no correct or incorrect answers. Students indicated their assent to participate by signing an online assent form before beginning the survey.

Measures

Demographics. The study demographics included participant's ages, gender, and grade level.

Aggression. Self-reported aggression was measured at time 1 and time 2 using 5 items from the Me and My School Questionnaire (Deighton et al., 2013), a screening measure of emotional and behavioral difficulties. The five items used in the study were "I get very angry", "I lose my temper", "I do things to hurt people", "I hit

others when I am angry" and "I break things on purpose." Students indicated their response by selecting "Always, Sometimes, or "Never." The measure was translated into Chinese and back-translated into English by two bilingual school psychologists, who then sent to a third psychologist to review for readability and clarity (Wang et al., 2018). This procedure establishes the validity of the scale for use with this population. Previous studies have found good reliability for the behavioral difficulties measure on the scale, with a Cronbach's alpha of .77 (Patalay et al., 2014).

Peer Victimization. Participants' perceived peer victimization was measured using the Delaware Bullying Victimization Scale-Student-Chinese version (DBVS-S; Bear et al., 2016; Xie et al., 2016a) at time 1 and time 2. The 12-item scale consists of items measuring physical victimization (e.g. "I was pushed or shoved on purpose"), verbal victimization (e.g. "A student said mean things to me"), and relational victimization (e.g. "A student told others not to like me"). Students recorded the frequency of their perceived victimization by peers during the current school year by indicating their answers on a six-point rating scale ranging from 1 (never), 2 (less than once a month), 3 (once a month or more), 4 (once a week), 5 (several times a week), to 6 (every day). The Chinese version of the DBVS-S demonstrated high internal consistency, with Cronbach's alpha ranging from 0.70 to 0.82, and validity (Xie et al., 2016a).

School Climate. Participants' perception of school climate at time 1 was measured using the Delaware School Climate Survey-Student-Chinese version (Bear, Gaskins, Blank, & Chen, 2011; Xie et al., 2016b). Several recent studies have used the Chinese and English versions of the scale that have been used to compare results

between Chinese and U.S. students (Yang et al., 2013; Bear et al., 2018). The 21-item scale includes subscales measuring Teacher-Student Relationships (e.g. 'I like my teachers', four items), Fairness of Rules (e.g. 'School rules are fair', four items), Respect for Diversity (e.g., 'Students respect others who are different', three items), Clarity of Expectations (e.g. 'Students know what the rules are', four items), School-wide Engagement (e.g. 'Most students try their best', three items), and School Safety (e.g. 'I feel safe in this school', three items). Students responded to items on a four-point rating scale (1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree). The Chinese version has shown high reliability (Cronbach's alpha= 0.80) and validity (Xie et al., 2016b).

Analyses

The data were analyzed using the Statistical Package for the Social Sciences (SPSS; SPSS Inc., 2016). First, descriptive statistics were evaluated, including means, ranges, and standard deviations of all studied variables to determine the rates of peer victimization and aggression. Second, separate regression analyses were run to determine if the school climate at time 1 significantly predicts peer victimization and aggression at time 2. Third, two regression analyses were run to determine the longitudinal relationships between aggression and peer victimization in this population: (a) a regression analysis to determine if aggression at time 1 significantly predicts peer victimization at time 2, when controlling for peer victimization at time 1, (b) a regression analysis to determine if peer victimization at time 1 predicts aggression at time 2 when controlling for aggression at time 1.

Following analysis of the main effects, I ran an additional regression analysis to examine the moderation effect of school climate at time 1. The school climate subscales were combined into one composite school climate total score and included in the moderation analyses. Before calculating the interaction term, I mean-centered the independent variables to reduce collinearity. For this analysis, if the interaction is significant, it suggests there is a significant moderation effect. Following the two-way interaction, I ran an additional regression investigating school climate as the moderator, but as a three-way interaction with gender added into the model to account for potential gender differences.

Chapter 4: Results

The results below are organized according to the 5 research questions addressed in this thesis: (1) Does positive school climate at time 1 predict less peer victimization and less aggression at time 2? (2) Does peer victimization at time 1 predict aggression at time 2 when controlling for aggression at time 1? (3) Does aggression at time 1 significantly predict peer victimization at time 2 when controlling for peer victimization at time 1? (4) Does a positive perceived school climate moderate the relationship between peer victimization at time 1 and aggression at time 2? and (4) Do these relationships differ by gender?

Descriptive Statistics

The study participants were 800 3rd to 6th-grade students from five elementary schools in the Zhejiang and Sichuan provinces of China in urban and suburban areas. The sample was 56% male ($N = 448$ boys). Participants' ages range from 7 years-old to 13 years-old ($M_{age}= 9.87$ years, $SD = 1.15$ years). In the sample, 34.13% ($N=273$) of participants at time 1 and 26.25% ($N=210$) of participants at time 2 reported experiencing at least one type of peer victimization, at least once a month. These prevalence rates are similar to those found in Chinese studies, in which rates of childhood peer victimization have ranged from 25-44% (Hesketh et al., 2011; Cheng et al., 2010).

Repeated measures t-tests were conducted to test for significant differences in victimization and aggression over both time points. Within the entire sample, peer victimization did not differ significantly between time 1 and time 2 based on an alpha level of 0.05, $t(800) = 0.324$, $p = .746$ (two-tailed). Therefore, students overall did

not report significantly different levels of victimization between times 1 and 2. However, differences in aggression at time 1 (*M*= 1.36, *SD* = .327) and time 2 (*M*= 1, *SD* = .327) were also compared using a repeated measures *t*-test, that was found to be statistically significant, *t*(800) = 3.315, *p* = .001 (two-tailed). This result suggests that, overall, reported aggression did significantly increase between time 1 and time 2.

Additionally, differences in school climate by school rating were analyzed using a one-way ANOVA. There was found to be a statistically significant difference found between school mean ratings of school climate (*F*(4, 782) = 5.703, *p* < .001) Ratings of school climate, separated by school, are reported in Table 2.

An independent-samples *t*-test was conducted to test for gender differences in mean ratings of peer victimization, aggression, and school climate ratings. No significant differences were found between boys and girls on ratings of school climate, or frequency of peer victimization experiences for either time 1 or time 2. There were significant differences between reported aggressive behavior at time 1 (*M* = 1.387, *SD* = 0.35); with boys reporting significantly higher levels of aggression *t*(800) = 2.42, *p* < .05. Aggression at time 2 (*M* = 1.83, *SD* = .98), however; did not differ significantly by gender (*p* = .05).

Intercorrelations

Correlations were examined between all of the variables of interest in the total sample, including school climate time 1, aggression at both time points, and peer victimization at both time points. A correlation matrix for the observed variables of interest is displayed in Table 4.

Question 1: *Does a positive school climate at time 1 predict less peer victimization and less aggression at time 2?*

Analyses suggested that the data met regression assumptions of homoscedasticity, linearity, and normality. To check for outliers in the data, Mahalanobis Distance, Leverage and Cook's Distance values were calculated for each participant and compared using established cut off scores. From this process, there were found to be 14 outliers of the 800 participants. These outliers were not excluded from the dataset, as students self-reporting statistically higher scores of aggression or peer victimization are important data points to understand the mechanisms behind these behaviors over time.

Two linear regression analyses were run to determine the effect of school climate at time 1 on peer victimization and aggression at time 2. In the analyses, time 1 dependent variables (peer victimization and aggression) were controlled for. First, school climate time 1 and aggression time 1 were regressed on aggression time 2, and the results indicated that positive school climate significantly predicts lower aggression six months later ($R^2 = .08$, $F(2, 787) = 34.39$, $p < .001$). The unstandardized regression coefficient (β) was -.007 ($t(800) = -3.51$, $p < .001$).

A linear regression analysis was conducted regressing time 1 peer victimization and time 1 school climate on peer victimization at time 2 and was found to be significant ($R^2 = .387$, $F(2, 800) = 64.83$, $p < .001$). When controlling for peer victimization at time 1, positive school climate was a significant predictor of decreased bullying victimization at time 2 ($\beta = -.011$, $t(800) = -2.12$, $p < .05$). These

results indicate that when students perceived a positive school climate, they engage in less aggression and also experience less victimization over time.

Question 2: *Does peer victimization at time 1 predict aggression at time 2 when controlling for aggression at time 1?*

A linear regression analysis was conducted to determine the longitudinal impact of being victimized by peers on the development of aggression six months later while controlling for aggression at time 1. The analysis was found to be significant ($R^2 = .071$, $F(2, 800) = 30.65$, $p < .001$) and results indicated that higher bullying victimization at time one significantly predicted increased aggression six months later ($\beta = .035$, $t (800) = 2.34$, $p = .02$).

Question 3: *Does aggression at time 1 significantly predict peer victimization at time 2 when controlling for peer victimization at time 1?*

A linear regression analysis was conducted, regressing peer victimization at time 1 and aggression time 1 on peer victimization time 2. An initial regression analysis was found to be statistically significant ($R^2 = .029$, $F(2, 800) = 24.05$, $p < .001$) and indicated that aggression at time 1 significantly predicted peer victimization at time 2 ($\beta = .509$, $t (800) = 4.92$, $p < .001$). However, when peer victimization at time 1 was added to the model, while the model remained significant ($R^2 = .131$, $F(2, 800) = 60.15$, $p < .001$) aggression at time 1 became an insignificant predictor ($p = .629$).

Question 4: *Does a positive perceived school climate moderate the relationship between peer victimization at time 1 and aggression at time 2?*

Moderation analyses were conducted by creating an interaction term for school climate time 1 and peer victimization time 1. A significant interaction term

indicates that a moderation effect exists. School climate was examined as a moderator of the relation between peer victimization at time 1 and aggression at time 2. In order to test the moderation effect of perceived school climate, a linear regression analysis was conducted including an interaction term between time 1 victimization and time 1 school climate. Aggression time 1 was included in the model in order to control for previous levels of aggression. After adding the interaction term to the model, the model accounted for increased variance in later aggression (ΔR^2 = 0.006, ΔF(2, 800) = 19.08, p < .001) and the interaction effect was found to be significant (β = -.004, t (800)= -2.16, p = .031). Thus, perceived school climate at time 1 is a significant moderator of the relation between peer victimization at time 1 and aggression at time 2 (see Table 6). The interaction also remained significant when controlling for student age (β = -.004, t (800) = -2.09, p = .037).

Simple slope analysis was used to further explore the nature of the significant interaction between peer victimization and school climate on later aggression. It was found that when school climate is high (1 *SD* above the mean), the relationship between victimization and later aggression becomes non-significant (p = .59). However, when school climate is low (1 *SD* below the mean), the relationship between victimization and later aggression is statistically significant (p = .025). For a visual depiction of the significant interaction between school climate and victimization and later aggression, see Figure 3. Based on these results, students' perceived positive school climate buffers the effect of bullying victimization on later aggression.

Question 5: ***How does gender impact these relationships?***

Finally, a three-way interaction was run to determine if the moderation effect of school climate on the significant relationship between peer victimization time 1 and aggression time 2 differed by gender. The three-way interaction between victimization time 1, aggression time 2, and gender was not found to be significant (β = -.051, t (800)= -0.69, p = .489). This result indicates that gender does not significantly impact the moderation effect of school climate on the relation between victimization time 1 and aggression time 2.

Chapter 5: Discussion

Results and Their Implications

Positive School Climate Predicts Lower Victimization and Aggression. As hypothesized, a more positive school climate predicted lower peer victimization and lower levels of aggression 6 months later. This finding is consistent with studies conducted in both Western countries (Wang & Dishion, 2012; Waasdorp, Pas, O'Brennan, & Bradshaw, 2011; Way, Reddy, & Rhodes, 2007) and China (Han, Zhang, & Zhang, 2017). Western studies have found that a positive school climate is predictive of less peer victimization, while a recent Chinese study found that a positive school climate was negatively correlated with peer victimization (Han, Zhang, and Zhang, 2017). Furthermore, Wang et al. (2018) found that a positive school climate predicted both better mental health and less peer victimization over time in Chinese elementary school students.

A positive perceived school climate has been found to be a protective factor against both internalizing and externalizing disorders in Western (Kuperminc et al., 2001; Wang & Dishion, 2012) and Chinese samples (Wang et al., 2018). Moreover, positive school climate has been found to be negatively associated with delinquency among Chinese adolescents (Bao, Li, Zhang, & Wang, 2012). However, no current studies have examined the role of school climate in protecting against externalizing behaviors at the elementary level in China. This study reaffirms that a positive school climate is protective against both peer victimization and negative mental health outcomes, and adds to the literature that a positive perceived school climate is protective against aggressive behaviors in elementary school students.

33

Peer Victimization Predicts Later Aggression. As hypothesized, peer victimization at time 1 significantly predicted aggression at time 2, even after controlling for aggression at time 1 in the model. This finding aligns with research conducted in Western countries and China has demonstrated that peer victimization in youth positively predicts mental health difficulties, including later development of aggressive behaviors (Arsenault et al., 2006; Averdijk et al., 2016; Lam et al, 2018; Wang et al., 2014; Reijntjes et al., 2011). This result further affirms that students who experience bullying may become increasingly aggressive in reaction. This result could be related to social learning theory (Bandura, 1978), wherein exposure to violence, such as bullying, influences a student's beliefs about the acceptability of aggressive retaliation (Bradshaw & Garbarino, 2004) or increases in stress that precipitates mental health difficulties (i.e. the stress diathesis model proposed by Swearer & Hymel (2015)). These outcomes may occur because the social environment makes aggression adaptive and desirable, and students feel a lack of control or support within their social sphere. In fact, research has shown that school environments can serve to perpetuate aggression (Espelage, Low, & Jimerson, 2014), and passive teacher attitudes towards bullying and lack of intervention first reinforce bullying behaviors and lead to mistrust between students and school staff. This trajectory could lead to increased mistrust in school systems and a perceived need for the student to defend themselves against bullying by becoming aggressive. This is further supported by research that shows that students who perceive a positive classroom climate are more willing to seek help from their teachers for peer victimization (Cortes & Kochenderfer-Ladd, 2014).

This significant relationship is particularly troubling, given that aggression predicts peer rejection (Tseng et al., 2013), and this process may perpetuate a transactional developmental process of rejection and aggression. According to this transactional model (Sameroff & MacKenzie, 2003), as children interact with their environment over time, aggressive children may elicit negative responses from peers and adults, such as rejection and avoidance, that may reinforce and sustain maladaptive behavioral patterns. Additionally, negative peer experiences as the result of aggressive behavior may preclude children from important developmental experiences with peers, such as learning social skills and gaining important social knowledge (Parker et al., 2006). In China, the relationship between peer victimization and externalizing could be particularly problematic because of the increased cultural emphasis on maintaining social harmony and self-regulation (Jia et al., 2009), leading to more negative social evaluations for children who display behavioral problems by adults and peers (Chen, 2010).

Aggression as a Predictor of Later Victimization. Aggression at time 1 was not a significant predictor of peer victimization six months later when controlling for peer victimization at time 1. This is in line with the initial hypothesis and aligns with previous research conducted in China which indicates that this direction (i.e. aggression leading to peer victimization) may not be applicable to elementary school children (Lam et al., 2018; Wang et al., 2014). While this finding contrasts with some studies conducted in Western countries which have shown that aggressive children are more likely to be bullied (Eastman et al., 2018; Cooley, Fite, & Pederson, 2018;

Cooley & Fite, 2016), this finding may be based on the cultural context of China as it related to aggression and bullying.

This finding is in line with other Chinese studies that have found that while peer victimization predicts aggression in Chinese elementary school samples (Wang et al., 2014), aggression does not longitudinally predict peer victimization until students are in junior high (Lam et al., 2018). Furthermore, aggression is considered highly socially unacceptable in China (Chen & French, 2008), and research has shown that physical aggression is longitudinally related to peer rejection, lower popularity, and less peer acceptance in Taiwanese elementary school students (Tseng et al., 2013). While these concepts are related, it is possible that rather than victimizing aggressive peers other students simply reject them.

On the other hand, another longitudinal study, conducted by Wang et al. (2014) followed children in Hong Kong from 3rd or 4th grade to 7th and 8th grade to assess the relationship between peer victimization and aggression. The resulting study determined that peer victimization significantly predicted later aggression while controlling for earlier aggression. However, in contrast to other studies showing a bidirectional relationship between victimization and later externalizing (Lam et al., 2018; Reijntes et al., 2011), this study did not find a significant relationship between early aggression and later victimization. The researchers posit that although aggression is considered highly socially unacceptable in Chinese culture (Chen & French, 2008), these children may be more likely to be avoided rather than confronted by classmates. Furthermore, there is research using the same Hong Kong-based sample that shows aggression is associated with higher popularity for 3rd and 4th-

grade students (Schwartz et al., 2009). While the results of this study add to the literature on aggression and later bullying, it is beyond the scope of this study to determine the mechanisms for why this relationship is not significant for this particular age group.

School Climate as a Moderator. The results of this study support that increases in aggression following peer victimization are moderated by a positive perceived school climate. Furthermore, simple slope analysis revealed that when perceived school climate is low and peer victimization is high, later aggression is greatly increased. Conversely, when school climate is perceived more positively and victimization is high, later aggression is lower. This finding is congruent with one other study conducted in China (Lam et al., 2018), which found that teacher support (one aspect of school climate) buffers the longitudinal relationship between peer victimization and later aggression. The findings of this study expand on this to incorporate other aspects of school climate, such as perceived fairness of rules, school engagement, and respect for student differences. Furthermore, no other studies have investigated a school climate composite variable as a moderator between time 1 peer victimization and time 2 aggression in China, and no other studies have examined these connections among Chinese elementary school students, an age where students may be most vulnerable to the negative impacts of peer victimization (Han et al., 2017).

According to theories of school climate, a supportive school environment includes protective student-teacher relationships, engagement in school, feeling safe and non-threatened in school, feeling that rules are fair and that students are treated

with respect for their individual differences (Thapa et al., 2013; Bear et al., 2016). These factors contribute to positive mental health outcomes for students including the prevention of internalizing and externalizing problems (Wang et al., 2018; Thapa et al., 2013). In accordance with Bronfenbrenner and Morris's theory (2005), the effects associated with a positive school climate and the factors that impact perceptions of school climate are inter-connected and based in a dynamic ecological system. In fact, studies have found that a positive school climate is associated with many beneficial school-wide outcomes, such as better academics and social interactions, yet these factors also impact each student's perceptions of school climate (Thapa et al., 2013). These factors may more effectively scaffold and protect vulnerable students who may already be experiencing peer victimization against further victimization and maladjustment.

This study explored aspects of an individual child's social environment (i.e. their school climate) that may protect against detrimental outcomes and buffer processes already unfolding when a child experiences peer victimization. School climate may be protective, because a positive school climate espouses bullying and aggression as unacceptable behaviors, and provides an environment of preventing bullying, sends negative messages about bullying and aggressive behaviors, and enables support for students experiencing bullying. Furthermore, researchers have theorized that school climate could be a moderator between victimization and later mental health difficulties because 'the presence, nature, and severity of adjustment difficulties evidenced by victims of bullying vary depending on factors related to the classroom and school contexts' (Yang, Sharkey, Reed, Chen, & Dowdy, 2018, p.55).

In fact, bystanders of bullying have also been found to experience adverse mental health consequences and lack of engagement in addition to those who are victimized by bullies or are bullies themselves (Rivers, Poteat, Noret, & Ashurst, 2009), indicating that a bullying-tolerant environment impacts all students negatively.

As it relates to reactive aggression and hostile attribution, this finding lends credence to the idea that a positive school climate could mitigate the effect of hostile attribution bias, in that students already perceive their environment as safe and fair despite being victimized. This has implications for interventions that promote a positive perceived school climate for students, and more work should be done to determine how students come to perceive positive school environments despite victimization. Furthermore, a positive perceived school climate has been shown to lead to decreased peer victimization over time (Turner et al., 2014), and these decreases may also precipitate less aggression over time.

Gender

School climate's moderation of the relationship between time 1 victimization and time 2 aggression was not found to differ by gender. This finding is unsurprising given the previous results that boys and girls did not significantly differ in levels of reported peer victimization or school climate. However, they did differ in levels of aggression at time 1 but did not significantly differ in aggression levels at time 2. These findings are interesting given that other studies have found that boys may be more likely than girls to respond to peer victimization with aggressive behaviors (Aceves et al., 2010) and that lower perceptions of school safety may contribute to boys' use of aggression following victimization (Bradshaw, Sawyer, & O'Brennan,

2009). However, there have been mixed findings regarding gender and the impact of school climate, whereby some studies have found that girls may be more impacted by a positive school climate than boys; while other studies have not found this result (Bradshaw, Sawyer, & O'Brennan, 2009; Williford, Fite, Isen, & Poquiz, 2019).

Future researchers should examine different types of victimization (i.e. relational, physical, or verbal) and different types of aggression (i.e. relational or physical), and how they interact with gender in these relationships. Given that gender has been found to moderate relations between victimization and school attachment and help-seeking behaviors (Williford, Fite, Isen, & Poquiz, 2019), gender as it relates to school climate, victimization, and aggression should be further investigated.

Implications

While peer victimization has been associated with various negative developmental outcomes including psychological maladjustment, individuals who experience early peer victimization are not destined to demonstrate the same symptoms, breadth or intensity of maladjustment, and in fact could display a diverse array of positive or negative outcomes (McDougall & Vaillancourt, 2015). In order to better understand the individual differences in outcomes, it is essential to explore the risk and protective factors that may impact the relationship between early peer victimization and later externalizing problems. Based on the results of this study, a positive perceived school climate is not only protective against later peer victimization and aggression, but it is also one factor that buffers the relationship between peer victimization and later maladjustment.

School climate research has historically been paired with educational policy and school efforts to improve student outcomes and prevent maladjustment (Thapa et al., 2013; Cohen, McCabe, Michelli, & Pickeral, 2009). Given the specific focus of this study on peer victimization, aggression, and perceived school climate, suggestions are provided targeting the factors that contribute to a positive school climate for individual students. First, teacher-student relationships should be fostered, particularly with students who may be experiencing peer victimization (Thapa et al., 2013). Given that teachers may underestimate the prevalence of bullying at their school, it is important that teachers work to promote a classroom climate of respect and support, and one in which students feel comfortable seeking help. Furthermore, teachers can aid in modeling respect for diversity, which can aid in promoting a positive environment where students can feel included by their peers (Cohen et al., 2009).

Given that aggressive behavior following peer victimization may arise from negative social perceptions, it is additionally important for schools to provide students with opportunities for positive peer interactions, particularly if they are already experiencing victimization. Re-engaging these students could entail pairing them with positive peer mentors or providing them with group counseling services. Finally, given that students may feel unsafe following experiences of peer victimization, which could contribute to retaliation via aggression, schools should make an effort to enforce rules consistently, and through the structure and support of caring adults (Thapa et al., 2013).

Study Limitations and Future Directions

      This study had several limitations related to its measures and design. First, all survey measures were self-report. Research has shown that children may be less accurate reporters of their own behavioral problems, as opposed to emotional or internalizing problems (Deighton et al., 2013). Therefore, students may not accurately report their own aggression, or may not want to report levels of aggression due to the perception of punishment, given the school setting. Future studies should make use of multiple measures of behavior (parent, teacher, and self-report) in order to obtain more accurate measures of aggression. Furthermore, because the survey was administered by teachers in a school setting, students may have felt the need to self-censor for questions related to both their own behavior and perceptions of their school and teachers. Furthermore, mean scores of school climate across schools were quite high. However, previous studies using the same scale with Chinese students have also found reported school climate to be rated highly with small variance among scores in general (Bear et al., 2018). While a script was provided explaining that results were anonymous and that students could quit the survey at any time, the use of school computers and the classroom environment for the survey may have caused students to censor their answers.

      This study used a school climate composite variable to test for moderation between time 1 peer victimization and time 2 aggression. This is the first study to test this moderation using a composite variable of school climate rather than elements of school climate such as teacher-student connectedness in China (Lam et al., 2018). However, future studies could also examine more individual elements of school

climate to determine those that can be most effectively targeted for intervention. Additionally, given that no studies were found testing this interaction in Western countries, school climate could be further investigated as a moderator in those contexts to determine if results generalize across cultures.

Other issues arose with the measurement of aggression in this study. First, although having an "immediate intent to harm" is an integral piece of the definition of aggression (Anderson & Bushman, 2002), the measures used for aggression do not necessarily measure this intent (Deighton et al., 2013). Additionally, some evidence suggests that aggression in children could naturally increase over time, although research conflicts on this matter. Maternal reports of physical aggression between the ages of 2 and 11 years suggest that aggressive behavior may actually decrease over time (Tremblay et al., 1996). However, the same study found that indirect aggressive behavior (i.e. relational aggression) increases during this time period. In the future, researchers should examine differences in types of aggression (e.g. physical, relational, and verbal) that develop following bullying victimization and whether trajectories differ based on the age of the sample.

Furthermore, the measure did not differentiate between reactive and proactive aggression in its measurement. Though, the item "I bully others" was taken out of the measure in order to remove the potential for capturing "bully-victim" behavior, and items such as "I hit out when I am angry" do capture reactive aggressive behaviors. Future research, therefore, should delve more deeply into the motivations behind aggressive behaviors. Similarly, no measure was used to test whether students developed a hostile attribution bias following victimization. Including measures

that elucidate these motivations could enhance future studies and produce a more coherent theory for school climate as an effective moderator between peer victimization and aggression.

Finally, only two time points, six months apart, were assessed for this study. While the longitudinal nature of the study is a strength, data collected at more time points would enhance the theoretical basis for the results and provide more information about the trajectory of bullying victimization and problematic behaviors. Moreover, Chinese studies have shown that, while aggression does not predict bullying victimization in elementary school students (Wang et al., 2014), this association does become significant as students reach junior high school (Lam et al., 2018). Therefore, future studies should follow students through multiple time points to determine if early aggression could potentially lead to later victimization, and what the trajectory for students who are bullied and then develop aggression may be. For instance, is the development of aggression following victimization protective for students, or do students continue to be bullied?

Future studies should also address individual differences in perceptions of school climate as compared to school-wide ratings of school climate. In this study, it was found that ratings of school climate differed significantly by school. Future research could address this variation to provide a better understanding of the mechanisms for how students begin to perceive school climate as more negative or more positive. Furthermore, how does it occur that those students who are bullied continue to perceive their school positively, and what are the processes by which this resilience emerges? By answering these questions, future research could produce

targeted prevention as well as intervention programs for both bullies and victims of bullying, in order to promote safer schools and better mental health outcomes among students.

Conclusions

This study examined the impact of bullying victimization on later aggressive behavior for elementary school students in China and examined the role of school climate. Peer victimization is a significant concern in schools around the world. Because victimized students are at risk for numerous negative outcomes, including the development of externalizing problems, it is important to identify factors that could be protective against these outcomes in the event of bullying. This study found that school climate is a significant moderator of the longitudinal relation between bullying victimization and the development of aggressive behaviors for Chinese elementary school students. These findings highlight perceived positive school climate as a protective factor against detrimental behavioral outcomes for victims of bullying. Furthermore, this research has implications for intervention with victimized students, as promoting a positive school climate can aid in the prevention of later mental health difficulties.

Appendices

Appendix A: Sample Demographics

Table 1

Sample Demographics

Demographic Variables	*N*	%
Child Sex		
Female	349	43.6
Male	448	56.0
Age		
7 years	15	1.9
8 years	99	12.4
9 years	171	21.4
10 years	269	33.6
11 years	188	23.5
12 years	49	6.1
Grade Level		
3rd	166	20.8
4th	182	22.8
5th	339	42.4
6th	101	12.6

Table 2

Descriptive Statistics by School

	Aggression T1		Aggression T2		Victimization T1		Victimization T2		School Climate T1	
School	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1	1.16	0.26	1.44	0.17	1.38	0.37	1.42	0.18	5.37	0.37
2	1.29	0.29	1.39	1.39	1.68	0.78	1.77	0.87	5.07	0.29
3	1.4	0.35	1.41	0.43	1.94	0.97	1.94	1.06	4.98	0.35
4	1.39	0.31	1.42	0.26	1.8	0.78	1.69	0.59	5.01	0.26
5	1.22	0.03	1.2	0.2	2.77	1.78	1.08	0	5.02	0.35

Table 3

Descriptive Statistics for Variables

	Mean	Std. Deviation	N
School Climate	5.02	.318	800
Bullying T1	1.83	.889	800
Bullying T2	1.82	.932	800
Aggression T1	1.36	.327	800
Aggression T2	1.41	.356	800

Appendix D: Correlations

Table 4

Intercorrelations

	School Climate T1	Victimization T1	Victimization T2	Aggression T2	Aggression T1
School Climate T1	1	-.351[**]	-.210[**]	-.196[**]	-.321[**]
Victimization T1	-.351[**]	1	.361[**]	.176[**]	.404[**]
Victimization T2	-.210[**]	.361[**]	1	.461[**]	.171[**]
Aggression T2	-.196[**]	.176[**]	.461[**]	1	.255[**]
Aggression T1	-.321[**]	.404[**]	.171[**]	.255[**]	1

Appendix E: Results of Regression Analyses

Table 5

Victimization T1 Predicting Externalizing T2

	Unstandardized β	Standard Error	*t*	*p*
Constant	1.019	.052	19.527	.000
Victimization T1	.035	.015	2.338	.020
Aggression T1	.239	.041	5.890	.000

Table 6

Aggression T2 Predicted by Victimization T1 and School Climate T1

	Unstandardized β	Standard Error	*t*	*p*
Constant	1.400	.013	111.248	.000
Victimization T1	.013	.016	.881	.418
Aggression T1	.219	.041	5.305	.000
School Climate T1	-.110	.042	-2.620	.009
Victimization T1 * School Climate T1	-.078	.036	-2.164	.031

Figure 1

Association between Victimization T1 and Aggression T2 for those High and Low in Perceived School Climate
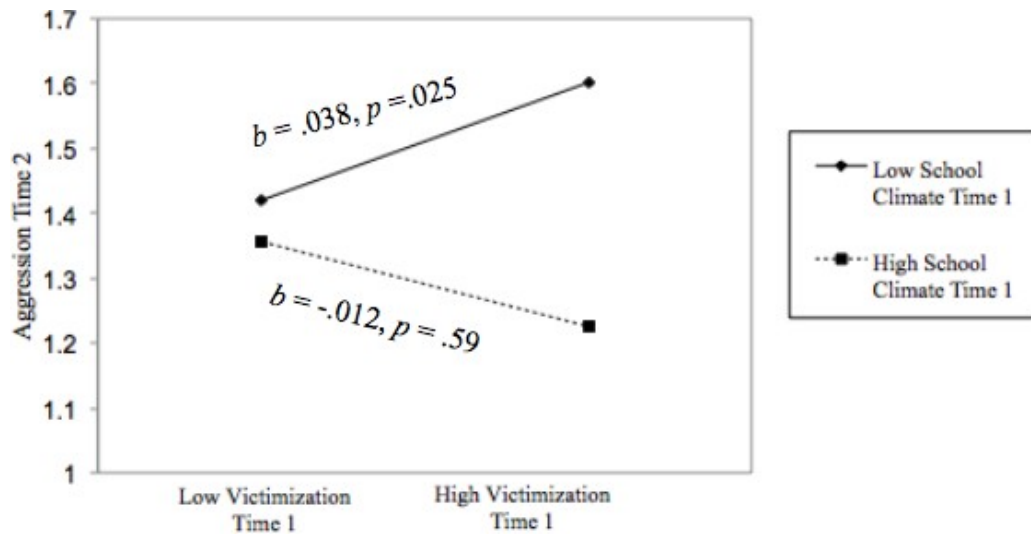
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