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SCHOOL LEVEL PREDICTORS OF BULLYING AMONG HIGH SCHOOL
STUDENTS

DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Education
at the University of Kentucky

By

M. Alison Boswell

Lexington, Kentucky

Director: Dr. Alicia Fedewa, Associate Professor of School Psychology

Lexington, Kentucky

2016

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ABSTRACT OF DISSERTATION

SCHOOL LEVEL PREDICTORS OF BULLYING AMONG HIGH SCHOOL STUDENTS

Bullying is a universal problem affecting the emotional, social, and physical wellbeing of school-age children worldwide. Individual level correlates of bullying have been well-documented; however, there is limited research identifying variables at the school level which contribute to bullying involvement, especially among high school students. In this dissertation, school characteristics associated with bullying were investigated using an ecological systems framework.

In the first paper, a comprehensive review of the bullying literature was conducted. Research in the following areas were summarized: definitions of bullying, measures of bullying, individual correlates, influences of cognitive development and social context across age groups, contextual variables (family, school, and community), evidence-based interventions, and bullying from a socio-ecological perspective.

In the second paper, research findings are presented for an original study investigating school level predictors of bullying involvement across Kentucky high schools. The study used aggregated data from a survey of 9th to 12th grade students in 26 high schools across the state, combined with existing school datasets, in order to examine: (1) the prevalence of bullies, victims, and bully-victims across Kentucky high schools and (2) school characteristics associated with elevated rates of bullying involvement. Results revealed important differences in school bullying incident reports and student reports of bullying experiences, as well as unique differences between school environments with high and low rates of bullying involvement. Overall, academic

performance and parent involvement were the strongest predictors of bullying involvement at the school level; however, the relationships between these variables and prevalence rates were not as expected. In several analyses, individual level findings from the bullying research did not translate to the school level as hypothesized.

Overall, these findings have important implications for researchers when using multilevel analyses in the school context, when investigating the impact of bullying interventions at the school level, and when investigating how the school environment contributes to bullying. Results also provide important information for schools developing or revising bullying data collection procedures.

KEYWORDS: Bullying Victimization, Bullying Perpetration, School Characteristics, High Schools

Mary Alison Boswell

Student's Signature

1/29/2016

Date

SCHOOL LEVEL PREDICTORS OF BULLYING AMONG HIGH SCHOOL
STUDENTS

By

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1/29/2016

This work is dedicated to all of the students who have experienced bullying and to all of the school staff and researchers dedicated to making a difference.

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Chapter 1: Introduction

Bullying has been identified as a collective problem affecting the emotional, social, and physical wellbeing of school-age children around the world. Students involved in bullying at school have consistently reported greater health problems, poorer social-emotional outcomes, and poorer school adjustment (Nansel, Craig, Overpeck, Saluja, & Ruan, 2004). Bullying in childhood and adolescence has been linked to psychiatric disorders, suicidality, and criminal offending later in life, even after controlling for major childhood risk factors (Copeland, Wolke, Angold, & Costello, 2013; Ttofi, Farrington, Lösel, & Loeber, 2011). At a systems level, bullying threatens school safety, damages school climate, and interferes with the learning environment for all students (Rossen & Cowan, 2012). Researchers have speculated that rates of bullying have not increased over the years; only attention to the problem has intensified (Swearer, Espelage, & Napolitano, 2009). Approximately 100 to 200 studies on bullying are published every year (Salmivalli & Peets, 2009).

The psychosocial correlates of bullying at the individual level have been well-documented (e.g., Arseneault, Bowes & Shakoor, 2010; Due et al., 2005; Fekkes, Pijpers, Fredriks, Vogels, & Verloove-Vanhorick, 2006; Hawker & Boulton, 2000). However, bullying is shaped by a complex array of factors determined by individual characteristics and nested environmental systems (Swearer, Espelage, Vaillancourt, & Hymel, 2010). This explains the new trend in bullying research toward a socio-ecological framework (e.g., Espelage & Swearer, 2003; Hong & Espelage, 2012; Lee, Cornell, Gregory, & Fan, 2011; Pozzoli, Gini, & Vieno, 2012). The approach that originates from ecological systems theory (Bronfenbrenner, 1979) takes into account the complex relationships

between the individual and his or her environment (i.e., family, peer group, school, community, and cultural context). Through a social-ecological lens, the problem of bullying lies within and between systems, not solely within the child.

Although research has been conducted on school violence and peer aggression within the school context, bullying is a unique phenomenon with its own function and unique set of risk and protective factors. As schools attempt to implement bullying policies and evidence-based prevention and intervention programs, along with a multitude of other initiatives for which they are accountable, it is essential for researchers to investigate what variables at the systems level might inform current efforts to address bullying.

Statement of the Problem

Individual level variables have a strong research foundation in the bullying literature; however our understanding of family, school, and community level variables is limited. Thus, to approach bullying from an ecological systems framework, it is necessary to identify significant factors at all levels. One fundamental level that has not been thoroughly investigated and has resulted in mixed findings is the school level. Green, Dunn, Johnson, and Molnar (2011) argued that “the lack of research on the characteristics of the school environment that influence exposure to bullying as well as the degree to which bullying varies across schools is particularly problematic” (p. 134). They attributed this concern to the number of schoolwide bullying prevention and intervention programs which target the school environment.

In the most recent systematic review of contextual-level factors associated with school bullying, Azeredo, Rinaldi, de Moraes, Levy, and Menezes (2015) found that

many contextual variables have only been investigated by one or two studies and that additional research must be conducted before strong conclusions can be determined. In addition, they found that only seven of 31 eligible studies were carried out in the United States. Furthermore, only one of the U.S. studies included students in Grades 9 to 12 and three included students in Grade 9. This illustrates a lack of research in the United States and at the high school level.

Based on prior studies, variables for further study were selected from four school level categories which emerged in the bullying research literature. First and foremost, due to inconsistent and limited findings, there continues to be a need for research examining sociodemographic variables. Second, social disorganization theory (Shaw & McKay, 1969) suggests that school level indicators of disorder negatively impact the learning environment and increase the risk for violence beyond individual-level risk factors (Bradshaw, Sawyer, & O'Brennan, 2009). Third, school climate, although an abstract concept with varying definitions, has some of the strongest research support as a contextual variable associated with bullying (Juvonen & Graham, 2014). For example, in a meta-analysis of 153 studies, Cook, Williams, Guerra, Kim, and Sadek (2010) found that school climate had one of the largest effect sizes for victimization. Last, some bullying research has begun to investigate the role of home-school connections (Huang, Hong, & Espelage, 2013; Ma, 2002) and availability of caring adults (Gregory et al., 2010) as protective factors.

Overall, the purpose of this study is to examine (1) the prevalence of bullying involvement across a sample of high schools and (2) how school level variables influence

bullying involvement at the school level. The following research questions were proposed:

Research question 1. What is the prevalence of bullies, victims, and bully-victims across Kentucky high schools? This descriptive information is necessary to determine the degree to which bullying varies across schools and to answer the following question.

Research question 2. What school characteristics are associated with elevated rates of self-reported bullying involvement?

Research question 3. Which of these school characteristics predict bullying involvement? Results from question 2 will be used to answer question 3.

Significance

Due to the resources required to conduct a large scale study across high schools statewide, most studies are isolated to one school or multiple schools within a district. Because data were obtained from a large-scale research study, it was possible to investigate 26 high schools across the state with student participants across all grade levels. Of similar importance, few studies have investigated the relationship between bullying prevalence rates and school characteristics (Goodenow, Szalacha, & Westheimer, 2006). A clearer understanding of school characteristics associated with bullying is necessary to (1) answer the call for a socio-ecological approach to understanding bullying; (2) to inform bullying policies and to develop, implement, and evaluate programs to reduce the prevalence of bullying; (3) to understand why some schools have a higher prevalence of bullying; (4) to understand how school characteristics may inhibit or reinforce bullying behaviors; and (5) to expand the research

literature on bullying among high school students, an age group that has not received the same attention as elementary and middle school students.

Organization

This dissertation takes the form of two manuscripts. Chapter 2 consists of the first manuscript, a comprehensive review of the bullying literature. This includes definitions of bullying, measures of bullying, individual correlates, influences of cognitive development and social context across age groups, contextual variables (i.e., family, school, and community), evidence-based interventions, and bullying from a socio-ecological perspective. Chapter 3 consists of the second manuscript, a research study supported by and developed from the literature review. The study manuscript is organized as follows: introduction (i.e., purpose of the study and research questions), method, results, and discussion including limitations, implications, and recommendations for future research. Chapter 4 provides a brief summary of both manuscripts.

Chapter 2: Literature Review

Historical Context of Bullying Research

The impetus for the modern study of bullying is commonly attributed to Dan Olweus' seminal Scandinavian-based research published in 1973 and later introduced to the United States as a book titled *Aggression in the Schools: Bullies and Whipping Boys* (Smith, 2004). However, the serious nature of bullying was not recognized outside of the research field until the early 1980s, when the Ministry of Education in Norway initiated a national anti-bullying campaign promoting bullying prevention programs in all schools. The campaign followed three adolescent suicides connected to severe cases of school bullying (Espelage & Swearer, 2003). From that point forward, research on bullying spread from Scandinavia to countries around the world (e.g., Australia: Rigby & Slee, 1993; Finland: Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996; Greece: Andreou, 2004; Japan: Kanetsuna, Smith, & Morita, 2006; Pakistan: Shujja & Atta, 2011; Singapore: Kwan & Skoric, 2013; Sweden: Nilsson, Gustafsson, & Svedin, 2012). In 2010, the *Handbook of Bullying in Schools: An International Perspective* was published, a testament to over 30 years of theoretical, empirical, and practical findings from leading researchers around the world.

Similar to the series of events in Norway, research on bullying in U.S. schools did not gain momentum until the mid-1990s when public concern was fueled by national media coverage of bullying. This included alarming reports that perpetrators of school shootings had been bullied by their peers. The spotlight on bullying led many states to enact anti-bullying laws and to consider implementation of bullying prevention programs (Limber & Small, 2003). The lag in U.S. attention to bullying is a major reason for the

lack of a U.S. presence in earlier bullying research and the need for more research on bullying among U.S. children and adolescents.

Despite a growing body of bullying research, prevalence estimations have been and continue to be challenging to determine due to variations in how bullying has been defined and measured over time. A frequently cited study has been that of Nansel et al. (2001), consisting of a nationally representative sample of U.S. students in Grades 6 to 10. Results showed that approximately 30% of students reported moderate to frequent involvement in bullying as either a bully (13%), victim (11%), or bully-victim (6%). In 2004, estimations of bullying involvement across 25 countries, ranged from 9% in Sweden to 54% in Lithuania (Nansel et al., 2004). The authors speculated that discrepancies in international prevalence rates could be attributed to sociocultural variables which differentially reinforce or inhibit bullying behaviors across countries. Cook, Williams, Guerra, and Kim (2010) conducted a cross-national meta-analysis to examine variability in prevalence rates for children and adolescents ages 3 to 18. Prevalence rates for the United States were higher in this study: bullies (17.9%), victims (21.5%), and bully-victims (7.7%). This may have been a result of having younger participants who tend to report higher rates or due to variations in methodology. Cook et al. found that prevalence rates across countries varied by the informant used (e.g., teacher or peer) and time referent period (e.g., past week or past year). Cook et al. concluded that more research is needed before variations in national prevalence rates can be attributed to differences in culture or in methodology.

Defining Bullying

Research Definitions

Defining bullying remains a complex task (Swearer et al., 2010). Discrepancies in terminology and operational definitions make it difficult to determine prevalence rates, develop measurement tools, interpret and compare findings, and evaluate program effectiveness. This is exacerbated by the multitude of disciplines, each with a unique set of terminology and theories, simultaneously researching the bullying phenomenon or similar constructs (e.g., peer victimization or peer aggression). Nonetheless, the original definition of bullying, introduced by Olweus (1978), included three defining characteristics which have been adopted by most researchers: intent to harm, repetition over time, and a power imbalance. Bullying can lead to both physical and emotional harm, and the imbalance of power, real or perceived, may consist of a difference in physical, social, and/or emotional power (Rose, Monda-Amaya, & Espelage, 2011). Olweus has also been credited for classifying bullying as a social phenomenon which occurs among children and adolescents “who encounter each other regularly” (Totura, Wienke, & MacKinnon-Lewis, 2011, p. 107). Olweus and Limber (2010) provided the following definition of bullying:

Aggressive behavior or intentional harm doing that is carried out repeatedly and over time in an interpersonal relationship characterized by an actual or perceived imbalance of power or strength. (p. 125)

Olweus (2010) contributed the inspiration for his work to Konrad Lorenz, an Austrian ethologist, who wrote about *mobbing* among birds and animals, a concept that was later applied by Swedish physician Heinemann to the collective aggression of children,

sometimes referred to as *mobs* (not restricted to children) in the social psychology literature. However, Olweus observed that mobbing, unlike bullying, focused on the group as opposed to the individuals involved, placed responsibility on the victim, and emphasized spontaneous situations versus a more organized form of aggression that occurs over time.

In general, bullying has been recognized as a subset of *aggression*, which is defined as “negative acts carried out intentionally to harm another” (Smith, Cowie, Olafsson, & Liefoghe 2002, p. 1120). More specifically, bullying has been described as a form of *peer aggression* (Harris, 2009). Under the umbrella of aggression, bullying has further been defined as a *proactive* (or instrumental) type of aggression, as opposed to *reactive* aggression (Dodge, 1991). Proactive aggression is goal-directed behavior, while reactive aggression has been described as a “response to a perceived threat or social provocation” (Salmivalli & Peets, 2009, p. 323). Bullying has typically been excluded as a reactive type of aggression because bullying is characterized by systematic/organized negative acts carried out over time versus a reaction of frustration or anger to an immediate threat or provocation (Espelage & Swearer, 2003; Salmivalli & Nieminen, 2002). Further, to imply that bullying is provoked could lead to blaming the victim.

Similar to aggression which captures the experience of the aggressor/perpetrator, *victimization* describes the experience of the victim. More specifically, *peer victimization* has been described as the experience of children and adolescents who are the target of aggressive behaviors of their peers, sometimes referred to as “being victimized” (Hawker & Boulton, 2000; Storch et al., 2012). Although peer victimization may be considered by some as the “logical flipside” of bullying perpetration, peer victimization is not strictly

defined by (a) repetition of occurrences or (b) an imbalance of power between those involved (Harris, 2009, p. 5; Salmivalli & Peets, 2009). In regards to typology, *aggressive* and *passive* have been used to describe two different types of victims (Schwartz, Dodge, Pettit, & Bates, 1997). Passive victims have been defined as submissive and nonaggressive targets; while aggressive victims have been defined as victims who react impulsively and without self-control when bullied (Vernberg & Biggs, 2010). Aggressive victims have been equated with *bully-victims* by some researchers (e.g., Salmivalli & Nieminen, 2002); however, Kochenderfer-Ladd and Ladd (2010) argued that bully-victims are a distinct group, who similar to bullies and unlike aggressive victims, use “proactive aggression to gain control, power, and tangible rewards from their victims” (p. 52). Kochenderfer-Ladd and Ladd provided examples of two young boys, both being physically and verbally bullied by their peers: one immediately fought back because he thought it was the only way to make the tormentors stop (i.e., an aggressive victim); and the other boy later found smaller peers to physically bully (i.e., a bully-victim) in order to “regain a sense of control” (p. 51).

Beyond the bully/victim dyad, researchers have begun to investigate the role of *bystanders*, any individual who observes (or hears about) a bullying interaction (Polanin, Espelage, & Pigott, 2012). Monks and Smith (2006) differentiated between *involved* (i.e., aggressor, victim, or defender) and *not involved* (i.e., bystander) roles; however, not all researchers strictly define bystanders as uninvolved participants. Researchers have further defined the participant roles of *assistant* (follower of the bully) and *reinforcer* (audience member who watches, laughs, or shouts; Sutton, Smith, & Swettenham, 1999). See Olweus and Limber (2010) for a visual depiction of the Bullying Circle.

Initial research focused on *physical* and *verbal* forms of bullying (e.g., pushing, hitting, threatening physical harm, or name-calling) which were more easily observed. However, researchers such as Björkqvist, Lagerspetz, and Kaukiainen (1992) extended the definition of bullying to include *indirect/covert* forms of aggression (e.g., spreading rumors, gossiping, and becoming friends with someone else as revenge). Björkqvist and colleagues defined indirect aggression as “a type of behaviour in which the perpetrator attempts to inflict pain in such a manner that he or she makes it seem as though there has been no intention to hurt at all” by means of “backbiting and manipulation of the social structure of the class” (p. 118). Espelage and Swearer (2003) explained that *direct/overt* forms of aggression involve “face-to-face confrontation,” while indirect/covert aggression involves use of a third-party (e.g., gossiping). Similarly, Crick and Grotpeter (1995) wrote about a *relational* form of victimization which children used to harm peers by “purposeful manipulation and damage of their peer relationships” (p. 711). Relational aggression differs from indirect/covert aggression in that it can also include overt forms of relational aggression (i.e., direct contact with the peer being targeted; Young, Boye, & Nelson, 2006). Likewise, *social aggression* has been defined as “actions directed at damaging another’s self-esteem, social status, or both, and includes behaviors such as facial expressions of disdain, cruel gossiping, and the manipulation of friendship patterns” (Galen & Underwood, 1997, p. 589). Social aggression, which has been less prevalent in the bullying literature, is similar to relational aggression with a greater focus on nonverbal behaviors (e.g., negative facial expressions; Young et al., 2006).

In addition, recent technological innovations have brought about new forms of bullying including internet harassment (Ybarra & Mitchell, 2004) and cyberbullying

(Kwan & Skoric, 2013), sometimes referred to as an *electronic* form of bullying which includes delivery of “harmful acts via electronic communication tools” (Salmivalli & Peets, 2009, p. 324). Examples would include text messaging, e-mails, instant messaging, and social networking such as Facebook and Twitter.

Some researchers have begun to explore the content or motivation for specific types of bullying, such as weight-based teasing (Eisenberg, Neumark-Sztainer, & Story, 2003), victimization of students with disabilities (Rose, Espelage, & Monda-Amaya, 2009), and homophobic bullying (Espelage, Aragon, Birkett, & Koenig, 2008; Fedewa & Ahn, 2011). These distinctions are important in understanding why different types of bullying occur, how experiences differ for victims, and how to appropriately intervene. For example, students with disabilities have been identified as a high-risk group; more specifically, this risk factor has been associated with elevated rates of bullying involvement which increase as does the restrictiveness of educational placement (e.g., partial-inclusion to self-contained; Rose, Espelage, & Monda-Amaya, 2009). Rose and colleagues (2009) speculated that more inclusive educational practices, when implemented effectively, could facilitate positive social interactions that serve as a protective factor for both perpetration and victimization. In regards to homophobic bullying, examples of appropriate interventions might include establishment of gay-straight alliances (GSAs) and diversity awareness training for students and staff.

At the same time, it is important to note that concerns have been raised about labeling some behaviors as bullying (e.g., sexual harassment) which also fall under the purview of federal laws that prohibit discrimination on the basis of race, color, national origin, sex, and disability. The U.S. Department of Education Office for Civil Rights

(OCR) disseminated a letter in 2010 concerning anti-bullying policies. The letter reminded schools that “the label used to describe an incident (e.g., bullying, hazing, teasing) does not determine how a school is obligated to respond” (p. 3). The letter provided an example of a case in which a male high school student who identified as gay was being bullied by his classmates for not conforming to a stereotypic male role. Although school personnel attempted to address the problem in line with the school’s anti-bullying policy, it was indicated that the school “failed to confront and prevent a hostile environment from continuing” (p. 8). The perpetrators received disciplinary actions; however, new perpetrators continued the harassment. The letter reminded schools that regardless of sexual orientation, Title IX protects all students from gender-based harassment. The appropriate response suggested by OCR was notifying teachers (to increase awareness of the problem), heightened supervision, retraining of school policies, counseling resources for those involved, and school-wide education on *tolerance* and *civil rights*. In contrast to bullying, OCR added that “harassment does not have to include intent to harm, be directed at a specific target, or involve repeated incidents” (p. 2). Brown, Chesney-Lid, and Stein (2007) argued that labeling sexual or gender harassment as bullying is more “comfortable” for adults and gives school administrators the impression that such incidents can be addressed with less stringent anti-bullying policies, as opposed to labeling such behaviors as criminal conduct or violations of civil rights protected by federal laws. Last, researchers in this area have argued that sexual harassment, for example, must be addressed at the institutional, versus individual, level which has been the focus of much bullying research (Paludi & Kravitz, 2011). Similarly, by equating harassment with bullying, it could be implied that “bullying must be

motivated by characteristics of a victim (such as race, color, national origin, sex, and disability)” (Limber & Small, 2003, p. 453). Such distinctions will guide the actions taken by the school and the outcomes for the victim and the perpetrator(s) (Brown et al., 2007).

Last, in addition to the research literature on aggression and victimization, bullying has been studied as a form of school violence. Miller and Kraus (2008) credited the following definition of school violence to the Center for the Prevention of School Violence: “any behavior that violates a school’s educational mission or climate of respect or jeopardizes the intent of the school to be free of aggression against persons or property, drugs, weapons, disruptions, and disorder” (p. 15). Aitken and Colley III (2011) further defined school bullying as a type of *low-level* school violence versus *high-level* school violence (e.g., murder, sexual assault, and weapon possession).

Student Definitions

Although many researchers have determined how they define bullying, does it match how children and adolescents define bullying? Monks and Smith (2006) found that for children ages 4 to 8 years old, they could only discriminate between aggressive and non-aggressive behaviors; however, adolescents 14 years of age could differentiate between physical and relational forms of bullying. They attributed these differences to cognitive development, as opposed to actual experiences. This means that younger students may report higher rates of bullying due to their more inclusive definitions (i.e., any act of aggression). Monks and Smith suggested that conversations with younger children should include concrete examples of bullying situations, as opposed to using the term bullying.

Over time though, children tend to develop more complex definitions of bullying, such as inclusion of a power differential and relational aggression (e.g., social exclusion; Naylor, Cowie, Cossin, Bettencourt, & Lemme, 2006). Espelage and Asidaao (2001) interviewed 89 middle school students and found that a majority of them defined bullying as both direct and indirect forms of aggression intended to harm another student. Several students differentiated between teasing between friends and teasing intended to hurt another's feelings. In a sample of 11 to 17 year-olds, researchers using a focus group method found that participants described bullying as purposeful and repetitive (Hopkins, Taylor, Bowen, & Wood, 2013). Thus, across age groups, specifically younger children, researchers must be cautious of strictly measuring the construct of aggression (versus bullying, a subset of aggression), when students rely on their own personal definitions which may not include repetition of acts over time and a power differential (Hawley, Stump, & Ratliff, 2011).

Bullying Measures

The purpose of bullying measurement has evolved over time from determining prevalence rates and identifying risk and protective factors to evaluating bullying prevention programs (Hamburger, Basile, & Vivolo, 2011). To meet these objectives, bullying has been investigated using a variety of quantitative and qualitative methods (Guerra, Williams, & Sadek, 2011). However, most studies have used quantitative analyses of survey data, with a preference for self-report questionnaires (Guerra et al., 2011; Salmivalli & Peets, 2009). Peer and teacher reports and nominations have frequently been used (Espelage & Swearer, 2003), while some have used direct observation methods (Eslea & Rees, 2001). When possible, reports from multiple

informants have been combined (Juvonen, Graham, & Schuster, 2003); and more recently, researchers have been able to conduct meta-analyses from the growing body of bullying literature (e.g., Hawker & Boulton, 2000). A few researchers have been able to apply a social network approach (Espelage, Holt, & Henkel, 2003; Huitsing & Veenstra, 2012). Overall, Hymel and Swearer (2015) concluded that there may not be a “gold standard” for assessment due to the complexity of bullying.

When making comparisons across studies, an ongoing measurement concern has been a lack of assessments which include all three criteria that are commonly used to define bullying (Furlong, Sharkey, Felix, Tanigawa, & Green, 2010). In some situations, this has led to measuring victimization by peers but not necessarily bullying (e.g., excluding the power differential). Other concerns have included over-estimating prevalence rates (i.e., labeling one incident as bullying vs. repeated incidents over time) or measuring only a specific form of bullying (e.g., direct vs. indirect forms). To resolve this issue, some researchers have provided respondents with a definition of bullying (e.g., Nansel et al., 2001), while others have asked questions about specific types of bullying behaviors (e.g., Bosworth, Espelage, & Simon, 1999). If a clear definition of bullying is not incorporated, students may respond to questions using a definition of bullying that does not match that of the researcher (Hopkins et al., 2013). Overall, when reviewing research findings, readers must take into account limitations to the measures selected and determine how this impacts interpretation and generalization of findings.

In addition, our measures of bullying must evolve along with our understanding of bullying. For example, initial studies of the bully phenomenon focused on identifying two distinct groups: bullies and victims. Then it was discovered that students who are

both bullies and victims form a distinct group: bully-victims (Haynie et al., 2001). Later, Espelage and Swearer (2008) proposed a *bully/victim continuum* which acknowledges that bully-victim behaviors and experiences cannot be separated neatly into two fixed categories. Around the same time, researchers began placing greater emphasis on the peer group, and a participant role approach was adopted in order to examine bullying roles such as assistant, reinforcer, defender, and outsider/bystander (Sutton et al., 1999). Overall, Hamburger et al. (2011) concluded that we need to develop measures which better assess the power differential which defines bullying, in addition to bully-victim and bystander measures. The following is a review of the commonly used methods for measuring bullying, along with strengths and limitations for each method.

Self-Report

Self-report questionnaires are a preferred assessment method for researchers and school personnel investigating the bullying phenomenon (Espelage & Swearer, 2003; Leff, Freedman, Macevoy, & Power, 2011; Salmivalli & Peets, 2009). They can be used to gather information on the prevalence of bullying behaviors, locations in the school where bullying occurs, attitudes toward bullying, and willingness to intervene (Espelage & Swearer, 2008). One of the most widely used student questionnaires is the Olweus Bully/Victim Questionnaire (BVQ; Solberg & Olweus, 2003). Other examples of measures with psychometric properties that have been published in a peer-reviewed journal include the Illinois Bully Scale (Espelage & Holt, 2001) and the School Relationships Questionnaire (Wolke, Woods, Bloomfield, & Karstadt, 2000). Self-reported bullying and victimization have frequently been outcome measures for program evaluation studies (Smith, Schneider, Smith, & Ananiadou, 2004).

Strengths. This method is easier for researchers and staff to implement in the school setting, especially when compared to behavioral observation methods (Furlong et al., 2010). Data can be collected from several students in a short period of time (Cornell & Bandyopadhyay, 2010). When implementing a bullying program, this method can be used to collect data at multiple time points to assess change over time (Espelage & Swearer, 2003). Also, unlike direct observation methods, questionnaires are convenient for large-scale studies, less resource-intensive, and easier to coordinate (Arseneault et al., 2010; Juvonen et al., 2003).

In addition, self-report methods provide a better understanding of internalizing symptoms and experiences of being bullied (Hawker & Boulton, 2000; Salmivalli & Peets, 2009). Teachers may not have the opportunity to observe much of the bullying that occurs in the neighborhood, at home, or in unsupervised areas at school (Arseneault et al., 2010). Also, teachers and parents may both underreport bullying behaviors in older age groups due to the more covert forms of bullying that are used as children develop (Eslea & Rees, 2001); and others who are not directly involved may have difficulty discriminating between bullying and similar behaviors (e.g., playful teasing; Crothers & Levinson, 2004).

Solberg and Olweus (2003) provided a strong argument for self-report questionnaires as the method of choice for prevalence estimations. More specifically, they built a strong case for the “functionality” of two *global* variables (i.e., two self-report items from the Olweus Bullying/Victimization Questionnaire) which provide a period prevalence estimate of victimization (i.e., having been bullied) and perpetration (i.e., having bullied others). They recommended a single self-report item immediately

following a clear definition of bullying with a reference period (e.g., past couple months), spatial reference (e.g., at school), and specific response alternatives (e.g., 2 to 3 times). They deemed their method a more reliable, systematic, and replicable process for determining prevalence rates and for minimizing the current variability between rates across studies.

Limitations. All indirect measures have been criticized for measuring what the participant knows or thinks but not necessarily an objective account of his or her bullying involvement (Merrell, Gueldner, Ross, & Isava, 2008). Furthermore, Harris (2009) argued that self-report measures do not fully address the interaction between individuals involved in bullying (i.e., the social nature of bullying) because the measure targets the individual's thoughts and feelings. Also, due to cognitive development, younger children may have difficulty understanding the concept of bullying and being aware of their own involvement.

It has been questioned whether or not youth accurately self-identify, with peers perhaps providing more accurate reporting of bullying involvement (Juvonen et al., 2003). Students may intentionally or unintentionally exaggerate, minimize, or deny experiences. For example, they may be less likely to report bullying involvement following an intervention program which reinforces that bullying is a socially undesirable behavior (Cornell & Bandyopadhyay, 2010). However, Pellegrini, Bartini, and Brooks (1999) speculated that self-reports by bullies may not be impacted by social desirability bias because bullies have minimized their feelings of cognitive dissonance by adopting a positive attitude toward bullying, which is typically viewed as a socially undesirable behavior.

This method could also be affected by student variables including reading level, mood, and attitude toward participating in the survey (Cornell & Bandyopadhyay, 2010). For example, students may lose interest if the survey is too long. Also, ethical concerns exist in regards to asking individuals about painful or traumatic experiences (Arseneault et al., 2010). Leff and colleagues (2011) added that administration could interfere with class time, and anonymous reports make it difficult to assess change over time.

Peer Sociometric

This approach encompasses two techniques: the nomination method and the rating-scale method. Using a peer nomination method, researchers ask students to nominate classmates who match a description. For example, Juvonen et al. (2003) asked peers to nominate up to four classmates from a roster who matched the descriptions they provided for bullying and for victimization. Bowers, Smith, and Binney (1994) provided students with photographs of their classmates in order to identify bullies and victims. Peer nominations have also been used to determine social status and peer rejection within peer groups. For example, Espelage, Holt, and Henkel (2003) asked participants to list and rank eight similar-age school peers with whom they hang out most often. Björkqvist et al. (1992) measured the social structure of the class by using a specific set of interview questions such as “Who in your class are friends?” For the rating-scale method, students are simply asked to assign ratings to their classmates.

Strengths. Some researchers have considered this a more reliable method for accurate reporting of bullying behavior (e.g., Juvonen et al., 2003), in addition to being a more efficient method for data collection compared to observational methods (Espelage & Swearer, 2003). Peers are more likely to have observed bullying incidents that occur in

unsupervised environments such as bathrooms and hallways (Arseneault et al., 2010). Peer reports are based on a multiple-informant method which decreases measurement error and enhances reliability; and peer nominations can identify individual students who may be in need of intervention (Cornell & Bandyopadhyay, 2010). Peer sociometric measures have been useful for examining participant roles in the bullying process (Salmivalli et al., 1996), and this method can be sensitive to both relational and physical forms of bullying (Leff et al., 2011).

Limitations. Juvonen et al. (2003) used this method, although they described it as labor-intensive and rarely used in large-scale studies. In addition, they acknowledged that biases of the peer informant, such as implicit stereotypes, may influence who they identify as a bully or a victim. This method is difficult to coordinate for large nationally representative cohorts, and younger peer informants may have yet to develop the cognitive abilities to understand or remember different bullying experiences, especially more covert forms (Arseneault et al., 2010). Similarly, younger students may report higher rates of bullying due to their more inclusive definitions (i.e., any act of aggression). In contrast, older students may underreport due to peers using more covert forms of bullying (Eslea & Rees, 2001). Also, due to frequent class changes in middle and high schools, versus elementary schools, nomination procedures for this age group do not collect data on all students (Espelage & Swearer, 2003).

Last, this method poses ethical and legal concerns regarding the use of student names (Espelage & Swearer, 2003). Some teachers are concerned that this method could prompt teasing or anxiety for some children (Cornell & Bandyopadhyay, 2010). Parents

are not comfortable with this method, for similar reasons, which ultimately affects participation rates and generalizability due to withholding permission (Leff et al., 2011).

Teacher Report

Teacher reports have been used to collect data on a range of variables related to bullying in schools including externalizing and internalizing behaviors, different forms of aggression, and classroom social climate (Leff et al., 2011). Some teachers have been asked to complete rating scales on students (Juvonen et al., 2003), while others have been asked to nominate students as bullies or victims, as discussed in the previous section (Slee & Rigby, 1993).

Strengths. Some have argued that teachers may provide a more accurate report on adjustment problems (Juvonen et al., 2003). Teachers, as opposed to parents, have the opportunity to observe bullying situations which occur at school in locations such as the playground or in the classroom (Arseneault et al., 2010). Also, using the teacher as an informant eliminates parental concerns regarding peer nomination methods (Leff, Patterson, Kupersmidt, & Power, 1999). Most teacher report measures are easy to administer, score, and interpret; and some measures such as teacher forms for the Child Behavior Checklist and the Behavior Assessment System for Children have well-established psychometric properties (Leff et al., 2011). Teacher reports have been used to identify at-risk youth and to assess intervention effects (Leff, 2007).

Limitations. Teachers may underestimate occurrences of bullying due to observing students in a number of limited settings or because they have difficulty discriminating between bullying and similar behaviors (e.g., playful teasing; Crothers & Levinson, 2004). Teachers do not have the opportunity to observe much of the bullying

that occurs in the neighborhood, at home, or in unsupervised areas at school (Arseneault et al., 2010). Similarly, teachers may underreport bullying in older age groups due to the more covert forms of bullying that are used as children develop (Eslea & Rees, 2001). Also, Juvonen et al. (2003) found that despite victim self-reports of high psychological distress, teachers rated victims the same as their uninvolved peers on items addressing internalizing problems. Thus, some personal experiences may be reported most accurately by the effected individual.

Also, Boulton (1997) found that many teachers did not consider name calling, spreading rumors, or social exclusion types of bullying. This helps explain why evaluation studies have found that teachers report more bullying following interventions in which they have learned how to recognize bullying (Merrell et al., 2008). Last, this method can be time-consuming if teachers are asked to complete questionnaires on multiple students (Leff et al., 2011).

Direct Behavior Observation

Direct observation methods provide data on frequency of behaviors, participant roles, and contextual variables which inhibit or promote bullying (Espelage & Swearer, 2003). Observation systems vary in breadth and complexity (Leff et al., 2011). For example, video-tape recordings and coding have been used to examine the peer processes that occur during bullying episodes on the school playground (O'Connell, Pepler, & Craig 1999). Pellegrini and Long (2002) used a direct observation method to record frequency of aggression, being the target of aggression, cooperation, and solitary behavior in different settings within the school and different times of day.

Strengths. This method provides data on frequency of behaviors, participant roles, and contextual variables which inhibit or promote bullying (Espelage & Swearer, 2003). In addition, structured observations increase objectivity (Pellegrini & Long, 2002). Depending on the observer selected, this method can eliminate the effect of prior relationships or existing reputations of students (Leff et al., 2011). Some manualized observation systems have extensive reliability and validity data, and they are appropriate for younger children (Leff & Lakin, 2005). In the school setting, direct observation methods allow researchers to observe students in a natural environment where bullying occurs (Espelage & Swearer, 2008). This method increases external validity and provides insight into forms of bullying that are more difficult to detect (i.e., covert types; Craig, Pepler, & Atlas, 2000). Observation methods such as this can also help researchers and school staff to identify behavioral patterns and evaluate prevention or intervention programs (Leff & Lakin, 2005).

Limitations. Direct observations are time-consuming, must be conducted in a variety of settings, can be obtrusive, and often require active parental consent in U.S. schools (Espelage & Swearer, 2003). Although they used this method, Pellegrini and Long (2002) acknowledged that it was expensive and resource-intensive. In addition, this method is difficult to coordinate for large nationally representative cohorts. This method can be time-consuming (e.g., extensive training on standardized systems), potentially obtrusive to the school learning environment, and could contaminate the natural setting in which observations are being conducted (Arseneault et al., 2010; Espelage & Swearer, 2003; Leff & Lakin, 2005). Last, many structured observation systems are limited to data

collection on bullying episodes among younger students, such as bullying on the playground (Craig et al., 2000; O'Connell, Pepler, & Craig 1999)

Additional Methods

Several other methods have been used to assess bullying in schools; however, they are less common in the research literature. For example, Leff, Power, Costigan, and Manz (2003) developed the Playground and Lunchroom Climate Questionnaire (PLCQ) to assess contextual variables in two settings where bullying and other aggressive behaviors often occur among younger students. In addition, they sought out the perspective of playground and lunchroom assistants who are often responsible for monitoring these areas. This tool is easy to use, addresses school climate, and provides school level data; however, further research is needed on the PLCQ (Leff et al., 2011).

Pellegrini and Long (2002) included a diary method in their longitudinal study. They asked sixth and seventh grade students to write in their diaries once a month about their bullying experiences that had occurred in the past 24 hours. This method was used to identify situations they may not have captured through their direct observation method (e.g., occurrences in the bathroom).

Leff and colleagues (2011) noted that few parent report measures exist and that nursing logs of injuries and discipline referrals have not been standardized and provide little utility. Parent reports are highly dependent on the child's reporting such incidents to them (Arseneault et al., 2010). Reports provided by one parent or guardian may not generalize to another parent or guardian, and parents may be more likely to report direct forms of bullying which are more easily observed and more likely to be reported by the school (Cappadocia, Weiss, & Pepler, 2012).

Smith et al. (2002) used 25 stick-figure illustrations of social situations between peers to investigate how primary and secondary students from 14 countries understand terms similar to bullying. The illustrations were intended to communicate the following types of interactions: prosocial behaviors and physical, verbal, social exclusion, and indirect relational aggression.

Espelage, Holt, and Henkel (2003) used social network analysis (SNA) to test the homophily hypothesis of aggressive behavior. They identified cohesive subgroups of students based on reciprocated friendships (i.e., nominated each other) and common friendships (i.e., indirect links between two individuals). They used social mapping to validate the groups.

Eslea and Rees (2001) used a retrospective study design to assess adults' memories of being bullied in order to determine what age bullying was most likely to occur. They chose this method to minimize definitional problems encountered with younger children and to eliminate the underreporting of covert forms of bullying by teachers or peers. A limitation of this method was memory effects (e.g., earlier memories forgotten, adolescent memories more salient due to multitude of stressors prevalent during this time period, traumatic childhood memories suppressed, and latency effect).

Last, some studies have conducted interviews with students and compiled themes from their responses. Espelage and Asidao (2001) conducted interviews with middle school students to understand how they define bullying, to investigate personal experiences, and to compile student suggestions on how to decrease bullying. Open-ended questions allowed students to tell their stories.

Individual Correlates of Bullying Behaviors

Consistent with international findings (Due et al., 2005; Nansel et al., 2004), school-age children in the U.S. who are involved in bullying consistently show poorer psychosocial adjustment than uninvolved peers (Nansel et al., 2001). Many of these variables have been investigated using a correlation design which does not allow for causal inferences (Schwartz & Proctor, 2000), thus many of the following findings may be bidirectional.

Victims

In general, bullying victimization (i.e., being the target of bullying) has been linked to numerous internalizing behaviors. Victimization has been associated with higher rates of depression (Bond, Carlin, Thomas, Rubin, & Patton, 2001; Hawker & Boulton, 2000; Juvonen et al., 2003; Kaltiala-Heino, Rimpelä, Rantanen, & Rimpelä, 2000; Neary & Joseph, 1994), loneliness (Hawker & Boulton, 2000; Juvonen et al., 2003; Nansel et al., 2001), low self-esteem (Boulton & Smith, 1994; Slee & Rigby, 1993; Guerra et al., 2011), psychosomatic symptoms (Kumpulainen et al., 1998), school avoidance (Swearer et al., 2010), anxiety (Bond et al., 2001; Juvonen et al., 2003), introversion (Slee & Rigby, 1993), suicidal behavior (Carney, 2000; Hinduja & Patchin, 2010), and even psychotic symptoms (Arseneault et al., 2011). In addition, victimization has been linked to deficits in social competence (Haynie et al., 2001), poor relationships with classmates (Boulton & Smith, 1994; Nansel et al., 2004), school disengagement (Juvonen et al., 2003), and not surprisingly, a negative attitude toward bullying (Pellegrini et al., 1999). In the U.S., adolescent targets of weight-based teasing have reported lower body satisfaction, lower self-esteem, higher depressive symptoms, and

rates of suicidal ideation and attempts that are two to three times higher than their peers (Eisenberg et al., 2003). These detrimental outcomes do not support the argument that bullying is a harmless stage during childhood and adolescence which is part of healthy development.

Bullies

Bullies have been shown to share some common characteristics with victims; however, bullies tend to score higher on measures of externalizing behaviors (Haynie et al., 2001; Kumpulainen et al., 1998). Research has shown anger to be a strong predictor of bullying others (Bosworth et al., 1999). Students who bully are more likely to engage in problem behaviors such as consuming alcohol and smoking (Kaltiala-Heino et al., 2000; Nansel et al., 2001). Bullying perpetration has been identified as a significant risk factor for later offending (e.g., theft, vandalism, or violent offending) even after controlling for major childhood risk factors (Kumpulainen & Rasanen, 2000; Ttofi et al., 2011). Bullies have also been shown to experience poor academic achievement (Merrell et al., 2008; Nansel et al., 2001), school disengagement (Juvonen et al., 2003), and a more positive attitude toward bullying (Pellegrini et al., 1999). Studies have shown that students who bully experience higher rates of suicidal ideation (Hinduja & Patchin, 2010; Kaltiala-Heino, Rimpelä, Marttunen, Rimpelä, & Rantanen, 1999), depression (Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2007; Seals & Young, 2003), and deficits in social competence (Haynie et al., 2001). However, findings such as this have been debated. For example, Juvonen et al. (2003) identified bullies as “psychologically stronger” compared to other groups including uninvolved peers. In their study, bullies reported fewer symptoms of depression, social anxiety, and loneliness. Some students

have actually described bullies as having normal to high self-esteem (Guerra et al., 2011). O'Moore and Kirkham (2001) found that despite scores of lower global self-esteem, "pure" bullies placed the same value on their physical attractiveness and attributes and on their popularity as non-involved peers. Slee and Rigby (1993) found no difference in self-esteem for a group of male bullies. They also reported that bullies demonstrated high sensation seeking tendencies, insensitivity, and positive attitudes toward violent means. It has been reported that bullies lack empathy (Merrell et al., 2008); however, Espelage and Swearer (2003) argued that research does not support this claim. Overall, the picture of the "typical bully" is much less clear than once thought.

Bully-Victims

Research consistently shows that bully-victims are a particularly high-risk group (Espelage & Swearer, 2008; Haynie et al., 2001; Holt & Espelage, 2007; Juvonen et al., 2003; Kaltiala-Heino et al., 2000; Nansel et al., 2001; Nansel et al., 2004; Swearer et al., 2009) characterized by higher rates of externalizing problem behaviors (Haynie et al., 2001; Juvonen et al., 2003; Kumpulainen et al., 1998), anxiety (Kaltiala-Heino et al., 2000), depression (Haynie et al. 2001; Kaltiala-Heino et al., 1999), psychosomatic complaints (Kaltiala-Heino et al., 2000), suicidal ideation (Kaltiala-Heino et al., 1999), eating disorders (Kaltiala-Heino et al., 2000), referrals for psychiatric consultation (Kumpulainen et al., 1998), loneliness (Nansel et al., 2001), school disengagement (Juvonen et al., 2003), poor academic achievement (Nansel et al., 2001), and low self-esteem (O'Moore & Kirkham, 2001). Nansel et al. (2001) found this group to be associated with smoking, especially in middle school age youth, and alcohol consumption at the high school level. Haynie et al. (2001) found this group to have less favorable

scores on measures of social competence (e.g., conflict resolution and communication) and self-control (e.g., losing his or her temper), in addition to involvement in more deviant peer groups. Overall, the bully-victim group appears to be the most at-risk.

Sex

Although research has consistently shown bullying behaviors to be more prevalent among males than females (e.g., Boulton & Smith, 1994; Kaltiala-Heino et al., 2000; Nansel et al., 2001), some studies have found higher rates of bullying in females (Bauer et al., 2006). Likewise, reports of victimization have found similar rates for both males and females (Pellegrini et al., 1999), although some continue to report higher rates for boys (Haynie et al., 2001). Males tend to report being involved in more direct forms of bullying (i.e., physical and verbal; Bradshaw, Waasdorp, & Johnson, 2015; Juvonen, Nishina, & Graham, 2000; Nansel et al., 2001) while girls more frequently engage in relational forms of bullying (Bradshaw et al., 2015; Nansel et al., 2001). It has been suggested that the etiology of bullying and victimization may be similar, while form and function are the root of sex differences (Guerra et al., 2011; Haynie et al., 2001).

The original focus on boys who bully resulted in definitions focused on physical and verbal forms of bullying. As researchers began to examine bullying among girls, relational forms of aggression were included in the definition. Overall, prevalence rates among males and females have fluctuated over time, often due to changes in how bullying is defined, measurement tools selected, and understanding of bullying among different populations.

Gender

Sex refers to a person's biological status (e.g., male, female or intersex), while gender refers to the attitudes, feelings, and behaviors associated with biological sex (American Psychological Association [APA], 2011). Johnson and Gastic (2014) described how distinctions between gender and biological sex are not recognized in many studies (e.g., innate characteristics vs. gender socialization). Overall, in considering the role of gender in bullying, it is important to consider what gender means within a cultural context. In line with a power imbalance perspective or social hierarchies, students who act in ways that are perceived by their peers as not conforming to gender norms and expectations fall within a minority group which places them at greater risk for victimization.

Reisner, Greytak, Parsons, and Ybarra (2015) defined gender minority as “transgender and gender-nonconforming people whose identities or gender expressions fall outside of the social norms typically associated with their assigned sex at birth” (p. 244). In a national sample, they found that gender minority youth disproportionality experienced bullying and harassment; furthermore, bullying mediated the elevated odds of substance use for gender minority youth. In a subsample of transgender students, Goldblum et al. (2012) found that students within this group who had experienced in-school gender-based victimization were approximately four times more likely to have attempted suicide than those who did not.

In an interesting study by Johnson and Gastic (2014), the relationship between bullying and gender conformity was further investigated based on whether a student attended a single-sex or coeducational high school. They identified students level of

gender conformity based on extracurricular activities (i.e., what is stereotypically expected of boys and girls) and then categorized schools based on the average gender conformity score of enrolled students. Overall, gender nonconforming students, boys in particular, were more likely to be bullied regardless of attending a coeducational vs. single-sex high school and regardless of the school-based gender norm. However, attending a single-sex school did serve as a protective factor for gender nonconforming females. They hypothesized that “female masculinity” could be associated with privilege or power in all-female schools.

Lehman (2014) explored the role of masculinity in bullying victimization for male high school students in the United States. He based his study on previous literature suggesting that male students are more likely to be bullied if they are perceived by peers as “too intellectual” (i.e., focused on academic pursuits) and “lacking in masculinity”/exhibiting a feminine quality. He explained how being “studious” or putting effort into academic work may be associated with femininity. At the same time, he referenced athletic achievement as a possible buffer for male students who are academically high-achieving. Overall, Lehman found that academic effort, defined as hours spent on homework, as well as academic achievement, defined as GPA, both predicted increased victimization for male students.

Steinfeldt, Vaughan, LaFollette, and Steinfeldt (2012) explored the influence of social norms (i.e., moral atmosphere and masculinity) on bullying beliefs and behaviors of high school football players. They reference “gender privilege” and the rules of masculinity including being tough, succeeding at sports, emotional restriction, heterosexism (viewing being thought of as gay as less masculine), and being able to tease

other guys to fit in. Most important to research in this area, they address the role of sports in U.S. high schools in regards to hierarchies and student status. Results showed that social norms – moral atmosphere (influence of peers and important male figures) and adherence to male role norms – significantly predicted bullying; interestingly, the strongest predictor was whether the most influential male in a player’s life (e.g., 66% fathers, 14% brothers, 8% coaches, and 12% other such as teacher, grandfather, uncle, etc.) would approve of the bullying behavior, not peers as might be expected. Their findings did not support the stereotype of football players as bullies; they did not report a higher degree of involvement. Important to remember, the study is limited to male football players in a limited number of schools.

Kosciw, Greytak, and Diaz (2009) found that male students were more likely than female students to experience victimization based on sexual orientation and gender expression which is consistent with other findings. In a study of Australian male identity, McCann, Plummer, and Minichiello (2010) described the hierarchical nature of masculinity and how homophobic humor can be used among men to “control and humiliate” each other. This polices which behaviors are deemed acceptable and assigns power to the group conforming to the gender norms which are deemed valuable.

Overall, gender norms and expectations are essential to consider in bullying, due to their role in defining power differences and in placing those who do not conform at greater risk for victimization (Tobin & Duncan, 2007).

Sexual Orientation

Sexual orientation refers to the sex of whom someone is sexually and romantically attracted (APA, 2011). Students who identify as lesbian, gay, bisexual, or

questioning, also known as sexual minorities, are at a higher risk for experiencing bullying which contributes to a range of negative outcomes (Fedewa & Ahn, 2011). The 2013 National School Climate Survey showed that 74.1% of LGBT students were verbally harassed and 36.2% were physically harassed in the past year because of their sexual orientation (Kosciw, Greytak, Palmer, & Boesen, 2014). One study identified students who are questioning their sexual orientation as being at an even greater risk of experiencing teasing, drug use, and feelings of depression and suicide compared to heterosexual and LGB students (Espelage et al., 2008). In the previous section, research on the intersection of gender norms and sexual orientation were discussed, for example the role of “homophobic humor” in masculinity hierarchies and gender expectations. These variables combine to create a unique risk factor for victimization.

Race and Ethnicity

In 2003, Espelage and Swearer concluded that few studies had addressed the role of race and ethnicity in bullying. However, this has been a growing area of research, with studies initially focusing on differences across racial/ethnic groups, in regards to prevalence of bullying behaviors, and more recently focusing on how the racial/ethnic context for the school or community influences bullying. For example, some researchers have found that African American students report being bullied less often than white and Hispanic students (Nansel et al., 2001; Spriggs, Iannotti, Nansel, & Haynie, 2007). In contrast, other researchers have found that Hispanic students experience less victimization by peers (Hanish & Guerra, 2000; Juvonen et al., 2003); while others have found no significant differences in bullying involvement based on race (Seals & Young, 2003; Whitney & Smith, 1993). Overall, the inconsistent findings suggest that although

race has been studied as an individual risk factor, it may be understood best from an ecological perspective which takes into account the racial/ethnic context for the school or community (Graham, 2006). The role of the racial/ethnic composition of schools is discussed later in the environmental variables section.

Socioeconomic Status (SES)

Some studies have indicated that children of lower socioeconomic families have a higher risk of bullying involvement than children of higher socioeconomic families (Due, Damsgaard, Lund, & Holstein, 2009; Due, Merlo, et al. 2009; Jansen et al., 2012; Schumann, Craig, & Rosu, 2014; Singh & Ghandour, 2012). However, according to the results of a meta-analysis conducted by Tippett and Wolke (2014), the relationship between SES and bullying is weak. Although victims and bully-victims were more likely to come from low SES households, there was no association between bullying perpetration and low SES. They suggested that victim findings may be better explained by an indirect relationship that is mediated by the home environment (e.g., experiencing violence or abuse). In regards to the unexpected findings for bullying perpetration and low SES, the authors noted that although aggression and behavioral difficulties have been associated with lower SES, students who bully others may not fit the stereotypical profiles that exist (e.g., poor social skills and highly aggressive).

For example, Singh and Ghandour (2012) found that higher levels of behavioral problems among US children were associated with socially disadvantaged neighborhoods and lower household SES. In this study, bullying was included in a composite Behavioral Problems Index, which means that bullying was lumped together with a variety of other behavior problems. This combining of bullying perpetration with other behavior

problems prevents it from being treated as a unique behavior with its own form, function, and defining characteristics. Over time, bullying perpetration may have been inadvertently assigned to low SES student populations.

Tippett and Wolke (2014) concluded that interventions should target all students, regardless of SES levels. They further cautioned that measures of SES vary across studies involving bullying (e.g., education, income, occupation, family, and neighborhood) and that findings are not conclusive. Based on research showing higher rates of bullying in countries with greater social inequalities, they suggested that future studies should consider the degree of social inequality within the environment and how that impacts socially acceptable behaviors for getting ahead and the consequences for bullies. This aligns with the socio-ecological framework which has been suggested for bullying research and is discussed in a later section.

Influences of Cognitive Development and Social Context Across Age Groups

The following section is organized by grade levels; however, it is important to note that findings are not strictly isolated to each group. For example, the transition from elementary to middle school is not a universal experience, even within the United States. Differences in school structures must be taken into consideration when interpreting research findings across age groups.

Preschool

Younger children tend to engage in more overt forms of bullying while older children engage in more covert or indirect forms of bullying (Espelage, Bosworth, & Simon, 2000). Young boys are more likely than girls to engage in rough-and-tumble play and to be victims of direct physical and verbal aggression; however, findings for gender

differences for relational victimization remain inconsistent (Rose & Rudolph, 2006). At the same time, girls are more likely to be relationally victimized as opposed to physically victimized (Crick, Casas, & Ku, 1999).

Hanish, Hill, Gosney, Fabes, and Martin (2011) questioned whether we *can* and *should* label young children as bullies. They noted that the prevalence of aggressive behaviors among young children makes it difficult to differentiate bullying behaviors (i.e., intent to harm a weaker peer) from normal development (i.e., undercontrolled aggressive responses). It has been suggested that young children have not yet developed the cognitive ability “to distinguish behaviours on more than one dimension” (Monks & Smith, 2006, p. 804). From a Piagetian perspective, children in the preoperational stage of cognitive development have a “qualitatively different” way of reasoning (Berg, 1992, p. 5). This reiterates the importance of using concrete examples, when speaking with young children, versus simply referring to terminology such as bullying.

Nonetheless, Crick and colleagues (1999) found that peer victimization could be distinguished from aggression in a sample of children ages 3 to 5 which provides further support for early childhood prevention efforts. During this period of development, Hanish et al. (2011) recommended that preschool teachers target communication skills, conflict resolution, cooperative play, and appropriate ways to express emotions. In addition, they emphasized the importance of providing opportunities for other-gender social interactions. This allows children to develop a broader repertoire of social behaviors.

In addition, familial factors have a central role in the socialization of children during this period of development. Parents, siblings, and caregivers model for young children important skills which are connected to bullying such as how to regulate

emotions, resolve conflict, and problem-solve (Espelage & Swearer, 2009). This is consistent with Family Systems Theory (FST) which focuses on the family unit as the source of the problem, as opposed to the child (Duncan, 2011). This highlights the importance of interventions that reach beyond the school and target both children and their families.

Elementary School

Higher rates of victimization have been reported in younger children. Some researchers have attributed this to younger children having more older classmates who are in a position to bully them (Smith, Madsen, & Moody, 1999). Consistent with these findings, Boulton and Underwood (1992) found that children ages 8 to 9 reported higher rates of bullying by older students. Smith, Madsen, and Moody (1999) suggested that younger children have not yet acquired the social and assertiveness skills needed to deal effectively with being bullied. They also found that children under age 9 have a different definition of bullying (i.e., more inclusive of all types of aggressive behaviors) which partially explains higher rates of reported bullying in this age group. Also, indirect aggression may be less prevalent in younger children because it requires a certain level of verbal and social skills they have yet to develop (Björkqvist et al., 1992). When children lack the verbal skills, physical aggression such as hitting, pushing, kicking, and shoving are more likely to occur.

In regards to location, most bullying occurs at school for elementary age children (Williams, Chambers, Logan, & Robinson, 1996). More specifically, most bullying has been reported to occur on the playground (Craig et al., 2000; Rivers & Smith, 1994).

Vaillancourt et al. (2010) found that high bullying areas for elementary schools included playgrounds and recess areas, both unstructured areas with less supervision.

Craig et al. (2000) used a social learning theory approach to investigate bullying behaviors on the playground and in the classroom. They found that compared to the classroom, the playground provided more opportunities for children to observe, receive, and initiate aggression. Direct forms were more prevalent on the playground which they suggested could be due to unstructured activities, high level of activity, limited supervision, and greater acceptability of such behaviors on the playgrounds (i.e., different setting rules) which could “foster bullying”. They also speculated that typically nonaggressive children in the classroom may be more likely to engage in bullying on the playground due to heightened arousal from observing bullying, as opposed to being focused on classroom activities. In contrast, indirect forms were more likely in the classroom which they suggested could be due to avoiding detection. In addition, they speculated that the nature of bullying in the classroom could differ due to structured activities, increased supervision, and small and defined spaces. Lack of intervening in both settings was speculated to result from lack of strategies and teacher support (Craig et al., 2000).

Schwartz and Proctor (2000) used a cross-sectional study design to investigate the relation between community violence exposure (i.e., direct victimization and witnessing) and social adjustment (i.e., aggression, peer rejection, and bullying). They were interested in the mediating role of social-cognitive biases and emotion regulation. Hierarchical analyses indicated that the association between direct victimization and poor social outcomes (i.e., peer rejection, bullying by peers, and aggression) was mediated by

impairments in emotional regulation, while the association between witnessed violence and poor social outcomes (i.e., aggression only) was mediated by social-cognitive biases (i.e., positive outcome and efficacy beliefs for aggression and the perception of aggression as an appropriate response to ambiguous peer provocation). Overall, this links direction victimization with emotional dysregulation and bullying by peers and links witnessing violence with social information processing and aggressive behavior.

Similarly, the social information processing approach encompasses the “hostile attribution bias” which postulates that individuals have an encoding problem which leads to misinterpretation of neutral social cues as malevolent (Espelage & Swearer, 2009), thus leading to aggressive responses. However, resource control theory has been used to identify a group of “bistrategic controllers” who are described as being effective users of both pro-social and coercive strategies (Hawley et al., 2011). This negates the view of all bullies as lacking in social skills.

Middle School

Past research has shown that bullying behaviors tend to increase across elementary school, peak in middle school, and decline across high school (Björkqvist et al., 1992; Espelage & Swearer, 2003; Nansel et al., 2001; Pellegrini & Long, 2002). Eslea and Rees (2001) conducted two retrospective studies to investigate what age bully was most likely to occur. In a sample of male and female adults aged 18 to 55 years, they found that bullying was most frequently remembered from ages 11 to 13 years, with no gender or age group differences. After countering alternative explanations (e.g., intrinsic memorability), they concluded that bullying in middle childhood “may be the worst” (p. 428).

Craig (1998) investigated sex and grade differences among 546 children in Grades 5 to 8. Across grades, she found that male bullies reported more physical aggression than comparison groups, while male bullies and victims in the older grades reported more verbal aggression. Baldry (2003) found that boys reported more direct forms of bullying and victimization, while girls reported more often that no one would talk to them.

When interviewing middle school students, Espelage and Asidao (2001) found that most students defined bullying as verbal, physical, and relational forms of aggression. Many students differentiated between teasing a peer with the intent to harm and joking with friends. Gender differences in forms of bullying were consistent with the research literature (i.e., physical/boys versus relational/girls). Students reported their views on bullies as individuals who want to feel superior, to be popular, to receive attention, to have fun, to get revenge, and to manipulate other people. They reported that some students are targeted because of a physical difference (e.g., weight or unfashionable clothes) or because they are easy to provoke or too weak to fight. Consistent with other findings, sixth graders were more often the victims of bullying and eighth graders the perpetrators. Many bullies reported being victims in the past; however, some past victims did not bully others and were now more likely to intervene because they knew how it felt to be bullied. Students reported that bullying occurs in any unsupervised location. Some victims of chronic bullying demonstrated learned helplessness. Students reported that some teachers were helpful in handling the situation while other teachers ignored the bullying or provided no confidentiality for reporting. Students provided the following suggestions for decreasing bullying: a confidential reporting system, for bullies to

understand what it feels like to be the victim, and support for bullies and victims (Espelage & Asidao, 2001).

Dominance theory has been used to explain the changes in bullying that occur in early adolescence during the transition from elementary to middle school (Pellegrini & Long, 2002). Pellegrini and Long (2002) conducted a longitudinal, multi-method, multi-informant study on bullying and victimization in a sample of 154 students from a rural school district in the U.S. Students were sampled from five primary schools that fed into two middle schools. They followed the cohort from Grades 5 through 7. Across time, they found that boys more than girls viewed aggression and bullying more positively. Also, results supported their hypothesis that bullying would increase during the transition from primary to secondary school followed by an increase in dominance and decrease in bullying. They found bullying to be a mediator variable for dominance status, thus interpreting bullying as an instrumental strategy for achieving dominance status during a time of newly forming peer groups. Using a direct observation method, they found that same-sex peers were typically the targets of aggression.

There exists a large body of developmental literature on the role of peer groups in early adolescence (e.g., Pellegrini & Long, 2002). Research in this area has shown that these social experiences differ markedly from those in early childhood (Espelage et al., 2003; Pellegrini & Long, 2002). Pellegrini and Long (2002) focused on early adolescence because “it is a period where disruptions in peer affiliation afford opportunities for peer victimization and increased uses of aggression, possibly to establish peer status” (p. 276). Pellegrini and Long (2002) stated that these students go from being the largest to the smallest in physical size when entering the new school, at the same time having to

renegotiate status. Björkqvist et al. (1992) found that the structure of same-sex peer groups began to change for the 11-year-old cohort with girls forming more tight groups and pairs and boys bigger and looser groups.

Espelage, Holt, and Henkel (2003) conducted one of the first studies investigating how the homophily hypothesis applies to two subtypes of aggression, bullying and physical fighting, among peers groups in middle school (i.e., early adolescence). Using Social Network Analysis, Espelage and colleagues found a significant amount of within-group similarity on self-reported bullying and fighting. Bullying and fighting within the peer group was predictive of this behavior over time, even after controlling for baseline levels; with bullying accounting for more individual variance than fighting. The homophily hypothesis is a prevalent theory for peer group formation during this developmental period. It exerts that “children hang out with similarly minded individuals in relation to bullying” (Espelage & Swearer, 2009, p. 18).

Espelage, Bosworth, and Simon (2000) framed their research study around social learning theory and youth substance abuse research that had previously identified risk and protective factors in different contexts (e.g., family, environmental, and peer factors). Their study included a sample of 558 U.S. middle school students (Grades 6 to 8) from one school in a Midwestern town. They found that approximately 80% of the sample reported engaging in bullying behavior in the past month. After controlling for perception of peer involvement in negative behaviors, findings still showed that students were more likely to engage in bully behavior if they reported the use of physical discipline strategies at home or if they spent less time with an adult during a typical weekday. A significant decrease in bullying behavior was noted for students who spent time with adults who

suggested nonviolent conflict management. Bullying behavior was associated with peer involvement in negative behaviors (e.g., damaging property, fighting, and illegal activities). In addition, bullying was strongly associated with neighborhood safety concerns.

Attraction theory postulates that youth naturally desire independence from their parents and in turn seek out relationships with peers who “possess characteristics that reflect independence (e.g., delinquency, aggression, disobedience)” and are less attracted to peers who have childlike characteristics such as compliance and obedience to authority figures (Swearer et al., 2009, p. 19).

Last, bullying and sexuality for middle and high school boys has been associated with showing strength to appear desirable to potential mates. For girls in this age group, this connection to sexuality was in regards to limiting competition and appearing more physically and sexually desirable (Guerra et al., 2011).

High School

Consistent with findings from previous sections, self-reports of being bullied tend to decline with age (Whitney & Smith, 1993). Girls in this age group tend to use more indirect means of aggression, while boys tend to use more direct forms (Björkqvist et al., 1992). Cyberbullying/electronic bullying has been found to be more common among older adolescents (Raskauskas & Stoltz, 2007). In 2007, they found text-message bullying to be the most common form of electronic harassment, possibly due to the high percentage of youth with cell phones. Also, they found that 85% of electronic victims were also traditional victims and that 94% of electronic bullies were also traditional bullies. Ttofi and Farrington (2011) argued that bullying programs may be more effective

for older children due to their advanced cognitive abilities, decreasing impulsiveness, and increase in making rational decisions.

In forming an argument against the notion that bullies lack social skills, Sutton et al. (1999) speculated that the definition of bullying may illustrate a savvy perpetrator who uses his or her social skills to acquire dominance (i.e., imbalance in power), to plan this ongoing set of behaviors, to manipulate the mental states and beliefs involved in relational types of aggression, and to select the most effective place, time, method, and victim to ensure success. Sutton and colleagues used a Participant Role Scale approach (PRS) along with social cognition measures to test the prediction that “Ringleader Bullies” would score higher than “Follower” or “Victims”, and possibly non-involved children, on a test of theory of mind. Bullies scored significantly higher on social cognition measures than all groups, except the uninvolved Outsider group. The authors concluded that “bullies may be at an advantage if they possess theory of mind skills superior to those of their followers and their victims” (p. 444). However, they emphasized that although bullies may demonstrate an understanding of emotions; this does not imply that bullies share these emotions. They proposed that bullies may accurately perceive and interpret social cues, but differ in their goals and response selection due to a past history of reinforcement or set of values. Swearer et al. (2009) also argued that some children and adolescents who bully might exhibit higher functioning cognitive abilities accompanied by apathy and a lack of respect.

Ellis et al. (2012) made an intriguing argument for shifting away from a “developmental psychopathology model” of risky adolescent behavior. They argued that risky is often equated with maladaptive. Thus, they presented an evolutionary model

which poses the question “What is in it for the adolescent?” (Ellis et al., 2012, p. 600). They focused on the onset of puberty and the biological processes and behaviors that accompany the need to gain access to sex and reproduction.

Overall, the findings in this section demonstrate how changes in cognitive development and social context for older students influence bullying behaviors.

Environmental Correlates of Bullying

Individual level variables have been able to account for a portion of the variance in bullying involvement; however, bullying is a sociocultural phenomenon which involves multiple levels (e.g., family, school, and community). Consistent with an ecological systems perspective, the following is an overview of research findings on environmental variables, an underdeveloped area of the bullying research literature.

Family

With the strong focus on “school” bullying, the role of the family has often been overlooked, despite its role in maintaining, preventing, or buffering the effects of bullying (Arseneault et al., 2010). Thus far, general aggression and bullying perpetration in children and adolescents have been linked to the following family variables: lack of family cohesion, inadequate parental supervision, family violence, hostile or authoritarian disciplinary strategies, poor modeling of problem-solving skills, high levels of family conflict, low parental communication, lack of parental emotional support, parental drug use, parental incarceration, and family involvement in gangs (Espelage & Swearer, 2003; Espelage & Swearer, 2010; Swearer & Hymel, 2015). Veltkamp and Lawson (2008) found that children fail to learn self-control in a home environment with adults who use harsh and aggressive physical punishment, negative messages, and aggressive behaviors

with each other. Instead, children growing up in this environment learn to handle conflict and feelings of anger with aggression.

Overall, bullying perpetration and victimization have both been associated with exposure to domestic violence (Baldry, 2003) and child maltreatment (Shields & Cicchetti, 2001). In regards to victims only, an association has been made to high parental involvement in school and enmeshed families (Bowers, Smith, & Binney, 1994; Nansel et al., 2001). Nansel et al. (2001) suggested that this finding could be related to increased involvement because parents are aware of their child's difficulties or a lack of independence among this group of students that increases their vulnerability to being targeted.

In regards to socioeconomic status, children of lower socioeconomic families have been shown to have a higher risk of involvement in bullying than children of higher socioeconomic families (Due, Damsgaard, et al., 2009; Due, Merlo, et al., 2009; Jansen et al., 2012; Schumann et al., 2014; Singh & Ghandour, 2012). Jansen et al. (2012) found that families of elementary age students had a greater influence on bullying involvement than the school neighborhood. The authors described how certain indicators of family SES could influence bullying behaviors. For example, they suggested that the link between parental educational level and both victimization and perpetration could be related to a child's development of skills for problem-solving, coping, and navigating social interactions. The link between single parenthood and both bullies and bully-victims could be associated with less time for parent-child interaction or higher levels of stress at home.

According to a meta-analysis conducted by Tippett and Wolke (2014), the relationship between SES and bullying is weak. Although victims and bully-victims were more likely to come from low SES households, there was no association between bullying perpetration and low SES. They suggested that victim findings may be better explained by an indirect relationship that is mediated by the home environment.

In a meta-analysis of 153 studies, Cook, Williams, Guerra, Kim, and Sadek (2010) investigated individual and contextual predictors of bullying and victimization. They found that family environment (e.g., parental conflict, family SES, and parenting styles) was one of the weakest predictors of bullying perpetration and victimization. Overall, further research is needed in this area.

School

Although schools have been the primary setting for bullying, school characteristics have been underrepresented in the research literature. Even with the increase in technology use and cyberbullying, schools continue to be the environment where children and adolescents interact with their peers on a daily basis and must navigate social structures and interpersonal relationships. Hazel (2010) emphasized that schools are a “social system” that shape the development our youth. Bullying behaviors are not solely a product of individual characteristics or family influence. Below is a review of school level attributes (i.e., contextual-level factors) which may serve as risk or protective factors for bullying. They have been loosely grouped into the following sections: sociodemographics, school order, school climate, and protective factors. The intent is to focus on each variable at the school level; however, due to limited research in some areas, individual level findings are summarized. It is important to remember that

the relationship between these contextual variables and bullying may be bidirectional (Swearer & Hymel, 2015).

Sociodemographics. Below is a description of the racial/ethnic, gender, and socioeconomic composition of schools as they relate to bullying.

Race and ethnicity. As discussed earlier, the relationship between bullying and race may be better understood from an ecological perspective that takes into account the racial/ethnic context for the school or community (i.e., risk for victimization or perpetration may depend more on the context; Graham, 2006). For example, in a sample of high school students, Felix and You (2011) found that having more same-ethnicity peers (percent same ethnicity) decreased victimization at the student level; however, greater overall diversity, decreased victimization at the school level. Felix and You suggested that greater diversity may indicate a greater balance of power between ethnic groups, and having same-ethnicity peers may serve as a protective factor against discrimination and prejudice and provide more social support. Juvonen, Nishina, and Graham (2006) found similar results at the classroom and school level for middle school students; greater ethnic diversity was associated with lower levels of peer victimization. Graham (2006) provided several possible explanations for the benefits of greater school diversity including the possibility that cultural awareness and equity issues are addressed within the school.

Interestingly, Fisher et al. (2015) found that although students in general experienced more race-based victimization when in the ethnic minority at their school, African-American students actually experienced more race-based victimization than Caucasian students when in the numerical majority. They suggested that racial and ethnic

identity be taken into consideration when addressing within group race-based victimization. Overall, these findings demonstrate the limitations of making inferences based solely on a student's race or ethnicity, without considering the role of the environment.

Gender. Limited research exists on the role of gender at the school-level. However, one interesting study by Johnson and Gastic (2014) did explore the relationship between bullying and gender conformity depending on whether a student attended a single-sex or coeducational high school. They identified students level of gender conformity based on extracurricular activities (i.e., what is stereotypically expected of boys and girls). School contexts were then categorized based on the average gender conformity score of enrolled students. Overall, gender nonconforming students, boys in particular, were more likely to be bullied regardless of coeducational vs. single-sex high school and regardless of the school context. Interestingly, attending a single-sex school served as a protective factor for gender nonconforming females. More research is needed in this area.

Socioeconomic status (SES). According to a meta-analysis conducted by Tippett and Wolke (2014), the relationship between SES and bullying is weak. Although victims and bully-victims were more likely to come from low SES households, there was no association between bullying perpetration and low SES. They suggested that victim findings may be better explained by an indirect relationship that is mediated by the home environment. This is consistent with Jansen et al. (2012) who found that the influence of school neighborhood SES was not significant, after adjusting for family SES.

Klein and Cornell (2010) found that poverty-level was not predictive of self-reported rates of victimization across 290 Virginia high schools; however, student perceptions/observations of bullying and teasing were higher in schools with a higher proportion of low-income students. In some situations, perceptions could be associated with school size (i.e., larger schools with a higher percentage of low-income students).

Due, Merlo, et al. (2009) examined socioeconomic inequality in bullying victimization during adolescence, across 35 countries. They found that differences in the prevalence of bullying victimization were not associated with the economic level at the national and school level, but inequalities in affluence were associated with a higher risk of victimization at the school and national level. At the school level, affluence was measured using the standard deviation of the mean Family Affluence Scale score for each school; a higher value indicated greater variation of affluence among students at each school. Based on higher rates of bullying in countries with greater social inequalities, Tippett and Wolke (2014) suggested that future studies should consider the degree of social inequality within the environment.

Also, it is important to note that the influence of SES may differ by subgroups. For example, Kosciw, Greytak, and Diaz (2009) found that youth in higher poverty communities reported more victimization in school because of sexual orientation and gender expression than those in more affluent communities. They hypothesized that this difference could be due to less access to LGBT resources. Bradshaw, Sawyer, and O'Brennan (2009) found that the concentration of students receiving free and reduced meals was associated with an increase in the odds of both victimization and perpetration of bullying among middle school students.

Overall, in the most recent systematic review of contextual-level risk factors of school bullying, Azeredo et al. (2015) found that at the school- and class-level, contexts with more inequalities in income were associated with increased risk of bullying. Thus, inequalities in socioeconomic status within schools may have a greater impact on bullying prevalence rates than the overall percentage of low-income students or average family income for students at the school level.

School order. Social disorganization theory (Shaw & McKay, 1969) suggests that school level indicators of disorder negatively impact the learning environment, impede the school's functioning, and increase the risk for violence beyond individual-level risk factors (Bradshaw et al., 2009). Thus, this section provides an overview of the following school level indicators of disorder as they relate to bullying: school size, student-teacher ratio, suspension rates, and physical aggression at school.

School size. Klein and Cornell (2010) stated that larger schools have often been viewed as more "impersonal environments" with less supervision and students feeling unsafe, disconnected, and more likely to engage in aggressive behaviors (i.e., disorder); while smaller schools have been viewed as offering a more welcoming and orderly environment with a positive school climate where students develop stronger relationships and experience less competition. In a sample consisting of ninth-grade students and teachers in 290 Virginia high schools, Klein and Cornell (2010) found that in larger schools, teachers and students reported that they perceived/observed more bullying and teasing than did students and teachers in smaller schools. However, student self-reports of being a victim (of bullying, threats, and physical attacks) were not associated with school enrollment size. They speculated that students and teachers in larger schools may

perceive higher rates due to more opportunity to observe incidents in a larger population of students. Also, school discipline records showed that the *total number* of bullying, threat, and physical attack incidents were higher for larger schools, as expected; however, the *rate* of recorded offenses was actually lower in larger schools, for all three forms of victimization. The authors noted that this negative correlation was unexpected, but could possibly be attributed to a more positive environment or more incidents going undetected and undocumented in larger schools due to less supervision. More importantly, it demonstrates why caution must be taken when (a) interpreting results using frequency counts per school versus rate per student and (b) using self-reports of actual bullying experiences versus peer and teacher reports which measure perceptions of bullying experiences.

Lleras (2008) found that higher enrollment was associated with feeling unsafe; however, there was no association between school size and verbal harassment (i.e., feeling put down by other students). Other researchers have found similar results showing no association between bullying and school or class size (Batsche & Knoff, 1994; Whitney and Smith, 1993). In the most recent systematic review of contextual-level risk factors of school bullying, Azeredo et al. (2015) determined that results related to school size are inconclusive.

Student-teacher ratio. The ratio of students to staff is an important variable to consider, in regards to supervision, availability of support for students, and possible stressors placed on staff due to work load. When investigating indicators of school disorder, Waasdorp, Pas, O'Brennan, and Bradshaw (2011) found that a higher student-teacher ratio was associated with a greater chance of witnessing bullying. Bradshaw et al.

(2009) also found that a higher student–teacher ratio was associated with a greater risk of bullying victimization among middle school students. However, some research has shown no association between bullying and class size (Batsche & Knoff, 1994; Whitney and Smith, 1993). In the most recent systematic review of contextual-level risk factors of school bullying, Azeredo et al. (2015) found that study results related to class size or student-teacher ratio were inconclusive due to reports of negative, positive, and no significant association with bullying. Further research is needed.

Suspension rates. School suspension is one discipline strategy used to address problem behaviors and violations of school rules. Using data from students in Grades 7 and 9, Hemphill, Plenty, Herrenkohl, Toumbourou, and Catalano (2014) conducted multilevel modeling and found that school level factors associated with student-reported school suspension were socioeconomic status and aggregate classroom scores of low school commitment (negative feelings toward school, importance of school is low, and skipping school). Student factors associated with school suspension were being male, previous antisocial and violent behavior, rebelliousness, and academic failure. Furthermore, Bradshaw et al. (2009) found that suspension rates were associated with increased bullying perpetration and decreased perceptions of safety among middle school students. Suspension rates have also been associated with dropout rates for high school students (Lee et al., 2011), as well as a range of other harmful student outcomes including crime, delinquency, and drug use (Hemphill et al., 2014). Overall, high suspension rates may be an indicator of a higher prevalence of disruptive behaviors, school procedures which support the use of more restrictive discipline measures, and/or a negative school climate which have been associated with bullying.

Physical aggression. Bullying is a form of aggression, which includes physical forms (e.g., pushing and hitting). However, repetition over time and a power imbalance are intended to differentiate physical forms of bullying from physical fights. At the individual level, similar to fighting, males tend to report being involved in more direct forms of bullying (i.e., physical and verbal; Juvonen et al., 2000; Nansel et al., 2001) while girls more frequently engage in relational forms of bullying (Bradshaw et al., 2015; Nansel et al., 2001). Male bullies and victims tend to report more verbal than physical forms of aggression as they get older; thus, younger age is a risk factor for both fighting and physical forms of bullying (Craig, 1998; Pickett et al., 2013).

Beyond the individual level, Klein and Cornell (2010) found that discipline records from 290 Virginia high schools showed that bullying, threats, and fights occurred more frequently in larger schools, as expected with larger enrollment sizes. This provided some explanation for why students and teachers in larger schools reported observing more bullying and teasing. However, student-reported rates of victimization (bullying, threats, and physical attacks) were not correlated with school size. Thus, caution must be taken when analyzing frequency counts versus rates within the context of school size and when determining the meaning of self-report versus peer or teacher reports (i.e., perceptions will differ).

In a large scale study examining trends in fighting, Pickett et al. (2013) studied physical fighting among adolescents in 30 countries over an 8-year period. Overall, they found a decline in physical fighting over time. They also found that absolute wealth but not income inequality was negatively correlated with fighting. National homicide rates were also a risk factor. They reported that lack of parental support, engagement in overt

risk-taking, and lower education may also influence these relationships. Victimization by bullying was a risk factor, similar to other studies which have found self-reports of bullying victimization to be associated with higher levels of feeling unsafe and with fighting (Baly, Cornell, & Lovegrove, 2014). Pickett et al. further speculated that “lower levels of absolute wealth may result in social conditions that foster the acceptance of violence within society” (p. 22), while the “social class anxiety” related to income inequality might contribute to nonphysical types of aggression such as relational bullying (p. 23).

Elsaesser, Gorman-Smith, and Henry (2013) concluded that risk for involvement in relational aggression is distinct from that of physical aggression, which supports the inconsistent findings by Pickett and colleagues. Elsaesser et al. found that unlike results previously found for physical aggression, no school-level indicator of climate was related to relational aggression. However, individual beliefs about aggression and individual perceptions of the school environment were both related to relational aggression.

School climate. The following is a review of variables related to school climate and the overall learning environment which may be associated with bullying. School climate has some of the strongest research support as a contextual variable associated with bullying (Juvonen & Graham, 2014); however, there is a lack of consensus on the defining characteristics of school climate (Konold et al., 2014). For example, in a meta-analysis of 153 studies, Cook, Williams, Guerra, Kim, and Sadek (2010) found that school climate (and peer status) had the largest effect sizes for victimization. In their study, they defined school climate as “the degree of respect and fair treatment of students by teachers and school administrators as well as a child’s sense of belonging to school”

(p. 67). Voight, Austin, and Hanson (2013) provided a broader definition of school climate which included the following list of defining characteristics: “(a) order, safety, and discipline; (b) academic supports; (c) personal and social relationships; (d) school facilities; and (e) school connectedness” (p. 2). Last, the National School Climate Center, developed 12 dimensions of school climate which fall under four main areas: safety, relationships, teaching and learning, and the external environment. Overall, the following subsections target three areas of school climate referenced in the bullying literature (safety and discipline; academics/learning; and school connectedness).

Safety and discipline. Research has shown that a positive disciplinary climate (Ma, 2002) and normative disapproval of bullying (Gendron, Williams, & Guerra, 2011; Guerra & Williams, 2010) are associated with less bullying. Bullying victimization has been associated with an increase in absenteeism due to safety concerns (Steiner & Rasberry, 2015). Not surprisingly, students and staff are more likely to report feelings of safety and belongingness in schools where bullies are disliked (Waasdorp et al., 2011).

Interestingly, Green et al. (2011) found no significant association between nonphysical bullying victimization and perceptions of safety aggregated to the school level in a sample of 21 high schools. Similarly, Elsaesser et al. (2013) found that unlike results previously found for physical aggression, no school level indicator of climate was related to relational aggression. However, individual beliefs about aggression and individual perceptions of the school environment were both related to relational aggression. Overall, this suggests that high rates of relational aggression could still exist in a school despite an overall positive school climate and feelings of safety among students. Consistent with these findings, Wang et al. (2014) found that students’

collective perceptions of school climate did not moderate the connection between peer victimization and GPA. The authors speculated that a positive school climate was not sufficient to protect students from the negative effects of peer victimization.

Academics/learning. It has been suggested that bullying victimization leads to negative psychological consequences which adversely impact a student's emotional state thus impeding classroom participation, academic achievement, and other educational outcomes (Espelage, Hong, Rao, & Low, 2013). For example, in a sample of urban middle school students, Juvonen, Wang, and Espinoza (2011) found that higher levels of bullying were consistently related to academic disengagement and poor grades across the 3 years of middle school. Consistent with these findings, Nakamoto and Schwartz (2010) conducted a meta-analysis of 33 studies which revealed a small but significant negative correlation between peer victimization and academic functioning.

Freeman et al. (2009) conducted an interesting study on school climate and school pressure as predictors of emotional health and bullying. The sample consisted of adolescents from 26 European countries, Canada, the U.S., and Israel. Overall, they found that students who reported the lowest levels of school pressure also reported having higher levels of emotional health and reported being less involved with bullying. Clusters of schools classified as "medium school climate/low pressure" were associated with a lower prevalence of victimization than schools with "high school climate/high pressure" and schools with "low school climate/high pressure." Overall, this suggests that a positive school climate may be not sufficient to reduce bullying if a third variable such as high academic pressure coexists.

Interestingly, Hazel (2010) conducted a qualitative study in a U.S. suburban elementary school in which she found that teachers and administrative staff were primarily focused on improving performance on state-mandated achievement tests. The school was located in a state with significant consequences for scores on high-stakes tests. This increased stress levels and decreased attention to students' social-emotional needs such as students who were reporting that bullying was interfering with their ability to concentrate inside the classroom. This finding suggests that pressure on staff could contribute to bullying by decreasing the social-emotional supports they provide and possibly increasing academic pressure on students.

Lehman (2014) found that academic effort (i.e., hours spent on homework) and achievement (i.e., GPA) were associated with higher rates of bullying victimization for male high school students. However, a pro-academic attitude did not predict increased reports of bullying victimization. He attributed this difference to the observable nature of effort (e.g., submitting assignments and being prepared) and achievement (e.g., test grades and academic awards); he indicated that these may be signs of femininity which do not conform to gender norms for male students. Lehman suggested that athletic achievement, which increases signs of masculinity, may serve as a protective factor. Overall, academically high-achieving males may be at greater risk for bullying victimization.

Agnich and Miyazaki (2013) conducted a cross-national study which included 8th grade students from 36 nations. At the school-level, they found that higher rates of physical bullying were predicted by lower mean math achievement scores, greater variation in math achievement (inequality), and a higher percentage of younger students.

Indirect forms of violence were not associated with achievement scores. Consistent with these findings, Green, Dunn, Johnson, and Molnar (2011) found that academic performance (time spent on homework) aggregated at the school-level was not significantly associated with reports of nonphysical bullying victimization across 21 public high schools. Overall, this supports the finding that risk for involvement in relational aggression is distinct from that of physical aggression (Elsaesser et al., 2013).

Last, Lacey and Cornell (2013) found perceived prevalence of teasing and bullying was predictive of schoolwide passing rates on state-mandated achievement testing for 284 Virginia high schools. Scores for ninth grade students and for teachers were aggregated into school level scores. However, it is important to note that perceptions of bullying, as used in this study, versus actual self-reports of bullying victimization have resulted in different outcomes (Klein & Cornell, 2010). Findings from this study may have differed if a self-report measure of bullying had been used.

School connectedness. Mehta, Cornell, Fan, and Gregory (2013) found that school level differences in student perceptions of bullying climate (i.e., pervasiveness of bullying) were associated with school engagement (i.e. lower commitment to school and less involvement in school activities), even after controlling for individual-level perception of bullying climate. Less favorable scores on measures of school adjustment (e.g., doing schoolwork and following rules) and school bonding (e.g., being happy at school) have also been predictive of membership in both the bully and the victim groups (Haynie et al., 2001). The following section covers general findings regarding variables which may be indicators of school engagement/school connectedness: teacher absences, student attendance, dropout, and retention.

Teacher absences. In a sample of 2,364 Finnish secondary school teachers, Ervasti et al. (2012) found an association between school-level student problem behavior (vandalism and bullying) and teacher-level rates of short-term absence (1-3 days) due to illness. The authors noted how problem behaviors contribute to teacher stress and burnout, as well as use of absences as a coping mechanism. Teachers working in schools with >15% prevalence of bullying were at a higher risk of short-term absences compared to teachers in schools with <10% prevalence of bullying. This suggests that higher rates of bullying may be associated with both student and staff disengagement.

Student attendance. School absenteeism and school avoidance have been associated with victimization (Berkowitz & Benbenishty, 2012; Dake, Price, & Telljohann, 2003; Swearer et al., 2010). Researchers have found that both middle school and high school students who are bullied are more likely to report missing school due to feeling unsafe (Baly et al., 2014; Steiner & Rasberry, 2015). In a nationally representative sample of U.S. high school students, Steiner and Rasberry (2015) found that approximately 15.5% of bullied students reported missing school one or more days in the past month because of safety concerns.

Kearney (2008) conducted a comprehensive review of the research literature on school absenteeism and school refusal behavior. Kearney found that absenteeism is more common among students with disabilities, low-income students, and students in schools with a higher percentage of low-income students. School absenteeism has also been linked to medical problems, psychiatric conditions, delinquency, and school dropout. Contextual risk factors included homelessness, poverty, school violence and victimization, school climate and connectedness, and parental involvement. Family

variables included poor cohesion and conflict, enmeshment, isolation, and detachment. Community variables included problematic neighborhoods (unsafe, unsupportive) and maltreatment. Overall, absenteeism and bullying share several risk factors; however, further research is needed to determine the relationship between victimization rates and attendance at the school level.

Dropout. Several risk factors for dropping out of school have been identified across ecological systems (see Hammond, Linton, Smink, & Drew, 2007 for a comprehensive report on dropout risk factors). Overall, Hammond et al. (2007) identified 25 significant individual and family risk factors, four of which spanned across all grade levels: low achievement, retention, poor attendance, and low family SES. Other risk factors at the high school level included social attitudes and behavior (e.g., a high-risk peer group), school engagement (e.g., low educational expectations, low commitment to school, and no extracurricular participation), school misbehavior, and family background (e.g., low education level of parents). Several of these factors have been linked to bullying involvement, for example, low achievement (Baly et al., 2014; Juvonen et al., 2011; Nansel et al., 2001) and disengagement from school (Juvonen et al., 2003).

However, beyond sharing risk factors, Cornell, Gregory, Huang, and Fan (2013) found that the prevalence of teasing and bullying as perceived by Grade 9 students and teachers was predictive of dropout rates four years later, after controlling for school size, student poverty and minority composition, community crime rates, and performance on standardized achievement testing. The authors provided several explanations for the link between peer victimization and dropout, such as school disengagement, poor academic performance, and disciplinary actions such as suspension which all contribute to dropout.

Interestingly, student self-reports of bullying victimization (verbal, physical, and social) were not predictive of dropout rates. These findings indicate that researchers should use caution when interpreting findings or drawing conclusions based on student and teacher perceptions of the school bullying climate versus self-reports of bullying experiences.

Retention. Research has shown that retained students are more likely to experience problems with peer interactions, disliking school, lower self-esteem, and increased stress (Jimerson, Woehr, & Kaufman, 2004). Jimerson et al. (2004) also reported that retention significantly increases risk for dropout and typically has a negative impact on academic achievement and social and emotional adjustment. As expected, Crothers et al. (2010) found that old-for-grade status was related to significantly more bullying behavior and victim behavior compared with age-appropriate-for-grade peers. Similarly, Jimerson (2001) conducted a meta-analysis regarding the efficacy of grade retention; the greatest differences between groups were on measures of attendance, reading, mathematics, language, and emotional adjustment. Research has also shown that retention is less likely in later grades and more likely for boys, minority students (other than Asian), English language learners, and exceptional students (Tingle, Schoeneberger, & Algozzine, 2012). Further research is needed to determine the relationship between school level retention and bullying rates.

Protective factors. The following section briefly covers two school-related variables which have been deemed important in student success: parent involvement and social-emotional supports

Parent involvement. Fan and Chen (2001) conducted a meta-analysis to examine the relationship between parental involvement and students' academic achievement.

Findings revealed a small to moderate relationship. Parental aspiration/expectation for children's education achievement had the strongest relationship, while parental home supervision had the weakest. In a nationally representative study, Shen, Washington, Palmer, and Xia (2014) examined traditional forms of parental involvement (e.g., parents physically come to school and participate in some type of activity or provide home-based support such as homework help) and nontraditional forms (e.g., parents as active decision makers for budgeting, policies, teacher evaluation, hiring, etc.). The findings indicated that parental involvement was important for school level academic achievement, even when controlling for grade level, minority composition, SES, and school size. Traditional forms had the greatest impact.

In a sample of middle school students in Canada, Ma (2002) found that students were bullied less in schools characterized by strong parental involvement in Grade 6. Huang, Hong, and Espelage (2013) also concluded that home-school connection contributes to positive outcomes and reduces school problems such as bullying in Chinese schools. Overall, parental involvement has been associated with academic achievement at the individual and school level. Preliminary findings suggest that parental involvement is associated with lower rates of bullying; however, further research is needed.

Social-emotional supports. In regards to peer victimization, research suggests that victims experience negative psychological consequences which adversely impact their emotional state and school performance (Espelage et al., 2013). At the individual level, bullying has been associated with higher rates of depression for victims (Bond et al., 2001; Hawker & Boulton, 2000; Juvonen et al., 2003; Kaltiala-Heino et al., 2000;

Neary & Joseph, 1994), bullies (Klomek et al., 2007; Seals & Young, 2003), and bully-victims (Haynie et al. 2001; Kaltiala-Heino et al., 1999). See section on individual correlates of bullying behaviors for a more comprehensive review of the psychosocial correlates for bullies, victims, and bully-victims.

Green et al. (2011) were interested in mental health problems aggregated to the school-level. They suggested that a higher prevalence of mental health problems could be an indicator of greater psychological distress and school disorder, which could be influenced by exposure to bullying. Overall, they found that the percent of students in the school who received mental health services (i.e., visited a counselor for an emotional problem) was significantly associated with individual reports of bullying victimization, even after controlling for individual-level reports of visits to a counselor. From a limited set of available data, Green et al. were able to explore associations with service availability; preliminary results showed no association, suggesting that bullying prevalence may influence school-level mental health. This suggests that the overall emotional well-being of students could be improved through bullying intervention.

In regards to protective factors and intervention, Gregory et al. (2010) found that availability of caring adults, aggregated at the school level, was associated with lower rates of bullying and victimization among high school students. It has also been suggested that access to LGBT resources could decrease victimization in higher poverty communities (Kosciw et al., 2009).

Community

Urban-rural location. Overall, more recent studies have shown no significant differences in bullying involvement by rural-urban location. Guerra and Williams (2010)

found that the incidence of bullying and negative bystander behavior was similar among rural and urban schools across 5th, 8th, and 11th graders in 61 Colorado schools. Klein and Cornell (2010) also found that urban location was not predictive of self-reported rates of victimization across 290 Virginia high schools; in addition, they found that students were less likely to perceive bullying and teasing in urban schools, after controlling for poverty level and minority student composition. In a nationally representative sample of U.S. students in grades 6 to 10, Nansel et al. (2001) also found no significant differences in the frequency of bullying victimization among youth from urban, suburban, town, and rural areas; however, youth from rural areas were slightly more likely to report bullying others.

Overall, it has been suggested that although related, bullying may not show the same trends as other forms of aggression and youth violence (Guerra & Williams, 2010). For example, Bradshaw, Sawyer, and O'Brennan (2009) found that youth in suburban areas may be at a greater risk for involvement in bullying, while those in non-suburban areas may be at greater risk for feeling unsafe and endorsing retaliatory attitudes.

Also, it is important to note that urban-rural differences may exist for subsamples. For example, results from the 2013 National School Climate Survey showed that students in rural/small town schools experience higher rates of victimization in schools based on sexual orientation and gender expression (Kosciw et al., 2014).

In regards to resources, Schumann, Craig, and Rosu (2014) found that community recreational opportunities (access to shopping centers, community centers, etc.) were associated with decreased victimization, both traditional and electronic forms, in a sample of Canadian students in grades 6 to 10, living in 322 communities. Access to recreational opportunities could be impacted by urban-rural location.

Violence exposure. At the community level, an association has been suggested between violence exposure and bullying. Schwartz and Proctor (2000) conducted a study with 285 inner-city children from Los Angeles in Grades 4 – 6. Results revealed a correlation between violence exposure and bullying victimization, social rejection, and aggression. Children who reported violent victimization had impaired emotion regulation which appeared to mediate the relationship between violent victimization and negative social outcomes. In contrast, witnessing violent events in the community was associated with positive outcome and efficacy beliefs for aggression (i.e., social learning theory). In a meta-analysis of 153 studies, Cook, Williams, Guerra, Kim, and Sadek (2010) found that community factors (and peer influence) had the largest effect sizes for bullying perpetration. Overall, more research is needed on neighborhood environment correlates.

Evidence-Based Interventions

In regards to evidence-based programs, the findings are mixed. Some meta-analyses have found that a majority of the programs did not demonstrate meaningful change in outcome variables (Merrell et al., 2008; Smith, Schneider, Smith, & Ananiadou, 2004), while others have found more promising results (Ttofi & Farrington, 2011; Vreeman & Carroll, 2007). The whole-school approaches, specifically, have indicated more promising results. Overall, variations in findings appear to be impacted by implementation difficulties stemming from cultural differences, school level differences, and lack of explicit instructions for replication (Vreeman & Carroll, 2007).

Ttofi and Farrington (2011) found the following program elements to be important for decreasing bullying: parent training/meetings, improved playground supervision, disciplinary methods, classroom management, teacher training, a whole-

school anti-bullying policy, school conferences, and intensity and duration of the program; while work with peers (e.g., peer mediation and peer mentoring) was associated with an *increase* in victimization. Programs with a treatment integrity monitoring component have shown better results (Smith, Sharp, Eslea, & Thompson, 2004). In addition, bystander intervention programs have shown promising results, with effects being greater for high school students (Polanin et al., 2012).

It is important to note that the Center for the Study and Prevention of Violence has designated the Olweus Bullying Prevention Program (OBPP) as one of 11 model violence prevention programs based on their rigorous selection criteria. OBPP is a universal program which addresses the school environment and individual students (Limber, 2011). Studies conducted in the United States, as opposed to Norway, have found mixed results (Olweus & Limber, 2010). Olweus and Limber (2010) provided the following challenges for U.S. schools: resistance from staff and parents, use of strategies that are fundamentally inconsistent with OBPP (e.g., zero-tolerance policies), and “cherry-picking” program elements that require the least effort.

In a brief published by the National Association of School Psychologists (NASP), it was stated that “single, stand-alone bullying prevention programs tend not to be optimally effective or sustainable” (Rossen & Cowan, 2012, p. 3). Swearer et al. (2009) agreed that “effective bullying prevention and intervention really are not about buying a specific program” (p. 74). Overall, a multitier prevention and intervention system has been recommended (Espelage & Swearer, 2008). In order to develop a comprehensive and sustainable approach, NASP recommends integrating similar initiatives such as

ongoing drug abuse prevention or school safety efforts (Rossen & Cowan, 2012). This approach reduces fragmented services and maximizes limited resources.

Despite the common use of conflict resolution and peer mediation strategies in schools, they are not recommended in the case of bullying. To illustrate this point, Limber (2011) remarked that mental health practitioners would not consider resolving domestic violence and child abuse with conflict resolution and mediation strategies. Group treatment for children who bully is not recommended either. Limber described the dangers of children serving as role models and reinforcers for bullying behaviors. In addition, she noted that some groups target low self-esteem, which many have argued is not associated with children who only bully. She argued against zero tolerance policies which “cast a wide net,” harm school climate, discourage reporting, and remove students from their positive social environment.

Ecological Systems Framework

A new and promising trend in the bullying literature is examining the bullying phenomenon using an ecological systems approach (e.g., Espelage & Swearer, 2003; Hong & Espelage, 2012; Lee et al., 2011; Pozzoli, Gini, & Vieno, 2012). The approach originates from ecological systems theory (Bronfenbrenner, 1979) which takes into account the complex relationships between the individual, family, peer group, school, community, and cultural context over time. This theoretical framework complements the paradigm shift proposed by Espelage and Swearer (2003) toward a *bully/victim continuum* which conceptualizes bullying as “a dynamic phenomenon where individuals can move in and out of different roles depending upon the social ecology that might promote or inhibit bullying behaviors” (Espelage & Swearer, 2008, p. 342). Through a

social-ecological lens, the problem of bullying lies within and between systems, not solely within the child. Swearer and Espelage (2011) used the concept of *equifinality* to explain that “the same result [bullying] may be achieved via many different pathways” (p. 4). Thus, bullying is shaped by a complex array of factors determined by individual characteristics and nested environmental systems (Swearer et al., 2010). This approach aligns with current findings that bullying interventions targeting only one level of the system (e.g., social skills curriculum in the classroom) are generally ineffective (Vreeman & Carroll, 2007). Although less resource intensive, such interventions do not approach bullying as a sociocultural phenomenon which involves multiple levels.

In a 1974 editorial, Bronfenbrenner described the “child’s ecology” as containing two parts: (1) the immediate environment (e.g., school and home) composed of a physical space, interpersonal relationships, and ongoing interactions/activities; and (2) the surrounding environment (e.g., geographical location and social institutions) which shapes the immediate environment. In discussing his views on social policy, Bronfenbrenner emphasized the need for a paradigm shift from a *unidirectional, two-person model* of development to a bidirectional child by environment model which places the child *in context*. He made reference to the need for *ecologically valid* research. As such, bullying is a phenomenon that must be understood “in context.”

Wertsch (2005) provided a unique analysis of Bronfenbrenner’s work in which he compared Russian and American psychology. Wertsch wrote that “what sets Bronfenbrenner apart from so much of psychology in the USA, and American society in general, is his basic assumption that one cannot improve the developmental trajectory of

individuals by focusing primarily on individuals” (p. 148). Wertsch contrasted it with the Western focus on *methodological individualism*. Wertsch explained:

He [Bronfenbrenner] does not stand in opposition to mainstream psychology by simply switching the focus from the individual to the social environment. To do this would amount to espousing a combination of social determinism and mindless behaviourism. Instead, his focus has always been on the complex interaction he sees between social and individual planes of analysis [...] the point is not so much that it is either society or the individual that must be considered as being analytically prior. Instead, the point is that the social and individual are not envisioned as being separated in some neat way in the first place. (p. 148)

Swearer and Espelage (2011) summarized that “bullying comprises a complex set of antecedents, behaviors, and consequences,” and “the reasons why children and adolescents bully one another are complex, multiply-determined, and differentially reinforced” (p. 24). Past research has focused heavily on the individual characteristics of perpetrators and victims of bullying; however, there remains a paucity of research that explains what mediating and moderating processes are involved (Harris, 2009). Harris (2009) emphasized the importance of answering such questions from a theory-driven approach that reaches beyond the individual level. I propose to study bullying using an ecological systems approach by assessing the phenomenon at the school level while taking into consideration individual level findings.

Chapter 3: Study

School Level Predictors of Bullying Among High School Students

Purpose of the Study

A new and promising trend in bullying research is examining the phenomenon using an ecological systems approach (e.g., Espelage & Swearer, 2003; Hong & Espelage, 2012; Lee et al., 2011; Pozzoli, Gini, & Vieno, 2012). The method originates from ecological systems theory (Bronfenbrenner, 1979) which takes into account the complex relationships between the individual, family, peer group, school, community, and cultural context over time. This theoretical framework supports a paradigm shift proposed by Espelage and Swearer (2008) toward a bully/victim continuum which conceptualizes bullying as “a dynamic phenomenon where individuals can move in and out of different roles depending upon the social ecology that might promote or inhibit bullying behaviors” (p. 342). Through this socio-ecological lens, the problem of bullying lies within and between systems, not solely within the child.

However, in order to apply an ecological systems framework, it is necessary to identify significant influences at all levels. Currently, individual level data have a strong research foundation, but the investigation into family, school, and community level variables are limited. For example, Green et al. (2011) used a multilevel design to investigate school level predictors of nonphysical forms of bullying. In doing so, they found that “very little is known about the specific characteristics of the school environment that may be associated with bullying” (p. 135). There is also a paucity of research at the high school level because greater emphasis has been placed on bullying among elementary and middle school students (Bradshaw et al., 2015; Cornell et al.,

2013; Hammig & Jozkowski, 2013). Last, minimal information is available on the prevalence of bullying in Kentucky high schools. School data collection procedures have primarily focused on frequency counts of bullying incidents. Thus, the primary purpose of this study is to examine how school level characteristics influence bullying involvement among high school students. A better understanding of school characteristics is necessary to (1) understand how the school context may inhibit or reinforce bullying behaviors and (2) identify contextual variables to guide future bullying research and intervention efforts.

Research Questions and Hypotheses

Research question 1. What is the prevalence of bullies, victims, and bully-victims across Kentucky high schools? This descriptive information is necessary to determine the degree to which bullying varies across schools and to answer the following question.

Research question 2. What school characteristics are associated with elevated rates of self-reported bullying involvement?

a. Sociodemographics. The following hypotheses were determined for the sociodemographic variables included in this study:

Race/ethnicity. Based on previous school level findings showing a relationship between greater ethnic diversity and lower levels of peer victimization (Felix & You, 2011; Juvonen et al., 2006), it is hypothesized that schools with less racial/ethnic diversity will have higher rates of bullying involvement.

Sex. Previous research findings show that males tend to report being involved in more direct forms of bullying (i.e., physical and verbal; Juvonen et al., 2000; Nansel et

al., 2001) while females more frequently engage in relational forms (Nansel et al., 2001). Interestingly, students attending single-sex high schools have been shown to experience lower rates of bullying (Johnson & Gastic, 2014). Overall, due to analyses being conducted at the school level with a sample of coeducational schools, it is hypothesized that the proportion of male and female students will be similar for low and high bullying schools.

Sexual orientation. Students who identify as lesbian, gay, bisexual, or questioning, also known as sexual minorities, are at a higher risk for experiencing bullying (Fedewa & Ahn, 2011). Based on these individual level findings, it is hypothesized that schools with a higher percentage of sexual minority students will have higher rates of bullying involvement.

Socioeconomic status. Although a weak relationship between low SES and bullying victimization has been established (Tippet & Wolke, 2014), some findings at the school level have shown no association between the proportion of students eligible for free or reduced-price meals and self-reports of bullying victimization (Green et al., 2011; Klein & Cornell, 2010). Due to analyses being conducted at the school-level and using self-report data, it is hypothesized that the proportion of low SES students and poverty in the surrounding community will be similar for low and high bullying schools.

School size. Klein and Cornell (2010) found that although students and teachers reported observing more bullying and teasing in larger schools than those in smaller schools, actual student-reported rates of bullying victimization were not correlated with school enrollment size. This is consistent with other research revealing no association between bullying and school or class size (Batsche & Knoff, 1994; Whitney & Smith,

1993) and those concluding that findings have been inconsistent (Card, Isaacs, & Hodges, 2008). Based on these findings, it is hypothesized that the mean enrollment size will be similar for low and high bullying schools.

Grade level. Past research has shown that bullying behaviors tend to increase across elementary school, peak in middle school, and decline across high school (Björkqvist et al., 1992; Espelage & Swearer, 2003; Nansel et al., 2001; Pellegrini & Long, 2002). Due to this trend in bullying rates across age groups, it is hypothesized schools with a higher percentage of freshmen will have higher rates of bullying involvement

Rural-urban location. Overall, more recent studies have shown no significant differences in bullying involvement by rural-urban location (Klein & Cornell, 2010; Guerra & Williams, 2010). According to these findings, it is hypothesized that there will be no rural-urban location differences between low and high bullying schools.

b. School order. The following hypotheses were determined for the school order variables included in this study.

Suspensions. Research findings in this area are limited; few studies have examined the relationship between suspensions and bullying behaviors at the school-level. Based on an association between bullying perpetration and suspension rates for middle school students (Bradshaw et al., 2009), it is hypothesized that schools with higher suspension rates will have higher rates of bullying involvement.

Fights between students. Research findings in this area are limited. At the individual level, victimization by bullying is a risk factor for fighting (Baly et al., 2014; Pickett et al., 2013). In addition, since fighting and physical bullying are both forms of

aggression and school violence, it is hypothesized that schools with higher numbers of fights between students will have higher rates of bullying involvement.

Disruptive behaviors. Bullying may be more likely in classrooms and schools with high conflict and poor classroom management (Azeredo et al., 2015; Lleras, 2008; Swearer & Hymel, 2015); thus, it is hypothesized that schools with higher incidents of disruptive behaviors will have higher rates of bullying involvement.

Student-teacher ratio. A higher student-teacher ratio has been associated with a greater chance of witnessing bullying (Waasdorp et al., 2011) and a higher risk of being bullied by peers (Bradshaw et al., 2009). However, these findings have not been consistent. In a systematic review of contextual-level risk factors of bullying, Azeredo et al. (2015) found that study results related to student-teacher ratio were inconclusive, demonstrating positive, negative, and no significant associations. Based on the inconsistent findings for both school size and student-teacher ratio, it is hypothesized that there will be no student-teacher ratio differences between low and high bullying schools.

c. School climate/learning environment. The following hypotheses were determined for the school climate/learning environment variables included in this study.

Teacher absences. Limited research exists on the relationship between bullying and teacher absences. Outside the U.S., one study did find an association between school-level student problem behavior (vandalism and bullying) and teacher-level rates of short-term absence (1-3 days) due to illness; however, no association was found with absences greater than three days (Ervasti et al, 2012). The authors noted how problem behaviors contribute to teacher stress and burnout, as well as use of absences as a coping mechanism. Thus, it is hypothesized that schools with a higher percentage of full-time

teachers absent greater than 10 schools days will have higher rates of bullying involvement.

Dropout. Several of the risk factors for dropout are also risk factors for bullying involvement, including low academic achievement (Baly et al., 2014; Juvonen et al., 2011; Nansel et al., 2001), retention (Crothers et al., 2010), disengagement from school (Juvonen et al., 2003), poor attendance (Kearney, 2008; Swearer et al., 2010), and low family SES (Due, Damsgaard, et al., 2009; Due, Merlo, et al. 2009; Jansen et al., 2012). Due to the shared risk factors for bullying involvement and dropping out, it is hypothesized that schools with higher dropout rates will have higher rates of bullying involvement.

Retention. Old-for-grade status has been linked to increases in bullying and victim behavior (Crothers et al., 2010). Research has also shown that retained students are more likely to experience problems with peer interactions, disliking school, lower self-esteem, increased stress, risk for dropout, and impaired academic achievement and social and emotional adjustment (Jimerson et al., 2004). Based on these findings, it is hypothesized that schools with higher retention rates will have higher rates of bullying involvement.

Student attendance. At the individual level, findings show that in-person and electronic bullying are associated with school absenteeism and with feeling unsafe at school (Baly et al., 2014; Berkowitz & Benbenishty, 2012; Dake et al., 2003; Steiner & Rasberry, 2015; Swearer et al., 2010). At the school level, research is lacking; violence and victimization may be associated with absenteeism (Kearney, 2008). Overall, it is hypothesized that schools with lower attendance rates will have higher rates of bullying involvement.

Graduation. Due to the relationship between dropout, retention, attendance, and graduate rates, it is hypothesized that schools with lower graduation rates will have higher rates of bullying involvement.

Readiness for college-level math and English. At the individual level, a negative correlation has been established between peer victimization and academic functioning (Juvonen et al., 2011; Nakamoto & Schwartz, 2010). However, school level findings have suggested a less consistent pattern. Agnich and Miyazaki (2013) found that higher rates of physical bullying were predicted by lower mean math achievement scores; however, indirect forms of violence were not associated with achievement scores. Green et al. (2011) reported similar findings in that academic performance aggregated at the school level was not significantly associated with reports of nonphysical bullying victimization. Due to the larger body of research supporting a negative correlation between peer victimization and academic functioning, it is hypothesized that schools with a lower percentage of students ready for college-level math and English will have higher rates of bullying involvement

College-going. Based on individual level findings for bullying and educational outcomes, it is hypothesized that schools with a lower percentage of graduates attending college will have higher rates of bullying involvement.

Mental health. At the individual level, bullying has been associated with higher rates of depression for victims (Bond et al., 2001; Hawker & Boulton, 2000; Juvonen et al., 2003; Kaltiala-Heino et al., 2000), bullies (Klomek et al., 2007; Seals & Young, 2003), and bully-victims (Haynie et al. 2001; Kaltiala-Heino et al., 1999). Green et al. (2011) also found a link between exposure to bullying and school level mental health.

Based on these findings, it is hypothesized that schools with a higher percentage of students reporting symptoms of depression will have higher rates of bullying involvement.

d. Protective factors. The following hypotheses were determined for the protective variables included in this study.

Parent involvement. Overall, parental involvement has been associated with positive outcomes for academic achievement and reductions in bullying (Huang et al., 2013; Ma, 2002; Shen et al., 2014). Thus, it is hypothesized that schools with less parent involvement will have higher rates of bullying involvement.

Student-counselor ratio. There is a lack of research on the relationship between counseling resources and the prevalence of bullying at the school level. One study by Gregory et al. (2010) did find that availability of caring adults, aggregated at the school level from students' perceptions of school support, was associated with lower rates of bullying and victimization among high school students. In accordance, it is hypothesized that schools with a larger student-counselor ratio will have higher rates of bullying involvement.

Research question 3. Which of these school characteristics predict bullying involvement? Results from question 2 will be used to answer question 3.

Method

Participants

The present study used data collected during a statewide longitudinal research project funded by the Centers for Disease Control and Prevention. The main purpose of the study was to evaluate the effectiveness of Green Dot, a bystander intervention

program for prevention of dating and sexual violence and other power-based forms of interpersonal violence (see Cook-Craig et al., 2014). The study included 26 public high schools from across the state of Kentucky. The schools were selected from the 13 regions of the Kentucky Association of Sexual Assault Programs (KASAP). From each region, two demographically comparable high schools were recruited to participate either as the intervention or control site. Due to the content of the intervention, high schools with abstinence-only programs were not recruited. This study used baseline data which were collected in spring of 2010, prior to implementation of the intervention, in order to control for effects of the intervention on bullying behaviors.

An annual panel survey method was used to anonymously survey all students in Grades 9 to 12 attending each of the 26 participating high schools. Participation was voluntary. Reasons for non-participation included: (a) a parent/guardian denied consent for student to participate, (b) the student was physically or mentally unable to complete the survey, (c) the student was absent on day of survey administration, or (d) the student chose not to participate in the survey. In spring 2010, the total number of student participants was 17,068. The student response rate for surveys conducted across the study was 86.2%. For this study, all individual level data were aggregated to the school level ($n = 26$). For the 2009-2010 school year, there were 203 public high schools in Kentucky, indicating that 12.8% of high schools were included in this study.

The mean percent of white students in this sample was 87.67% ($SD = 16.07$), ranging from 41.40% to 99.81%. The mean percent of females was 49% ($SD = 2.26$), and the mean percent of students receiving free or reduced meals was 52.38% ($SD = 15.01$). The mean enrollment was 1033 ($SD = 361$).

Measures

Data were collected from two primary sources: (1) the Green Dot study, which consisted of student surveys and school reports and (2) existing sets of education data that Kentucky public high schools are required to report for accountability purposes. Specific measures are discussed below.

Bullying self-reports. The prevalence of bullying was measured using two items from the UK Health and Safety Study Survey which was developed for the Green Dot study. The 99-item student survey measures several constructs, including social norms supporting violence, sexual harassment, dating violence, and bullying behaviors. The survey was modeled after the CDC Youth Risk Behavior Survey (YRBS). Students take approximately 25-40 minutes to complete the survey which consists of a pencil, scantron form, and survey booklet. Survey administration was standardized, and study protocol was approved by the University of Kentucky Institutional Review Board.

The survey included both a perpetration and victimization item that followed this definition: “Bullying is when students tease, threaten, spread rumors, hit, shove, or hurt another student over and over again. It is not bullying when students who are about the same size fight or tease each other in a friendly way.” Both items asked students to report how many times, in the past 12 months, that they had been bullied by another high school student (victimization) and how many times that they had bullied another high school student (perpetration). Response items were 0 times, 1-2 times, 3-5 times, 6-9 minutes, 10 or more times, and “Yes, this happened before, but not in the past 12 months.” See Appendix A for the specific items used in this study.

Solberg and Olweus (2003) provided strong empirical support for a single item self-report method for prevalence estimates. They deemed their method a more reliable, systematic, and replicable process for determining prevalence rates and minimizing variability across studies. The following are ways in which the two self-report items in the study by Solberg and Olweus correspond with those on the UK Health and Safety Study Survey: clear definition of bullying provided, items immediately follow definition, reference period provided (i.e., past 12 months), specific response alternatives (e.g., 3-5 times), spatial reference (e.g., references “high school students” which includes all peers in the school setting), definition includes intent to harm, repetition, and power imbalance, and definition addresses direct and indirect forms of bullying.

Bullying school reports. During the 2010-2011 school year, the Green Dot evaluation research team also collected school level external data. This included the total number of bullying incidents reported by each school. School data collection procedures were not provided.

School characteristics. For the predictor variables, additional sources of secondary data were utilized to form a dataset representing the 26 high schools during the 2009-2010 school year. Data sources included: the Kentucky Department of Education, Kentucky Center for Education and Workforce Statistics, U.S. Department of Education, U.S. Census Bureau, and U.S. Department of Agriculture. The data retrieved included a wide-range of demographic variables and several indicators of school performance for the 2009-2010 school year. These datasets were selected for several reasons including data quality, accessibility, and inclusion of variables linked to bullying in the research

literature. In addition, they included variables which have been selected at the state and national level to serve as key indicators of school performance.

The following is a list of the school level variables selected for this study.

Sociodemographic variables included: race/ethnicity, gender, sexual orientation, grade, free and reduced lunch, poverty, and rural-urban code. School order variables included: suspensions, fighting between students, disruptive behavior, school size, and student-teacher ratios. School climate/learning environment variables included: teacher absences, student attendance, college readiness, college-going rates, dropout, retention, graduation rates, and mental health. Protective variables included: parent-teacher involvement and student-counselor ratios. See Table 1 for a list of all variables included in this study with a description of the data source and measure used.

Procedures

Data for this study were compiled from multiple secondary sources (see Table 1). The primary outcome measures for bullying perpetration and victimization were data retrieved from a larger research study (spring 2010 baseline data collection). De-identified individual level data relevant to this study were provided in an SPSS file by the research team. This also included an Excel file of external school level data provided by each school for the 2010-2011 school year. Individual level data, coded by school, were aggregated to the school level and entered into an Excel spreadsheet. Secondary data from school performance reports and state and national education datasets, all available online, were also entered into the Excel spreadsheet. When the final dataset was compiled and passed two accuracy checks, all data were transferred into an IBM SPSS Statistics 22 database for statistical analyses.

Table 1

Data Sources, School Level Variables, and Measurement

Source	Location	Description	Variables	Measurement at School Level
Green Dot Study	Provided by research team	UK Healthy and Safety Study Survey (spring 2010) and external school level data	Bullying Involvement	Percent of bullies, victims, and bully-victims.
			Sexual Orientation	Percent of students who identified as exclusively heterosexual.
			Depression	Percent of students who reported feeling sad or hopeless every day for 2 or more weeks in past 12 months.
			Bullying, Suspensions, Student Fights, Disruptive Behavior	Number of incidents reported by school for 2010-2011 school year.
KY Dept. of Education (KDE)	http://openhouse.education.ky.gov/	Public access education data files. Aggregated to the school, district, and state level. Includes School Report Cards and supplemental data on the learning environment for the 2009-2010 school year.	Enrollment, Race, Gender, Grade Level	Head count and ethnicity of students enrolled on the last day of school each school year. Data are divided by gender and grade level.
			Free and Reduced Meals	Percent of students qualifying for free and reduced meals.
			Attendance Rate	Reflects 2009-2010 school year.
			Graduation Rate	Based on the Average Freshman Graduation Rate (AFGR).
			Dropout Rate	Percent of students that drop out of school in grades 9-12. Data are

Table 1 Continued

Source	Location	Description	Variables	Measurement at School Level
				extracted from student information system each year on Nov. 1st.
			Retention	Percent of students who had to repeat the grade.
			Student-Teacher Ratio	Number of students per teacher.
			Parent-Teacher Conferences	Number of students with at least one parent/guardian and teacher conference. Percent calculated using enrollment.
Kentucky Center for Education and Workforce Statistics (KCEWS)	https://kentuckyp20.ky.gov/	Public access data files and reports evaluating education and workforce efforts in KY. Includes High School Feedback Reports on the academic performance and college going data for graduating class of 2009-2010.	College Readiness (Math & English)	Percentage of 2009-2010 high school graduates who took the ACT Statewide administration in 2008-2009 with at least a 19 on their junior year mathematics ACT score and with at least a 18 on their junior year English ACT score.
			College-Going Rate	Percentage of 2009-2010 graduates who entered postsecondary education at any point during the 2010-2011 academic year.
U.S. Dept. of Education, Office for Civil Rights	http://ocrdata.ed.gov/	Civil Rights Data Collection provides a wide-range of access and equity data at school- and district-level. *Data were not available for 4	Student-Counselor Ratio	Student-counselor ratio calculated using student enrollment for 2009-2010 school year and number of full-time school counselors.
			FTE Teachers Absent >10 days	Percentage of full-time teachers absent >10 school days. This

Table 1 Continued

Source	Location	Description	Variables	Measurement at School Level
U.S. Census Bureau	http://www.census.gov/progr/ams-surveys/a/cs/	schools in this study. Includes the American Community Survey 5-year estimates (most reliable and largest sample size).	Poverty Level	includes sick and personal leave. Percent of individuals whose income in the past 12 months is below the poverty level. Period estimate from January 1, 2006 to December 31, 2010.
U.S. Dept. of Agriculture (USDA)	http://www.ers.usda.gov/data-products/rural-urban-continuum-codes.asp x	Includes county-level Rural-urban Continuum Codes (2013) using the 2010 Census of Population.	Rural-Urban Continuum Code	Classification scheme that distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area. Categories have been subdivided into three metro and six nonmetro categories. Each county in the U.S. is assigned one of the 9 codes.

Data Analyses

Research question 1. To determine the prevalence of bullying, both self-report and school-report data were analyzed. Self-reports of bullying perpetration and victimization were recoded into three groups: bully only, victim only, and bully-victim. As suggested by Solberg and Olweus (2003), a lower-bound cut-off point of greater than two times was used to create the categories. This means that students who marked the response item 1-2 times were not coded as bullies or victims. With this cut-off point, Solberg and Olweus found that involved students, victims, and bullies differed very markedly from “non-involved” students in conceptually related variables. They noted that students who respond with one or two times may be unsure if an experience is considered bullying. The sum for all three groups was used to form an overall bullying involvement variable (i.e., number of bullies only + number of victims only + number of bully-victims). Bullying involvement was then reported as a percentage for each school. This method prevents duplication of students who fall into both the bully and victim category, as well as providing a more accurate representation of the school bullying climate by including both victims and perpetrators. In contrast, school-report data were simply presented as count data. They could not be calculated and presented in the same form as self-reports due to (1) the limited number of total bullying reports per school and (2) the absence of individual-level data. After calculating the prevalence of bullying using school- and self- reports, Pearson’s correlation was applied to examine the relationship between both measures.

Research question 2. In order to determine what school characteristics are significantly different for schools with higher rates of bullying involvement, two steps

were taken. First, two groups of schools (low bullying and high bullying) were defined based on the prevalence rates from Question 1. For self-reports, the average school level percentage of bullying involvement (17%) was used as a cut-score for the low and high bullying group. This split the 26 schools into a high bullying school group ($n = 12$) with prevalence rates ranging from 17.12% to 23.31% and a low bullying school group ($n = 14$) with prevalence rates ranging from 10.79% to 16.63%. For school-reports, the average number of reports (0.88) was used to define the low and high bullying groups. The cut score was set at 1 or more reports of bullying. This split the schools into a high bullying school group ($n = 13$) with the number of incidents reported ranging from 1 to 4 and a low bullying school group ($n = 13$) with no reports of bullying. Overall, 17 of the 26 schools (65%) overlapped which means that the high-low bullying group placement was in agreement when comparing methods.

Second, a series of independent-samples t-tests were performed to make comparisons between all school level variables (i.e., demographic, school order, school climate/learning environment, and protective variables) for both the high and low bullying groups based on student self-reports and school reports.

Research question 3. To determine school level predictors of the prevalence of bullying involvement, Pearson's correlation coefficients were generated to examine bivariate relations among predictor, control, and outcome variables. Question 2 results were used to select candidate variables. The results from these correlational analyses were then used to select variables for multiple variable analysis using linear regression. Last, the strongest predictors of bullying involvement were selected by assessing the adjusted R^2 value and the influence of the predictor variables in each model.

Results

Research Question 1

The following is the first research question proposed: what is the prevalence of bullies, victims, and bully-victims across Kentucky high schools? Below is a summary of the results for student and school reports, as well as results from examining the relationship between the two outcome variables.

Student bullying reports. In the sample of 26 high schools, the mean school level percentage of students identified as a victim only was 8.74% ($SD = 1.60$). The prevalence of *victims only* ranged from 6.55% to 13.45%, indicating that approximately twice as many students reported being bullied in the highest rate school compared to the school with the lowest rate of bullying victimization. The mean school level percentage of students identified as a bully only was 5.53% ($SD = 1.73$). The prevalence of *bullies only* ranged from 1.08% to 8.47%, indicating that approximately eight times as many students reported having bullied other students in the highest rate school compared to the school with the lowest rate of bullying perpetration. The mean school level percentage of students identified as a bully-victim was 2.52% ($SD = 0.86$). The prevalence of *bully-victims* ranged from 1.14% to 4.46%, indicating that approximately four times as many students reported being both a victim and a bully in the highest rate school compared to the school with the lowest rate of bully-victims. Overall, the mean percentage of students directly involved in bullying (as a victim, bully, or bully-victim) was 16.80% ($SD = 3.00$). The percentage of students within each school reporting *bullying involvement* ranged from 10.79% to 23.31% of students. See Table 2 for means, standard deviations, and ranges of student reported prevalence rates by category. The table also includes a

comparison of rates for the low bullying and high bullying school groups, as described in research question 2.

Table 2

Contrast of Prevalence Rates for High and Low Bullying School Groups Using Student Reports

Category	All Schools <i>M (SD)</i> [range] (n = 26)	School Level Bullying	
		Low <i>M (SD)</i> [range] (n = 14)	High <i>M (SD)</i> [range] (n = 12)
% Bully Only	5.53 (1.73) [1.08 – 8.47]	4.65 (1.53) [1.08 – 6.97]	6.57 (1.36) [4.72 – 8.47]
% Victim Only	8.74 (1.60) [6.55 – 13.45]	8.06 (1.05) [6.55 – 10.18]	9.54 (1.80) [7.66 – 13.45]
% Bully-Victim	2.52 (0.86) [1.14 – 4.46]	2.02 (0.59) [1.14 – 3.03]	3.11 (0.75) [1.84 – 4.46]
% Bullying Involvement ^a	16.80 (3.00) [10.79 – 23.31]	14.72 (1.78) [10.79 – 16.63]	19.23 (2.19) [17.12 – 23.31]

Note. 16,662 student responders aggregated to school-level. Students reported on number of incidents in past 12 months. Cut score = more than 2 incidents reported.

^aTotal of all three categories.

School bullying reports. In the sample of 26 high schools, the mean number of bullying reports per school for the 2010-2011 school year was 0.88 (*SD* = 1.14). The total number of bullying reports by the schools ranged from 0 to 4 bullying incidents. This range is significantly less when compared to the number of students per school in spring 2010 who reported being bullied three or more times in the past 12 months, which ranged from 27 to 131 students. See Table 3 for means, standard deviations, and ranges of school reported bullying incidents. The table also includes a comparison of incidents for the low

bullying and high bullying school groups per school reports, as described in research question 2.

Table 3

Contrast of Bullying Incidents for High and Low Bullying School Groups Using School Reports

Category	All Schools <i>M (SD)</i> [range] (n = 26)	School Level Bullying	
		Low <i>M (SD)</i> [range] (n = 13)	High <i>M (SD)</i> [range] (n = 13)
Bullying Reports	0.88 (1.14) [0 – 4]	0 (0) [0]	1.77 (1.01) [1 – 4]

Note. Total bullying incidents reported by each school for the 2010-2011 school year.

Correlation of bullying measures. Bivariate correlation analyses were used to determine the relationship between student and school reports of bullying. Results showed that the relationship between student reports of bullying involvement and school reports of bullying was not statistically significant; $r(24) = 0.27, p = 0.186$. A scatterplot summarizes the results (Figure 1). Additional bivariate correlations were tested among the bullying measures (see Table 4). No statistically significant relationships were found between school reports of bullying and the self-report measures of bullying. The strongest but insignificant relationship was between school bullying reports and student reports of bullying perpetration. Overall, student reports of bullying involvement demonstrated the strongest, positive, statistically significant relationships with all measures, except school bullying reports. Based on these results and the limited range of bullying incidents captured by school reports, student reports of bullying involvement (a

combined measure of victimization and perpetration) was determined to be the most inclusive and global reflection of the bullying climate at each school.

Table 4

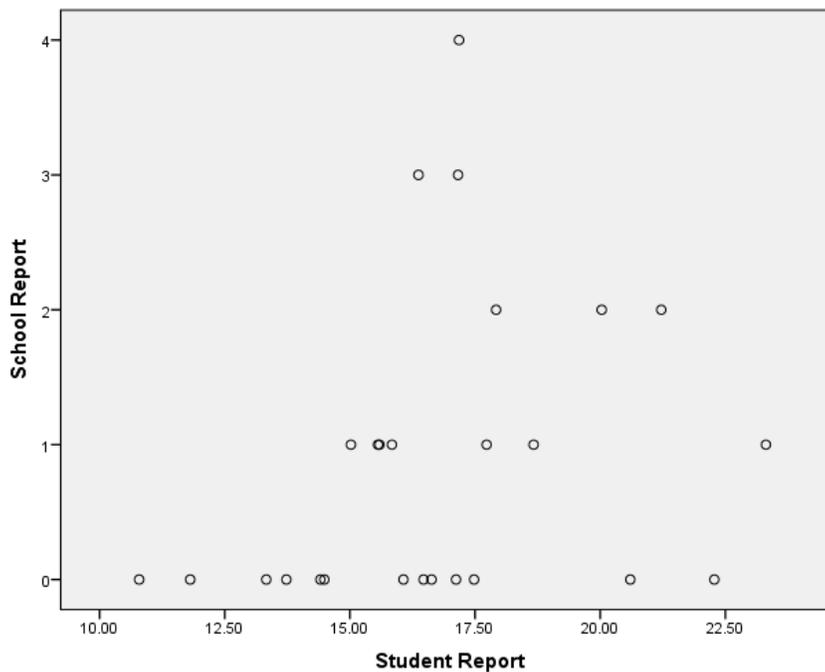
Bivariate Correlations Among Bullying Measures

Measure	1	2	3	4	5
1. Bullying Involvement	-	.67**	.75**	.74**	.27
2. Victim Only		-	.07	.35	.09
3. Bully Only			-	.45*	.29
4. Bully-Victim				-	.20
5. School Bullying Report					-

Note. Self-report data aggregated to the school level were used to measure the following categories: bullying involvement, victim only, bully only, and bully-victim. School report data were used to measure school bullying reports.

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

Figure 1. Scatterplot illustrating relationship between percentage of students reporting bullying involvement and number of school bullying reports.



Research Question 2

The following is the second research question proposed: what school characteristics are associated with elevated rates of self-reported bullying involvement? In order to determine what school characteristics were significantly different for schools with higher rates of bullying involvement, the schools were first split into a low and high bullying group as described in the data analysis section. See Tables 5 and 6 for comparisons between the low and high bullying school groups using student reports and school reports. Based on analyses conducted for research question 1, it was determined that student self-reports of bullying involvement are the most inclusive and comprehensive measure of the bullying climate at each school. The following is a summary of results for the independent-samples *t*-tests used to compare sociodemographic variables and school characteristics for both the high and low bullying groups.

Sociodemographic variables. Table 5 serves two purposes: (1) means, standard deviations, and ranges of sociodemographic variables for all schools are presented and (2) results of independent sample *t*-tests performed on all demographic variables to investigate the differences between schools with low versus high bullying rates, per self-reports are presented. The results discussed next are based on self-reported bullying involvement; however, the results based on school reports of bullying have been included in Table 6 to demonstrate the variability in findings based on the informant and measurement approach.

Table 5

Contrast of Low and High Bullying School Sociodemographics Using Student Self-Reports

Demographics	All Schools <i>M (SD)</i> [range] (n = 26)	School Level Bullying		<i>p</i>	<i>d</i>
		Low <i>M (SD)</i> [range] (n = 14)	High <i>M (SD)</i> [range] (n = 12)		
% White	87.67 (16.07) [41.40 – 99.81]	88.76 (18.04) [41.40 – 99.81]	86.40 (14.09) [58.85 – 99.02]	.717	0.15
% Female	49.37 (2.26) [44.33 – 55.88]	49.44 (2.78) [44.33 – 55.88]	49.30 (1.58) [45.22 – 51.52]	.883	0.06
% Exclusively Heterosexual	85.88 (3.20) [74.80 – 90.50]	85.33 (3.91) [74.80 – 90.50]	86.52 (2.11) [83.00 – 89.60]	.356	-0.38
% Freshman	28.29 (2.14) [25.11 – 33.30]	29.12 (2.45) [25.11 – 33.30]	27.32 (1.21) [25.95 – 29.54]	.025*	0.93
% Free or Reduced Meal	52.38 (15.01) [29.00 – 82.00]	56.00 (14.69) [34.00 – 82.00]	48.17 (14.87) [29.00 – 66.00]	.190	0.53
% Living Below Poverty	20.20 (7.54) [7.00 – 36.50]	22.81 (8.87) [7.00 – 36.50]	17.15 (4.18) [11.30 – 24.10]	.047*	0.82
# Enrolled	1033.19 (361.13) [455 – 1826]	1017.36 (374.83) [517– 1826]	1051.67 (360.08) [455 – 1594]	.815	-0.09
Rural-Urban Code	4.69 (2.88) [1-9]	5.21 (2.91) [1 -9]	4.08 (2.84) [1-9]	.328	0.39

Note. * $p < .05$.

Race/ethnicity. The researcher hypothesized that schools with less racial/ethnic diversity will have higher rates of bullying involvement; however, the hypothesis was not supported in this sample. There was no statistically significant difference between the mean percent of white students for low and high bullying schools, $t(24) = 0.37, p > .05$. Low bullying schools had a similar mean percent of

white students ($M = 88.76\%$, $SD = 18.04$) compared to high bullying schools ($M = 86.40\%$, $SD = 14.09$).

Table 6

Contrast of Low and High Bullying School Sociodemographics Using School Reports

Demographics	All Schools M (SD) [range] ($n = 26$)	School Level Bullying		p	d
		Low M (SD) [range] ($n = 13$)	High M (SD) [range] ($n = 13$)		
% White	87.67 (16.07) [41.40 - 99.81]	94.78 (5.92) [80.00 - 99.81]	80.55 (19.82) [41.40 - 98.63]	.026*	0.97
% Female	49.37 (2.26) [44.33 - 55.88]	48.95 (2.19) [44.33 - 51.52]	49.79 (2.34) [45.22 - 55.88]	.354	-0.37
% Exclusively Heterosexual	85.88 (3.20) [74.80 - 90.50]	86.45 (2.44) [81.60 - 90.50]	85.31 (3.84) [74.80 - 89.60]	.376	0.35
% Freshman	28.29 (2.14) [25.11 - 33.30]	28.13 (2.06) [25.11 - 32.18]	28.44 (2.30) [26.06 - 33.30]	.727	-0.14
% Free or Reduced Meal	52.38 (15.01) [29.00 - 82.00]	54.46 (14.20) [30.00 - 82.00]	50.31 (16.07) [29.00 - 80.00]	.492	0.27
% Living Below Poverty	20.20 (7.54) [7.00 - 36.50]	21.15 (7.96) [7.00 - 34.40]	19.25 (7.30) [11.30 - 36.50]	.532	0.25
# Enrolled	1033.19 (361.13) [455 - 1826]	890.08 (289.13) [455 - 1367]	1176.31 (379.10) [659 - 1826]	.041*	-0.85
Rural-Urban Code	4.69 (2.88) [1-9]	5.69 (2.56) [1-9]	3.69 (2.93) [1-9]	.076	0.73

Note. * $p < .05$.

Sex. As hypothesized, there was no statistically significant difference between the mean percent of female students for low and high bullying schools, $t(24) = 0.15$, $p > .05$.

Low bullying schools had a similar mean percent of female students ($M = 49.44\%$, $SD = 2.78$) compared to high bullying schools ($M = 49.30\%$, $SD = 1.58$).

Sexual orientation. Based on individual level findings, it was hypothesized that schools with a higher percentage of students who identify as not exclusively heterosexual (i.e., sexual minority students) would have higher rates of bullying involvement. In this sample, the percent of students who identified as exclusively heterosexual ranged from 74.8% to 90.5%. The hypothesis was not supported: there was no statistically significant difference between the mean percent of exclusively heterosexual students for low and high bullying schools, $t(24) = -0.94$, $p > .05$. Low bullying schools had a similar mean percent of exclusively heterosexual students ($M = 85.33\%$, $SD = 3.91$) compared to high bullying schools ($M = 86.52\%$, $SD = 2.11$).

Socioeconomic status. In the study sample, the percent of students at the school level receiving free and reduced meals ranged from 29% to 82%. Based on this indicator of SES, the researcher's hypothesis was confirmed: there was no statistically significant difference between the mean percent of students receiving free and reduced price meals for low and high bullying schools, $t(24) = 1.35$, $p > .05$. Low bullying schools had a slightly higher, but insignificant, mean percent of students receiving free and reduced price meals ($M = 56.00\%$, $SD = 14.69$) compared to high bullying schools ($M = 48.17\%$, $SD = 14.87$). However, the researcher's hypothesis was not supported on a second indicator of SES, the percent of individuals within the school's county living below the poverty level, which ranged from 7% to 36.5%. Results showed that there was a statistically significant difference between the mean percent of individuals within the school's county living below the poverty level, $t(19) = 2.13$, $p < .05$. Low bullying

schools had a higher mean percent of individuals within the school's county living below the poverty level ($M = 22.81\%$, $SD = 8.87$) compared to high bullying schools ($M = 17.15\%$, $SD = 4.18$).

School size. In the study sample, student enrollment ranged from 455 to 1,826 students ($M = 1033.19$, $SD = 361.13$). As hypothesized, there was no statistically significant difference between the mean enrollment size for low and high bullying schools using student self-reports, $t(24) = -0.24$, $p > .05$. Low bullying schools had a similar mean enrollment size ($M = 1017.36$, $SD = 374.83$) compared to high bullying schools ($M = 1051.67$, $SD = 360.08$). However, as expected, there was a statistically significant difference between the mean enrollment size for low and high bullying schools per school reports, $t(24) = -2.17$, $p < .05$. Low bullying schools had a smaller mean enrollment size ($M = 890.08$, $SD = 289.13$) compared to high bullying schools ($M = 1176.31$, $SD = 379.10$).

Grade level. The researcher hypothesized that schools with a higher percentage of freshmen would have higher rates of bullying involvement; however, this was not supported. In the study sample, percent freshmen ranged from 25.11% to 33.30% ($M = 28.29\%$, $SD = 2.14$). There was a statistically significant difference between the mean percent freshmen for low and high bullying schools, $t(20) = 2.43$, $p < .05$. However, unexpectedly, low bullying schools actually had a slightly higher, but significant, mean percent freshmen ($M = 29.12\%$, $SD = 2.45$) compared to high bullying schools ($M = 27.32\%$, $SD = 1.21$).

Rural-urban location. In the study sample, the rural-urban continuum code assigned to schools ranged from 1 (counties in metro areas of 1 million population or

more) to 9 (completely rural or less than 2,500 urban population, not adjacent to a metro area) ($M = 4.69$, $SD = 2.88$). As hypothesized, there was no statistically significant difference between the mean rural-urban continuum code for low and high bullying schools, $t(24) = 1.00$, $p > .05$. Low bullying schools had a similar mean rural-urban score ($M = 5.21$, $SD = 2.91$) compared to high bullying schools ($M = 4.08$, $SD = 2.84$).

School characteristics. Table 7 serves two purposes: (1) presents means, standard deviations, and ranges for all school environmental variables and (2) presents results of independent sample t -tests performed on all variables to investigate the differences between schools with low versus high bullying rates, per self-reports. Table 8 provides the same findings using school reports of bullying incidents to define the low and high bullying groups. The focus of this study is self-reported bullying involvement; however, the results table based on school bullying reports has been included to demonstrate the variability in findings based on the informant and measurement approach.

School order variables. The first series of variables have been topically organized into a group of variables described as school order (school size was the only exception as it was discussed above with sociodemographic variables).

Suspensions. It was hypothesized that schools with higher suspension rates would have higher rates of bullying involvement. In the study sample, the number of suspensions per school ranged from 7 to 540 for one school year. The hypothesis was not supported: there was no statistically significant difference between the mean number of suspensions for the low and high bullying school groups, $t(24) = 0.32$, $p > .05$. Low

bullying schools had a similar mean number of suspensions ($M = 137.43$, $SD = 138.47$) compared to high bullying schools ($M = 122.92$, $SD = 74.66$).

Table 7

Contrast of High and Low Bullying School Characteristics Using Student Self-Reports

Variables	All Schools M (SD) [range] ($n = 26$)	School Level Bullying		p	d
		Low M (SD) [range] ($n = 14$)	High M (SD) [range] ($n = 12$)		
# Suspensions	130.73 (111.70) [7.00 – 540.00]	137.43 (138.47) [7.00 – 540.00]	122.92 (74.66) [26.00 – 243.00]	.749	0.13
# Fights btw/n Students	27.69 (22.65) [0.00 – 103.00]	30.50 (26.83) [0.00 – 103.00]	24.42 (17.13) [0.00 – 50.00]	.506	0.27
# Disruptive Behavior	14.92 (18.73) [1.00 -78.00]	11.00 (13.45) [1.00 – 54.00]	19.50 (23.26) [1.00 – 78.00]	.257	-0.45
# Students per Teacher	17.08 (1.83) [14.00 – 21.00]	16.79 (1.76) [14.00 – 21.00]	17.42 (1.93) [15.00 – 21.00]	.392	-0.34
% FTE Teachers Absent >10 School Days ^a	34.63 (22.21) [0.90 – 76.70]	37.95 (23.50) [0.90 – 76.70]	30.65 (21.07) [9.60 – 74.30]	.456	0.33
Dropout Rates	1.49 (1.09) [0.00 – 4.50]	1.72 (1.35) [0.30 – 4.50]	1.22 (0.65) [0.00 – 2.10]	.229	0.47
Retention Rates	3.26 (2.88) [0.10 – 11.10]	4.34 (3.14) [1.00 – 11.10]	2.00 (1.99) [0.10 – 7.20]	.036*	0.89
Attendance Rates	92.52 (2.09) [87.80 – 94.90]	91.69 (2.03) [87.80 – 94.60]	93.49 (1.77) [88.70 – 94.90]	.025*	-0.95
Graduation Rates	75.74 (6.23) [64.60 – 86.80]	75.73 (5.89) [68.60 – 86.80]	75.75 (6.86) [64.60 – 85.30]	.993	-0.00

Table 7 Continued

Variables	All Schools <i>M (SD)</i> [range] (n = 26)	School Level Bullying		<i>p</i>	<i>d</i>
		Low <i>M (SD)</i> [range] (n = 14)	High <i>M (SD)</i> [range] (n = 12)		
% Ready for College-Level Math	35.02 (11.43) [14.10 – 56.00]	30.91 (10.84) [14.10 – 48.80]	39.82 (10.55) [23.90 – 56.00]	.045*	-0.83
% Ready for College-Level English	46.93 (12.00) [21.60 – 69.10]	41.99 (11.50) [21.60 – 59.20]	52.70 (10.19) [35.10 – 69.10]	.020*	-0.99
% College-Going	63.76 (8.74) [47.70 – 86.00]	61.39 (7.61) [47.70 – 74.70]	66.53 (9.47) [55.80 – 86.00]	.138	-0.60
% Students with Parent-Teacher Conference	56.96 (22.69) [15.67 – 97.50]	45.41 (17.72) [15.67 – 89.37]	70.44 (20.75) [42.20 – 97.50]	.003**	-1.30
# Students per Counselor ^a	375.36 (72.33) [246 – 508]	379.50 (69.11) [259 – 467]	370.40 (79.49) [246 – 508]	.777	0.12
% Sad Every Day Past 2 Weeks	35.78 (3.23) [29.90 – 41.90]	36.04 (3.84) [29.90 – 41.90]	35.47 (2.47) [31.90 – 39.50]	.659	0.18

Note. ^aMissing 4 schools.

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

Table 8

Contrast of High and Low Bullying School Characteristics Using School Reports

Variables	All Schools <i>M (SD)</i> [range] (n = 26)	School Level Bullying		<i>p</i>	<i>d</i>
		Low <i>M (SD)</i> [range] (n = 13)	High <i>M (SD)</i> [range] (n = 13)		
# Suspensions	130.73 (111.70) [7.00 – 540.00]	67.38 (36.85) [7.00 – 125.00]	194.08 (126.26) [38.00 – 540.00]	.004**	-1.36
# Fights btw/n Students	27.69 (22.65) [0.00 – 103.00]	20.08 (14.48) [0.00 – 47.00]	35.31 (27.09) [0.00 – 103.00]	.086	-0.70

Table 8 Continued

Variables	All Schools <i>M (SD)</i> [range] (n = 26)	School Level Bullying		<i>p</i>	<i>d</i>
		Low <i>M (SD)</i> [range] (n = 13)	High <i>M (SD)</i> [range] (n = 13)		
# Disruptive Behavior	14.92 (18.73) [1.00 -78.00]	7.46 (6.09) [1.00 – 18.00]	22.38 (23.93) [1.00 – 78.00]	.048*	-0.85
# Students per Teacher	17.08 (1.83) [14.00 – 21.00]	16.77 (2.20) [14.00 – 21.00]	17.38 (1.39) [15.00 – 20.00]	.403	-0.33
% FTE Teachers Absent >10 School Days ^a	34.63 (22.21) [0.90 – 76.70]	36.21 (16.49) [11.90 – 55.60]	33.05 (27.54) [0.90 – 76.70]	.748	0.14
Dropout Rates	1.49 (1.09) [0.00 – 4.50]	1.14 (1.17) [0.00 – 4.50]	1.84 (0.92) [0.70 – 4.10]	.104	-0.67
Retention Rates	3.26 (2.88) [0.10 – 11.10]	2.51 (2.23) [0.40 – 7.40]	4.01 (3.33) [0.10 – 11.10]	.190	-0.53
Attendance Rates	92.52 (2.09) [87.80 – 94.90]	92.45 (2.25) [87.80 – 94.90]	92.60 (2.01) [88.70 – 94.80]	.855	-0.07
Graduation Rates	75.74 (6.23) [64.60 – 86.80]	77.85 (6.06) [68.60 – 86.80]	73.69 (5.92) [64.60 – 85.30]	.094	0.69
% Ready for College-Level Math	35.02 (11.43) [14.10 – 56.00]	31.43 (12.40) [14.10 – 56.00]	38.61 (9.50) [25.10 – 55.20]	.111	-0.65
% Ready for College-Level English	46.93 (12.00) [21.60 – 69.10]	43.38 (11.53) [21.60 – 63.00]	50.48 (11.83) [33.00 – 69.10]	.134	-0.61
% College-Going	63.76 (8.74) [47.70 – 86.00]	63.05 (9.11) [50.70 – 86.00]	64.47 (8.67) [47.70 – 78.20]	.687	-0.16
% Students with Parent-Teacher Conference	56.96 (22.69) [15.67 – 97.50]	49.96 (22.68) [15.67 – 96.36]	63.96 (21.25) [29.66 – 97.50]	.117	-0.64
# Students per Counselor ^a	375.36 (72.33) [246 – 508]	370.09 (67.75) [259 – 466]	380.64 (79.59) [246 – 508]	.741	-0.14

Table 8 Continued

Variables	All Schools <i>M (SD)</i> [range] (n = 26)	School Level Bullying		<i>p</i>	<i>d</i>
		Low <i>M (SD)</i> [range] (n = 13)	High <i>M (SD)</i> [range] (n = 13)		
% Sad Every Day Past 2 Weeks	35.78 (3.23) [29.90 – 41.90]	36.72 (3.01) [31.20 – 41.40]	34.84 (3.28) [29.90 – 41.90]	.141	0.60

Note. ^aMissing 4 schools.

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

Fights between students. It was hypothesized that schools with higher numbers of fights between students would have higher rates of bullying involvement. In the study sample, the number of fights between students per school ranged from 0 to 103 for one school year. The hypothesis was not supported: there was no statistically significant difference between the mean number of fights for the low and high bullying school groups, $t(24) = 0.68$, $p > .05$. Low bullying schools had a slightly higher, but not significant, mean number of fights ($M = 30.5$, $SD = 26.83$) compared to high bullying schools ($M = 24.42$, $SD = 17.13$).

Disruptive behaviors. It was hypothesized that schools with higher incidents of disruptive behaviors would have higher rates of bullying involvement. However, the hypothesis was not supported: there was no statistically significant difference between the mean number of disruptive behavior reports for the low and high bullying school groups, $t(24) = -1.16$, $p > .05$. Low bullying schools had a lower, but insignificant, mean number of disruptive behaviors ($M = 11.00$, $SD = 13.45$) compared to high bullying schools ($M = 19.50$, $SD = 23.26$).

Student-teacher ratio. In the study sample, the average number of students per teacher for each school ranged from 14 to 21 students. As hypothesized, there was no statistically significant difference between the mean student-teacher ratio for the low and high bullying school groups, $t(24) = -0.87, p > .05$. Low bullying schools had a similar mean student-teacher ratio ($M = 16.79, SD = 1.76$) compared to high bullying schools ($M = 17.42, SD = 1.93$).

School climate. The second series of variables have been topically organized into a group of school climate/learning environment variables.

Teacher absences. It was hypothesized that schools with a higher percentage of full-time teachers absent greater than 10 schools days would have higher rates of bullying involvement. In the study sample, the percentage of full-time teachers absent greater than 10 schools days ranged from 0.90% to 76.70%. The hypothesis was not supported: there was no statistically significant difference between the mean percentage of full-time teachers absent greater than 10 schools days for the low and high bullying school groups, $t(20) = 0.76, p > .05$. Low bullying schools had a similar mean percentage of full-time teachers absent greater than 10 schools days ($M = 37.95\%, SD = 23.50$) compared to high bullying schools ($M = 30.65\%, SD = 21.07$).

Dropout. It was hypothesized that schools with higher dropout rates would have higher rates of bullying involvement. In the study sample, the dropout rate ranged from 0% to 4.50% ($M = 1.49\%, SD = 1.09$). The hypothesis was not supported: there was no statistically significant difference between the mean dropout rate for the low and high bullying school groups, $t(19) = 1.24, p > .05$. Low bullying schools had a similar mean dropout rate ($M = 1.72\%, SD = 1.35$) compared to high bullying schools ($M = 1.22\%, SD$

= 0.65). Follow-up bivariate analyses showed similar trends to existing research: at the school level, higher dropout rates were significantly and positively correlated with suspensions and retention rates. They were negatively correlated with attendance rates, graduation rates, and college-going rates.

Retention. It was hypothesized that schools with higher retention rates would have higher rates of bullying involvement. In the study sample, the retention rate ranged from 0.10% to 11.10% ($M = 3.26\%$, $SD = 2.88$). The hypothesis was not supported; there was a statistically significant difference between the mean retention rate for low and high bullying schools, $t(24) = 2.22$, $p < .05$. Unexpectedly, low bullying schools had a higher mean retention rate ($M = 4.34\%$, $SD = 3.14$) compared to high bullying schools ($M = 2.00\%$, $SD = 1.99$).

Student attendance. It was hypothesized that schools with lower attendance rates would have higher rates of bullying involvement. In the study sample, the attendance rate ranged from 87.80% to 94.90% ($M = 92.52\%$, $SD = 2.09$). The hypothesis was not supported: there was a statistically significant difference between the mean attendance rate for the low and high bullying school groups, $t(24) = -2.39$, $p < .05$. However, low bullying schools actually had a slightly lower, but significant, mean attendance rate ($M = 91.69\%$, $SD = 2.03$) compared to high bullying schools ($M = 93.49\%$, $SD = 1.77$).

Graduation. It was hypothesized that schools with lower graduation rates would have higher rates of bullying involvement. In the study sample, the graduation rates ranged from 64.60% to 86.80% ($M = 75.74\%$, $SD = 6.23$). The hypothesis was not supported: there was no statistically significant difference between the mean graduation rate for the low and high bullying school groups, $t(24) = -0.01$, $p > .05$. Low bullying

schools had a similar mean graduation rate ($M = 75.73\%$, $SD = 5.89$) compared to high bullying schools ($M = 75.75\%$, $SD = 6.86$).

Readiness for college-level math and English. It was hypothesized schools with a lower percentage of students ready for college-level math and English would have higher rates of bullying involvement (i.e., percentage of 2009-2010 high school graduates who took the ACT Statewide administration in 2008-2009 with at least a 19 on their junior year mathematics ACT score and with at least a 18 on their junior year English ACT score). In the study sample, the percentage of students ready for college-level math ranged from 14.10% to 56.00% ($M = 35.02\%$, $SD = 11.43$), and the percentage of students ready for college-level English ranged from 21.60% to 69.10% ($M = 46.93\%$, $SD = 12.00$). For both indicators of school level academic achievement, the hypothesis was not supported in the direction predicted. There was a statistically significant difference between the mean percentage of students ready for college-level math for the low and high bullying school groups, $t(24) = -2.12$, $p < .05$; and between the mean percentage of students ready for college-level English, $t(24) = -2.49$, $p < .05$. However, low bullying schools actually had a lower mean percentage of students ready for college-level math ($M = 30.91\%$, $SD = 10.84\%$) and for college-level English ($M = 41.99\%$, $SD = 11.50\%$) compared to high bullying schools (math: $M = 39.82\%$, $SD = 10.55\%$; English: $M = 52.70\%$, $SD = 10.19\%$).

College-going. In the study sample, the percentage of 2009-2010 graduates who entered postsecondary education at any point during the 2010-2011 academic year ranged from 47.70% to 86.00% ($M = 63.76\%$, $SD = 8.74$). It was hypothesized that schools with a lower percentage of graduates attending college would have higher rates of bullying

involvement; however, this hypothesis was not supported. There was no statistically significant difference between the mean percentage of graduates who entered postsecondary education for the low and high bullying school groups, $t(24) = -1.53$, $p > .05$. Low bullying schools had a similar mean percentage of graduates who entered postsecondary education at any point during the subsequent academic year ($M = 61.39\%$, $SD = 7.61$) compared to high bullying schools ($M = 66.53\%$, $SD = 9.47$).

Mental health. It was hypothesized that schools with a higher percentage of students reporting symptoms of depression (i.e., students who responded “yes” to feeling sad or hopeless every day for 2 or more weeks in the past 12 months) would have higher rates of bullying involvement. In the study sample, the percentage of students who reported being sad every day for the past two weeks ranged from 29.90% to 41.90% ($M = 35.78\%$, $SD = 3.23\%$). The hypothesis was not supported: there was no statistically significant difference between the mean percentage of students who reported being sad every day for the past two weeks for the low and high bullying school groups, $t(24) = 0.45$, $p > .05$. Low bullying schools had a similar mean percentage of students reporting signs of depression ($M = 36.04\%$, $SD = 3.84$) compared to high bullying schools ($M = 35.47\%$, $SD = 2.47$).

Protective variables. The following sections reports results from school level indicators of parent involvement and social-emotional supports.

Parent involvement. It was hypothesized that schools with less parent involvement would have higher rates of bullying involvement. In the study sample, the percentage of students per school with at least one parent-teacher conference ranged from 15.67% to 97.50% ($M = 56.96\%$, $SD = 22.69$). The hypothesis was not supported in the

direction predicted: there was a statistically significant difference between the mean percentage of students with at least one parent-teacher conference for the low and high bullying school groups, $t(24) = -3.32$, $p < .001$. Unexpectedly, low bullying schools had a significantly lower mean percentage of students with at least one parent-teacher conference ($M = 45.41\%$, $SD = 17.72$) compared to high bullying schools ($M = 70.44\%$, $SD = 20.75$).

Student-counselor ratio. It was hypothesized that schools with a larger student-counselor ratio would have higher rates of bullying involvement. In the study sample, the number of students per counselor ranged from 246 to 508 students per counselor ($M = 375.36$, $SD = 72.33$). The hypothesis was not supported: there was no statistically significant difference between the mean number of students per counselor for the low and high bullying school groups, $t(20) = 0.29$, $p > .05$. Low bullying schools had a similar mean student-counselor ratio ($M = 379.50$, $SD = 69.11$) compared to high bullying schools ($M = 370.40$, $SD = 79.49$).

Research Question 3

The following is the third research question that was proposed: which of these school characteristics predict bullying involvement? Thus, the series of independent-samples t-tests completed for question 2 revealed that the following sociodemographic variables differed significantly between the low and high bullying school groups: (1) percentage of freshmen and (2) percentage of individuals living below poverty in the county where the school was located. Significant school characteristics identified were: (1) retention rates, (2) attendance, (3) readiness for college-level math and English, and (4) parent involvement. Based on these results, a series of bivariate analyses were

conducted to examine the relationships among the outcome variable and potential predictor variables (see Table 9). Scatterplots illustrate the relationship between bullying involvement and each candidate predictor variable (see Figure 2). Overall, results showed that bullying involvement correlated with poverty ($r = -.45, p < .05$), attendance ($r = .53, p < .01$), readiness for college-level math ($r = .47, p < .05$), readiness for college-level English ($r = .52, p < .01$), and parent involvement ($r = .53, p < .01$). Bullying involvement did not correlate with the percent of freshmen ($r = -.24, p > .05$) nor retention ($r = -.26, p > .05$). Also, as expected, there was a strong, positive correlation between readiness for college-level math and English ($r = .90, p < .01$). Thus, the following variables were selected for regression analyses: poverty, attendance, readiness for college-level English (due to greater variability than the math variable), and parent involvement.

Table 9

Bivariate Correlations Among Outcome and Predictor Variables

Measure	1	2	3	4	5	6	7	8
1. Bullying Inv.	-	-.24	-.45*	-.26	.53**	.47*	.52**	.53**
2. % Freshmen		-	.03	.45*	-.33	-.18	-.26	-.39*
3. % Below Pov.			-	.04	-.73**	-.51**	-.50**	-.45*
4. Retention				-	-.35	-.08	-.17	-.31
5. Attendance					-	.63**	.69**	.47*
6. Math Ach.						-	.90**	.28
7. English Ach.							-	.30
8. Parent Involv.								-

Note. * $p < .05$. ** $p < .01$.

Figure 2. Series of scatterplots illustrating the relationship between bullying involvement and each of the candidate predictor variables.

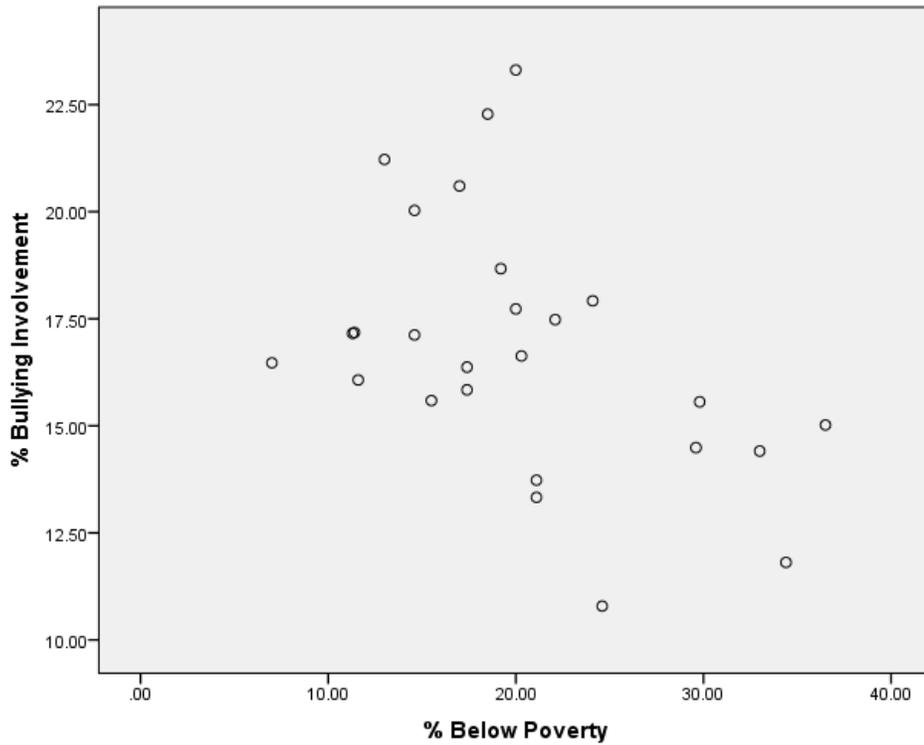
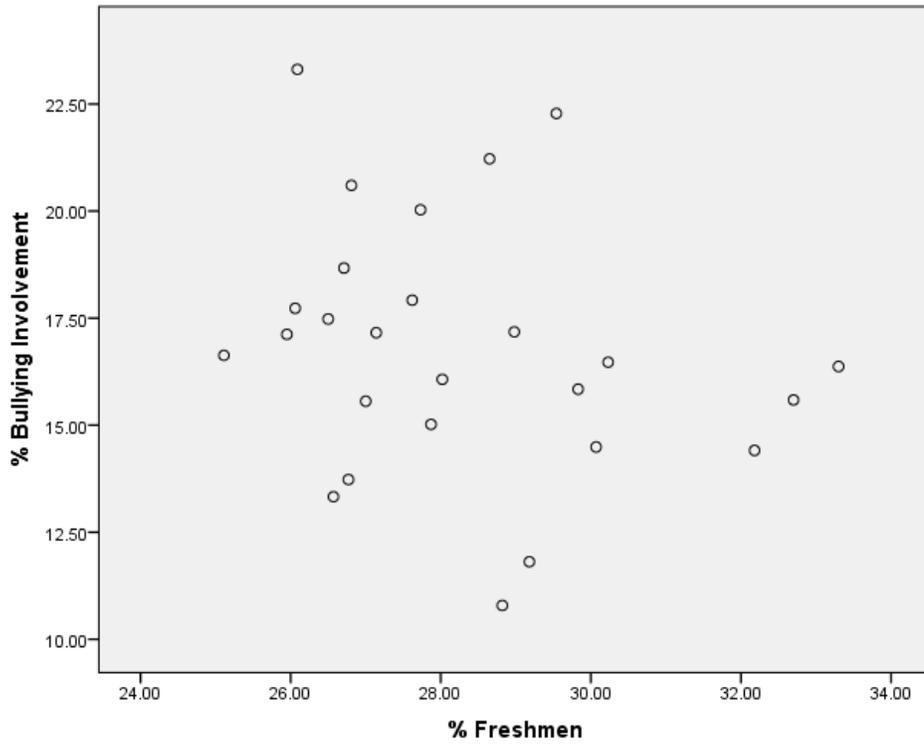


Figure 2 Continued

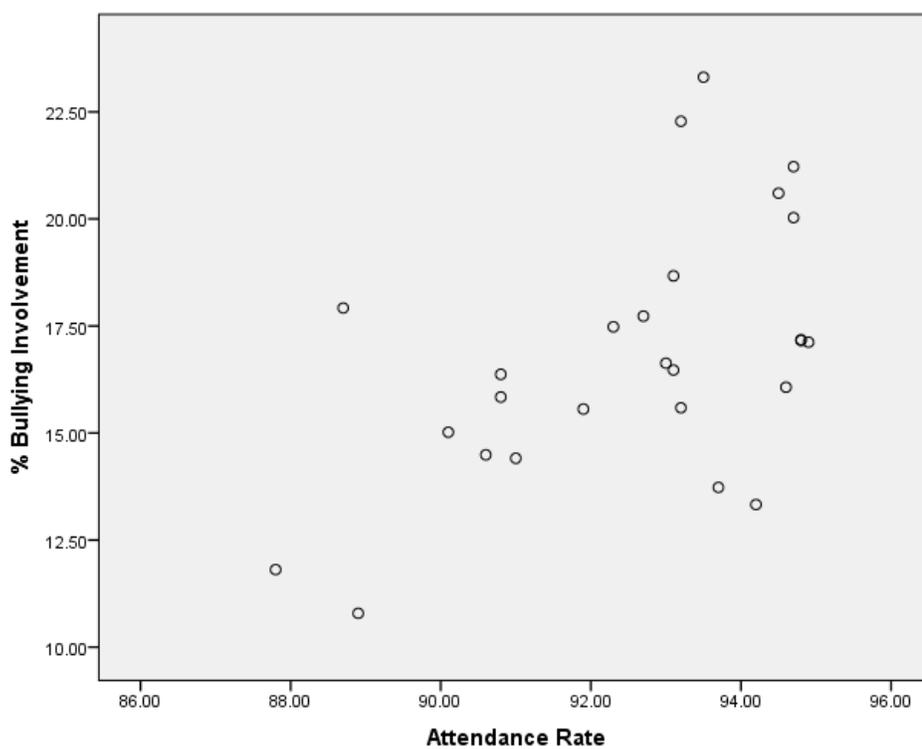
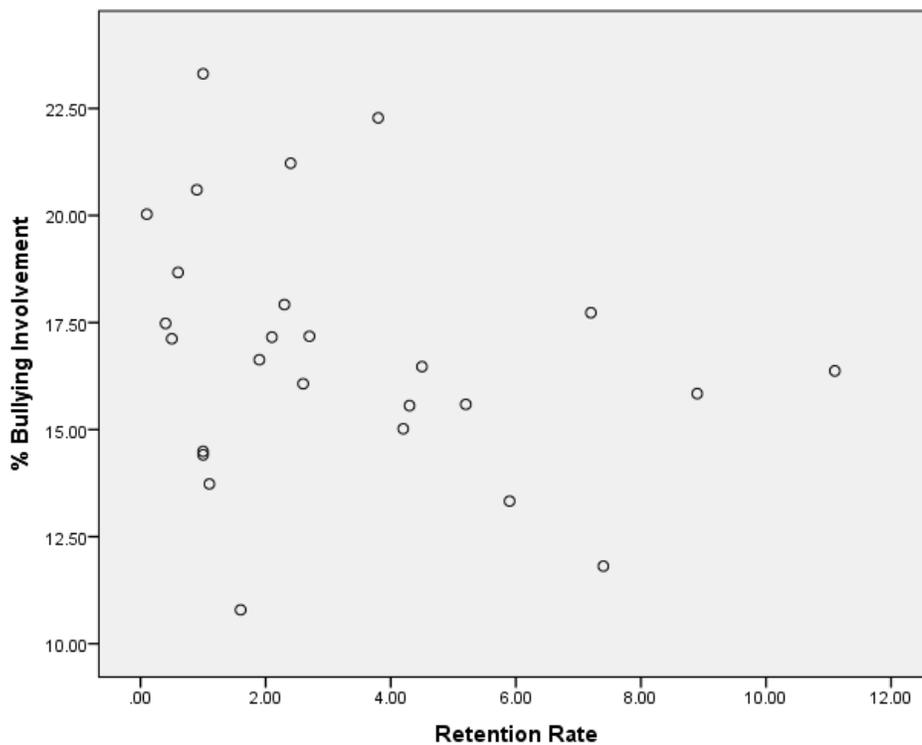


Figure 2 Continued

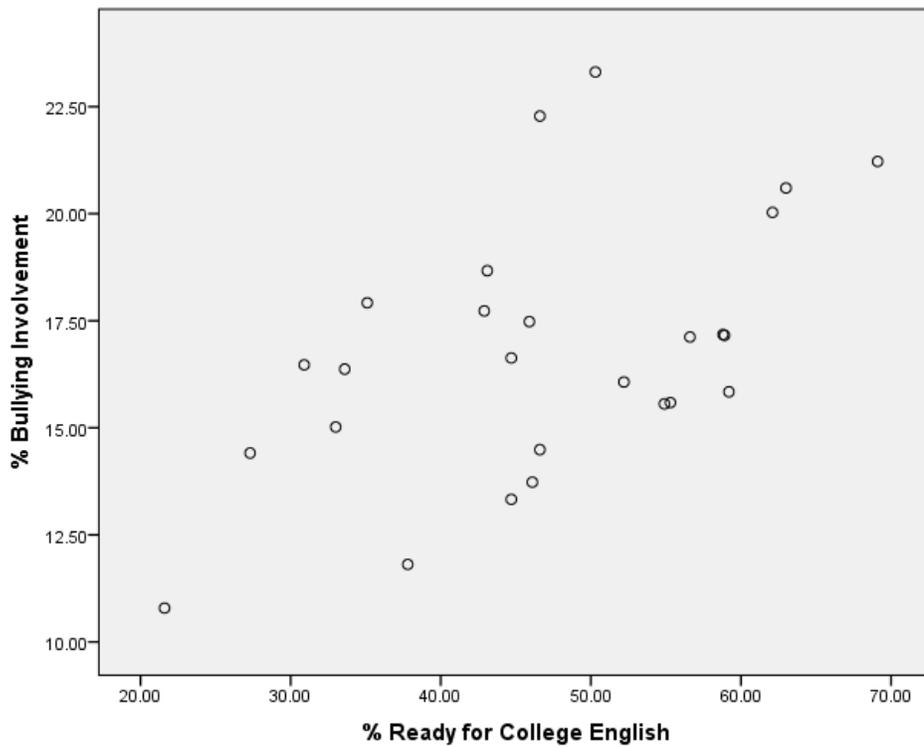
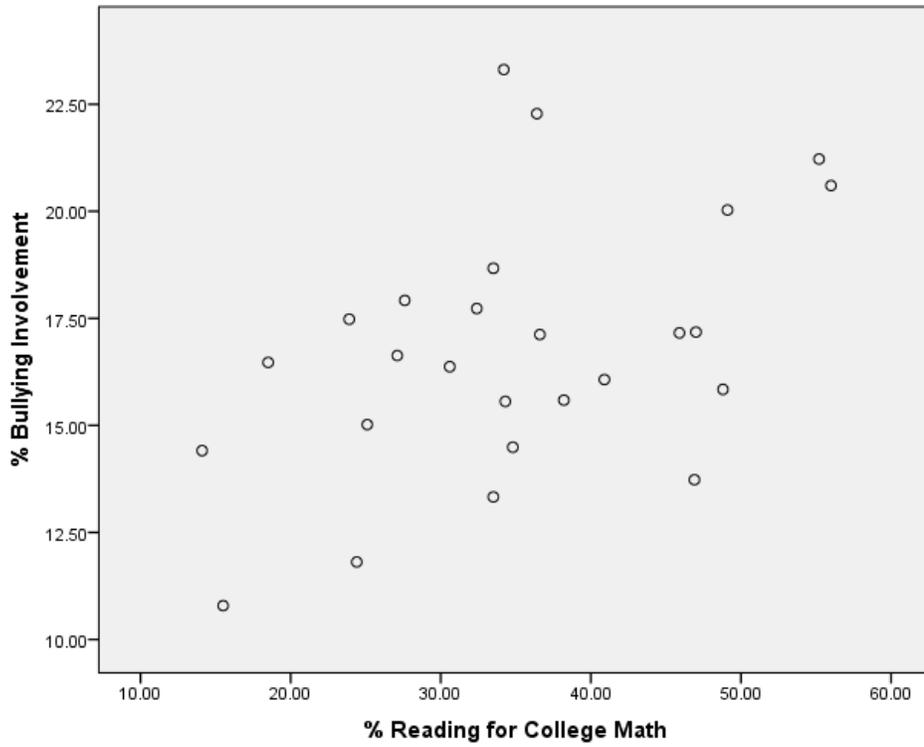
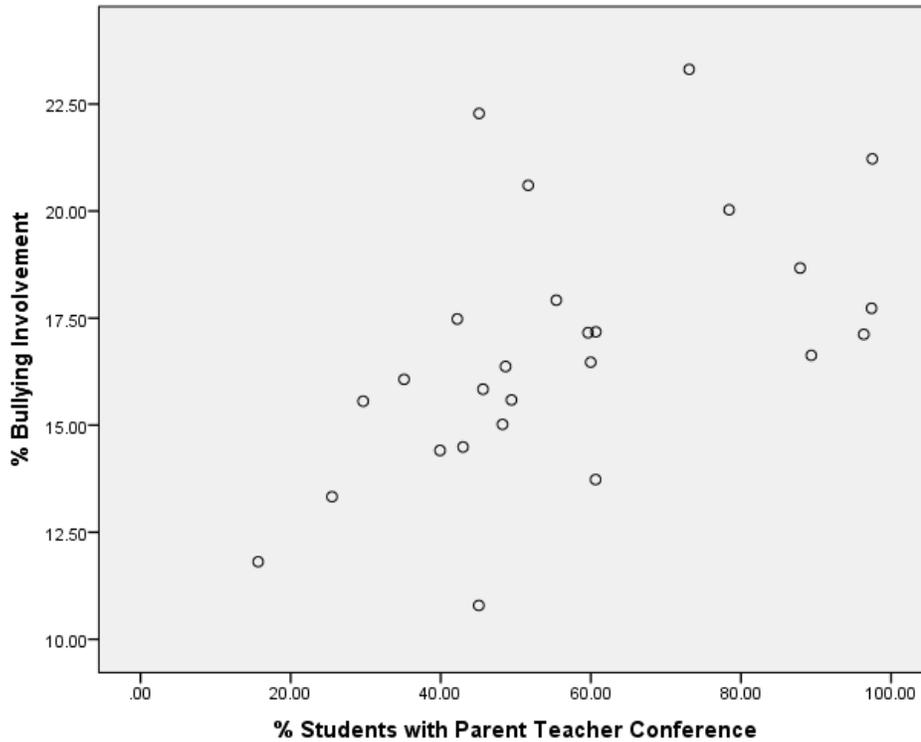


Figure 2 Continued



For the final step of this study, multiple regression analyses were conducted to examine how much of the variance in bullying involvement rates between schools can be explained by potential predictor variables. Overall, data were determined to be suitable for regression analyses after checking assumptions for the regression. A histogram of residuals approximated a normal distribution, and a series of scatterplots suggested a linear relationship between each of the predictors and the dependent variable as supported by correlations reported in Table 9. No outliers by distance were identified through Casewise Diagnostics, nor were there any outliers by influence. The maximum value for Cook's Distance (0.13) did not exceed 1, and the maximum

Centered Leverage Value of 0.39 did not exceed 3 times its mean of 0.15. No predictor variables indicated a problematic degree of multicollinearity. All tolerance values were greater than 0.2, and all Variance Inflation Factor (VIF) values were less than 5. Last, a scatterplot of the standardized predicted and residual values showed no clear pattern, indicating that data met the assumption of homoscedasticity.

In the first model presented in Table 10, all four predictors (poverty, attendance, readiness for college-level English, and parent involvement) produced a statistically significant model; $R^2 = 0.43$, $F(4, 21) = 4.03$, $p < .05$. However, within this model, none of the predictors were shown to be statistically significant predictors of bullying involvement, possibly due to a higher degree of multicollinearity. In the second model, when attendance was removed, the model remained statistically significant; $R^2 = 0.43$, $F(3, 22) = 5.57$, $p < .01$. However, none of the remaining predictors were shown to be statistically significant predictors of bullying involvement. In the third model, when both attendance and poverty were removed, the model remained statistically significant; $R^2 = 0.42$, $F(2, 23) = 8.48$, $p < .01$. In addition, both readiness for college-level English ($t = 2.41$, $p = .02$) and parent involvement ($t = 2.45$, $p = .02$) were shown to be statistically significant predictors of bullying involvement. The analysis suggested that readiness for college-level English ($\beta = .40$) and parent involvement ($\beta = .41$) had a similar influence in the model. Overall, the adjusted R^2 indicated that 37.4% of the variance in bullying involvement can be explained by variances in the two predictor variables. Unexpectedly, higher rates of bullying involvement at the school level were related to higher rates of achievement ($r = .52$, $p < .01$) and higher rates of parent involvement ($r = .53$, $p < .01$).

Table 10

School Level Predictors of Bullying Involvement

Variable	Model 1		Model 2		Model 3	
	<i>B</i> (SE <i>B</i>)	<i>R</i> ²	<i>B</i> (SE <i>B</i>)	<i>R</i> ²	<i>B</i> (SE <i>B</i>)	<i>R</i> ²
		0.43*		.43**		.42**
College Readiness-English	0.08 (0.06)		0.09 (0.05)		0.10 (0.04)*	
Parent Involvement	0.05 (0.03)		0.05 (0.02)		0.05 (0.02)*	
% Below Poverty	-0.03 (0.10)		-0.04 (0.08)			
Attendance	0.12 (0.43)					

Note. *SE* = standard error.

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

Results for model 1 may be partially explained by the statistically significant relationship between attendance and poverty ($r = -.73, p < .01$), achievement/ readiness for college-level English ($r = .69, p < .01$), and parent involvement ($r = .47, p < .05$). As expected, higher attendance rates were related to lower rates of poverty in the surrounding community, higher achievement scores, and greater parent involvement.

Results for model 2 may partially be explained by the statistically significant relationship between poverty and achievement ($r = -.50, p < .01$) and parent involvement ($r = -.45, p < .05$). As expected, lower rates of poverty in the surrounding community were related to higher achievement scores and greater parent involvement.

Discussion

Numerous studies have focused on individual level factors associated with bullying. However, in recent years, there has been a theoretical shift toward a socio-ecological approach which places greater emphasis on the study of contextual factors. An

area in which there remain limited and mixed findings is the school setting. Thus, the main purpose of this study was to examine school characteristics associated with higher rates of bullying involvement, specifically at the high school level, an age group which has historically been underrepresented in the bullying literature (Bradshaw et al., 2015; Cornell et al., 2013; Hammig & Jozkowski, 2013).

Research Question 1

To examine school level variables, it was important to first determine the prevalence of bullying involvement across a sample of 26 Kentucky high schools. In order to meet this objective, two sources of data were available to the researcher: (1) self-reports of bullying involvement aggregated to the school level and (2) school reports of the total number of bullying incidents for one school year. Interestingly, the results showed no correlation between school reports and self-reports. Using self-reports, the average prevalence rate of bullying involvement across schools was 16.8% with 5.5% of students reporting bullying perpetration (i.e., bullies), 8.7 % reporting bullying victimization (i.e., victims), and 2.5 % reporting both perpetration and victimization (i.e., bully-victims). These rates were slightly lower than a nationally representative sample of U.S. adolescents in grades 6 through 10 (Spriggs et al., 2007). Using a similar measurement approach to this study, Spriggs and colleagues found that 21% of students reported bullying involvement as a victim (9%), bully (9%), or bully-victim (3%). Slightly higher rates in the Spriggs et al. study may be due to the inclusion of middle school students, an age group in which bullying behaviors peak (Björkqvist et al., 1992; Espelage & Swearer, 2003; Nansel et al., 2001; Pellegrini & Long, 2002). Also, the rates presented in both studies were calculated using a cut-off score of more than 2 incidents,

which may contribute to lower, more conservative rates overall when compared to other prevalence estimates. Studies of prevalence rates often do not differentiate between students who are involved in bullying just once and those who are bullied repeatedly (Baly et al., 2014), although repetition has been identified as a defining characteristic of bullying (Solberg & Olweus, 2003).

Overall, the percentage of students within each school reporting bullying involvement ranged from 10.8% to 23.3%. This indicates that approximately twice as many students reported bullying involvement in the school with the highest rate compared to the school with the lowest rate of self-reported bullying involvement. Interestingly, when using school report data, the total number of bullying incidents only ranged from 0 to 4 bullying incidents for an entire school year. This significantly underrepresents the number of students per school who reported bullying involvement. Thus, results suggest that student self-report measures may provide a more accurate estimate of the prevalence of bullying, as also found in a study by Solberg and Olweus (2003).

Reasons that school bullying reports (i.e., staff collected data) may be less accurate than self-reports are that (a) as students get older, covert forms of bullying become more common and harder to observe (Hymel & Swearer, 2015) and (b) students are less likely to report bullying as they get older (Card et al., 2008). According to the 2013 National School Climate Survey, 56.7% of LGBT students who were harassed or assaulted in school did not report the incident to school staff, most often because they doubted that effective intervention would happen or that the situation would be made worse; 61.6% reported that staff did nothing when they did report (Kosciw et al., 2014).

Cortes and Kochenderfer-Ladd (2014) found that students ages 8- to 10- years old were more willing to report bullying to their teachers if they believed that teachers would take an active role in intervening (e.g., separating involved students or involving parents and principals); students were less likely to report bullying if they believed that teachers would punish aggressors. In a study by Klein and Cornell (2010), several principals also explained that they have a set amount of time within the school day to address and document discipline cases, often resulting in the most severe cases being prioritized and documented. The authors noted that less severe cases may be handled by teachers who may refer fewer cases over time.

Overall, self-report measures of bullying may provide a more accurate prevalence estimate than school records which could be impacted by a multitude of factors, including discipline and documentation procedures, difficulty observing covert forms of bullying, student and staff willingness to report, and limited resources among others. Likewise, researchers have suggested that self-report methods may provide a more accurate bullying prevalence rate than do peer or teacher reports of bullying which can be impacted by personal biases or stereotypes and lack of opportunities to observe covert bullying incidents (Juvonen et al., 2003). Vivolo-Kantor, Martell, Holland, and Westby (2014) concluded that few studies have used multiple reporters to measure bullying and that low agreement has been found between student-report, peer nomination, and teacher nomination. Thus, caution should be used when including school reports of bullying to gauge how problematic bullying is for a specific school or to determine the effect of intervention programs.

Research Question 2

After determining prevalence rates, the second set of analyses examined the difference between school level variables for two groups: low bullying schools and high bullying schools. School level variables were grouped into four categories: sociodemographics, school order, school climate, and protective factors.

Sociodemographics. Findings revealed further support for studies indicating no difference in regards to enrollment size, proportion of minority students, rural-urban status, and proportion of students receiving free and reduced meals. This is consistent with a study by Klein and Cornell (2010) who found that none of the following demographic variables were predictive of the self-reported rates of bullying victimization across 290 Virginia high schools: school size, poverty, proportion of non-White students, diversity index, and urbanicity. In regards to results which have shown that greater racial diversity is associated with lower peer victimization rates, insignificant findings from this study may be impacted by the limited range of racial diversity among schools (i.e., only 1 of 26 schools had less than 50% white student population).

Although it was hypothesized that schools with higher rates of bullying would have a higher percentage of sexual minority students, this hypothesis was not supported. In this sample, individual level findings from current research did not translate to the school level. No difference was found between groups. Despite the percentages of students ranging from 9.5% to 15.2% who identified as sexual minority, such rates may be impacted by willingness to disclose this information. Overall, sexual orientation may actually be more evenly dispersed between schools, similar to the percentage of male and female students. However, the most interesting and perhaps more relevant finding was

that upon further analysis, when looking only at self-reported bullying victimization, schools with lower rates actually had higher percentages of sexual minority students. Future studies should investigate what variables contribute to differences in this area. For example, at the school level, it could be that the co-occurrence of higher percentages of students identifying as a sexual minority along with lower rates of bullying victimization is associated with a more positive school climate in which students feel safer to report non-heterosexual orientation on surveys and fewer experience victimization, or this relationship could be moderated by another co-variate such as the presence of LGBT-related resources such as Gay-Straight Alliances (GSAs) and school staff who are supportive of LGBT students (Kosciw et al., 2014).

The most significant finding in this section was that higher bullying involvement at the school level was associated with lower rates of poverty at the county level. This is in contrast to studies showing a link between bullying victimization and low SES (Tippet & Wolke, 2014). This could be due to a factor unique to the geographic location of the schools in this study (i.e., Kentucky), the measure used, or an unidentified covariate. However, another possible explanation comes from Lleras (2008) who found that school characteristics which have historically been associated with lower levels of disorder and increased safety (private, smaller, and higher SES) did not protect high school students from verbal forms of victimization. Pickett et al. (2013) found that absolute wealth but not income inequality was negatively correlated with fighting; they speculated that this difference could be explained by social conditions that foster acceptance of violence versus “social class anxiety” which may be related to inequalities that contribute to nonphysical types of aggression such as relational bullying (p. 23). Perhaps the findings

in this study reflect income inequalities. Overall though, consistent with Elsaesser, Gorman-Smith, and Henry (2013), these findings provide further support that risk for involvement in relational aggression is distinct from that of physical aggression (i.e., schools with higher bullying rates did not have significantly higher percentages of low SES students or of individuals below the poverty line in the surrounding community).

School order. Social disorganization theory suggests that school-level indicators of disorder negatively impact school climate and increase the risk for violence (Bradshaw et al., 2009; Shaw & McKay, 1969). Results from this study did not provide support for this theory, as originally hypothesized. There were no significant differences between high and low bullying schools for the following indicators of school disorder: suspensions, fights between students, disruptive behaviors, or student-teacher ratio. This again supports the distinct nature of bullying from other easily observed, externalizing problem behaviors in the school setting. Similarly, this also provides further support for the findings by Elsaesser et al. (2013) which demonstrated risk for involvement in relational aggression is distinct from that of physical aggression. Although physical bullying was included in the definition of bullying used for this study, the participants were all high school students, an age group in which relational forms of bullying are more prevalent.

School climate. There is a lack of consensus on the defining characteristics of school climate (Konold et al., 2014), although it has been identified as a significant factor in bullying victimization (Cook, Williams, Guerra, Kim, & Sadek, 2010). The variables used in this study were influenced by accessibility and their ability to provide an overall picture of the school learning environment. A global measure of school climate was not

used. Considering all of these factors, caution should be used in drawing definitive conclusions about school climate based on the indicators discussed below.

Overall, it was hypothesized that high schools with higher bullying rates would have higher rates of teacher absences, dropouts, and students reporting symptoms of depression; and lower rates of graduation and college-going students. However, findings did not confirm these hypotheses. No differences were found between groups for these variables. Even more unexpectedly, findings revealed that schools with higher bullying rates actually had lower retention rates, higher rates of student attendance, and higher percentages of students ready for college-level English and math (i.e., better performing schools had higher rates of bullying).

At the individual level, old-for-grade status has been linked to increases in bullying and victim behavior (Crothers et al., 2010). Research has shown that retained students are more likely to experience problems with peer interactions, disliking school, lower self-esteem, increased stress, risk for dropout, impaired academic achievement, and social and emotional maladjustment (Jimerson et al., 2004). However, in this sample, schools with lower bullying rates actually had higher retention rates. This could somewhat explain the higher percentage of freshmen in low bullying schools. Similarly, although victimization is associated with school absenteeism and with feeling unsafe at school at the individual level (Baly et al., 2014; Dake et al., 2003; Steiner & Rasberry, 2015; Swearer et al., 2010), high bullying schools actually had better attendance rates compared to low bullying schools. Higher attendance rates are consistent with the higher achievement scores which were found for the high bullying school group. Possible explanations for this finding are discussed under research question 3.

Protective factors. There is a lack of research on the relationship between counseling resources and the prevalence of bullying at the school level. One study by Gregory et al. (2010) did find that availability of caring adults – aggregated at the school-level from students’ perceptions of school support – was associated with lower rates of bullying and victimization among high school students. However, in this sample, there was no significant difference between the student-counselor ratio for low and high bullying schools. Unfortunately, this is a limited indicator of the social-emotional supports provided within a school. This variable does not account for all school mental health providers, including school social workers, school psychologists, and community providers who offer programs in the school setting. Also, the Gregory et al. study emphasizes “caring adults” which suggests that the number of counselors may be less important than students feeling cared about, respected, and treated fairly by all adults in the school. This aligns with the recommendation for a multi-tiered, whole-school approach which includes training for all staff (Espelage & Swearer, 2008; Ttofi & Farrington, 2011). Thus, bullying is a systemic issue that must be treated as such. Counselors alone cannot resolve the problem.

A second protective factor with a growing research base is parental involvement or home-school collaboration. Overall, preliminary findings suggest that parent involvement is associated with positive outcomes for academic achievement and reductions in bullying (Huang et al., 2013; Ma, 2002; Shen et al., 2014). However, in this study sample, schools with high bullying rates unexpectedly had significantly more students with at least one parent-teacher conference. Interestingly, Nansel et al. (2001) found that the roles of victim and bully-victim were associated with greater parental

involvement in school which they suggested may reflect parent awareness of a child's difficulties or less independence making them a vulnerable target. This finding will be discussed in greater detail in the next section.

Overall, the findings for research question 2 showed that schools with higher rates of bullying involvement had the following characteristics: lower rates of poverty at the county level, lower retention rates, higher rates of student attendance, higher percentages of students ready for college-level English and math, and higher percentages of students with at least one parent-teacher conference. Based on these school level variables, schools with higher rates of bullying involvement performed better on measures of school performance.

Research Question 3

After identifying the school characteristics that were significantly different for schools with higher rates of bullying involvement, further analyses were conducted to determine predictors of bullying involvement. Overall, the best school-level predictors of bullying involvement were found to be academic achievement (i.e., percentage of students ready for college-level English based on ACT scores) and parent involvement. Interestingly, the direction of the relationship was not as hypothesized. Higher rates of bullying involvement at the school level were associated with higher rates of achievement and higher rates of parent involvement.

Academic achievement. At the individual level, a negative correlation has been established between peer victimization and academic functioning (Juvonen et al., 2011; Nakamoto & Schwartz, 2010). However, as supported by this study, school level findings suggest a less consistent pattern in regards to academic achievement and bullying. For

example, Agnich and Miyazaki (2013) found that higher rates of physical bullying were predicted by lower mean math achievement scores; yet, indirect forms of violence were not associated with achievement scores. Green et al. (2011) reported similar findings in that academic performance (time spent on homework) aggregated at the school level was not significantly associated with reports of nonphysical bullying victimization. Similarly, Elsaesser et al. (2013) found that risk for involvement in relational aggression is distinct from that of physical aggression in that no school-level indicator of climate was related to relational aggression. Overall, this suggests that (1) high rates of bullying involvement could still exist in a school despite an overall positive school climate and feelings of safety among students and (2) relational forms of aggression are distinct from physical aggression. Consistent with these findings, Wang et al. (2014) found that students' collective perceptions of school climate did not moderate the connection between peer victimization and GPA. The authors noted that a positive school climate may not be sufficient to protect students from the negative effects of peer victimization. Thus, changing school culture and perceptions of school climate may not be sufficient to reduce bullying, relational forms in particular.

Similarly, higher rates of bullying involvement may exist in schools with characteristics typically perceived as protective factors, or indicators of healthy functioning. For example, Lleras (2008) found that school characteristics which have been associated with lower levels of disorder and increased safety (private, smaller, and higher SES) did not protect high school students from verbal forms of victimization. More importantly, Freeman et al. (2009) conducted a study on school climate and school pressure as predictors of emotional health and bullying. The sample consisted of

adolescents from 26 European countries, Canada, the U.S., and Israel. Overall, they found that students who reported the lowest levels of school pressure also reported having higher levels of emotional health and reported being less involved with bullying. Clusters of schools classified as “medium school climate/low pressure” were associated with a lower prevalence of victimization than schools with “high school climate/high pressure” and schools with “low school climate/high pressure.” Overall, this suggests that a positive school climate may not be sufficient to reduce bullying if a third variable such as high academic pressure coexists. Hazel (2010) conducted a unique qualitative study in a U.S. elementary school that illustrated how teachers and administrators, primarily focused on improving performance on state-mandated achievement tests, were experiencing increased stress levels and decreased attention to students’ social-emotional needs. Students reported that bullying was interfering with their ability to concentrate inside the classroom. The school was located in a state with significant consequences for scores on high-stakes tests. Overall, this finding suggests that pressure on staff to be accountable for student outcomes on state tests could contribute to bullying by decreasing social-emotional supports and possibly increasing academic pressure on students.

A third and less robust explanation for this finding is how gender norms and expectations can create a power differential that places those who do not conform at a greater risk for victimization (Tobin & Duncan, 2007). For example, Lehman (2014) found that academic effort (i.e., hours spent on homework) and achievement (i.e., GPA) were associated with higher rates of bullying victimization for male high school students. Interestingly, a pro-academic attitude did not predict increased reports of bullying victimization. Lehman attributed this difference to the observable nature of effort (e.g.,

submitting assignments and being prepared) and achievement (e.g., test grades and academic awards); he indicated that these may be signs of femininity which do not conform to gender norms for male students. Lehman suggested that athletic achievement, which increases signs of masculinity, may serve as a protective factor. Overall, academically high-achieving males may be at greater risk for bullying victimization. Thus, higher rates of students within a school demonstrating college-readiness through ACT scores may be an indicator of a greater number of students at risk for victimization.

Last, it is important to note that Lacey and Cornell (2013) did find that perceived prevalence of teasing and bullying was predictive of schoolwide passing rates on state-mandated achievement testing for 284 Virginia high schools (i.e., a high bullying climate was associated with lower passing rates at the school level). This is inconsistent with findings from this study which associated high bullying schools with higher achievement at the school level. However, an important difference is that the bullying climate in the study by Lacey and Cornell was based on “perceptions” of teasing and bullying versus self-reports of bullying victimization. Klein and Cornell (2010) found that outcomes may differ based on the measure of bullying used (e.g., teacher and student perceptions versus self-reports aggregated to the school level).

Parent involvement. Overall, parental involvement has been associated with positive outcomes for academic achievement and reductions in bullying (Huang et al., 2013; Ma, 2002; Shen et al., 2014). In a nationally representative study, Shen et al. (2014) examined traditional forms of parental involvement (e.g., parents directly participate in some type of activity or provide home-based support such as homework help) and nontraditional forms (e.g., parents on decision-making teams). The findings

indicated that parental involvement was important for school level academic achievement, even when controlling for other demographic variables. Traditional forms had the greatest impact. This finding explains the positive correlation between school-level academic achievement and parent involvement for this study. However, the positive correlation with bullying involvement is more puzzling. Nansel et al. (2001) found that the roles of victim and bully-victim were associated with greater parental involvement in school which they suggested may reflect parent awareness of a child's difficulties or less independence making them a vulnerable target. At the same time, the link between high parent involvement and high bullying schools may be explained by an unidentified variable. Overall, the positive correlation between parent involvement and bullying involvement at the school level shows that (1) individual level findings may not translate directly to the school level, (2) greater school performance in some areas (e.g., ACT scores and parent involvement) could overshadow other school problems such as higher rates of bullying involvement, and (3) the parent involvement indicator used in this study (i.e., number of students with at least one parent-teacher conference) may represent a limited subset of students who are struggling and require conferences to discuss concerns. This indicator does not capture the full range of parent involvement for each school.

Limitations

A common difficulty with educational outcomes is causality (Hammond et al., 2007). This study was limited by a correlational design which does not allow for causal inferences. Many of the findings may be bidirectional, and a variety of related variables not included in this study may contribute to the observed relationships. The frequent use of contemporaneous correlational designs has been criticized for not allowing researchers

to determine directions of the relations between variables (Haynie et al., 2001). In addition, this is not an all-inclusive list of school characteristics. Study variables were limited by availability due to the use of secondary data analysis.

In addition, threats to statistical conclusion validity include: low statistical power (i.e., possibility that no relationship was found between some variables due to small sample size), weakened relationships due to the restricted range of some variables, and extraneous variables in the environment. The sample characteristics also limit generalizability. The sample included public high schools in one state. Although the schools were selected from geographically diverse regions of the state, schools were not randomly selected.

In regards to measurement, prevalence was determined using a “bullying involvement” variable (i.e., sum of bullies, victims, and bully-victims). The measurement approach used in this study was recommended by Solberg and Olweus (2003) who presented strong empirical support for a single item self-report method for prevalence estimates. They recommended a single perpetration and victimization item immediately following a clear definition of bullying with a reference period (e.g., past couple months), spatial reference (e.g., at school), and specific response alternatives (e.g., 2 to 3 times). They deemed their method a more reliable, systematic, and replicable process for determining prevalence rates and for minimizing the current variability between rates across studies.

At the same time, results from this study are limited to the measures. For example, there are a range of measures for academic achievement and parent involvement. Results may have varied if other measures were used. For example,

Nakamoto and Schwartz (2010) found that the strength of the association between peer victimization and academic achievement was moderated by the informant used, the indicator of academic achievement, shared method variance, and the national setting of the study. They suggested that multiple informants may provide a more accurate measure of victimization, as well as school records of grades for academic achievement. Measures of SES also vary across studies involving bullying (e.g., education, income, occupation, family, and neighborhood; Tippett & Wolke, 2014). Cornell et al. (2013) also found a difference in the predictions of perceived bullying versus student reports of actual experiences. They found that the prevalence of teasing and bullying as perceived by Grade 9 students and teachers was predictive of dropout rates four years later, however student self-reports of bullying victimization (verbal, physical, and social) were not predictive of dropout rates. These findings indicate that researchers should use caution when interpreting findings or drawing conclusions based on student and teacher perceptions of the school bullying climate versus self-reports of bullying experiences.

Last, this study was conducted at the school level. Multilevel analysis was not applied which limits the ability to determine how individual level variables impact school level findings.

Implications and Future Research

Overall, this study adds to the bullying literature by contributing to the lack of research targeting school level predictors of bullying and by providing further clarity regarding areas of mixed findings and developing trends. This study has shown that individual level findings of bullying prevalence may not translate to the school level. The results also provide further support for studies showing that indirect forms of bullying or

relational aggression are distinct from physical forms of aggression; equating research findings for physical aggression (e.g., fighting between students) with bullying may be misleading. For example, Pickett et al. (2013) found that absolute wealth but not income inequality was negatively correlated with fighting. They speculated that this difference may be explained by social conditions that foster acceptance of violence (i.e., associated with physical aggression) versus “social class anxiety” which may be related to inequalities that contribute to nonphysical types of aggression such as relational bullying (i.e., greater power imbalances, p. 23). Furthermore, high pressure academic climates may also contribute to greater bullying involvement and poorer emotional health (Freeman et al., 2009).

At the individual level, the association between low SES and bullying behaviors suggests that youth, from low SES families, involved in bullying may present with diminished skills for problem-solving, coping, and social competencies and have parents/guardians with less time for parent-child interactions and less supervision, which all contribute to the risk for bullying. However, it is possible that bullying involvement is being focused on a subset of the population (i.e., low SES, lower performing schools) and overlooked in schools with positive climates, greater academic achievement, more parent involvement, and lower rates of poverty in the surrounding community. One interesting perspective is that of resource control theory which has been used to identify a group of “bistrategic controllers” who are described as being effective users of both pro-social and coercive strategies (Hawley et al., 2011). This more sophisticated view on bullying behaviors aligns with Sutton et al. (1999) who argued that the definition of bullying may illustrate a savvy perpetrator who uses his or her social skills to plan, to manipulate, and

to select the most effective place, time, method, and victim to ensure success. Likewise, Swearer et al. (2009) argued that some youth who bully may actually exhibit higher functioning cognitive abilities accompanied by apathy and a lack of respect. Thus, this is another example of how bullying research may be overshadowed by research on general forms of aggression. High schools with higher rates of bullying involvement may not necessarily share the same characteristics as high schools with higher rates of physical violence.

The results also have practical implications for the school setting. First, data collections procedures should be reevaluated to determine the quality and accuracy of the data being collected, with the purpose of the data collection being a primary focus. Due to limitations of frequency counts and increases in covert forms of bullying as students get older, high schools should consider the use of student surveys which ask students to report on personal experiences with bullying. Beyond demographic variables, the survey could also gather information on related variables such as indicators of school climate, social norms, beliefs about bullying, reasons for not reporting, and levels of academic pressure. Focus groups with a range of student participants could be utilized to reassess student bullying reporting systems.

Overall, self-report questionnaires are a preferred assessment method for researchers and school personnel investigating the bullying phenomenon (Espelage & Swearer, 2003; Leff et al., 2011; Salmivalli & Peets, 2009). They can be used to gather information on the prevalence of bullying behaviors, locations in the school where bullying occurs, attitudes toward bullying, and willingness to intervene (Espelage & Swearer, 2008). Unlike peer/teacher reports or direct observation methods, self-report

questionnaires are convenient for large-scale studies. They are less resource-intensive and easier to coordinate (Arseneault et al., 2010; Juvonen et al., 2003). Data can be collected from several students in a short period of time (Cornell & Bandyopadhyay, 2010) and at multiple points over time (Espelage & Swearer, 2003).

In regards to recommendations for bullying prevention and intervention efforts, Jones and Augustine (2015) provided the following for secondary schools: community involvement, an assessment of the school climate, a consensus on the definition of bullying, student and parental engagement, teaching empathy, professional development for faculty and staff, and ongoing program evaluation. Azeredo et al. (2015) found that schools with established rules and accepted regulations against bullying, anti-bullying and pro-victim attitudes, and the ability to intervene against violence had lower rates of bullying; schools without anti-bullying norms, with inferior teacher support, and with poor class management were at increased risk of bullying. Rose and colleagues (2009) also speculated that more inclusive educational practices, when implemented effectively, could facilitate positive social interactions that serve as a protective factor for both perpetration and victimization. In regards to homophobic bullying, examples of appropriate interventions might include establishment of gay-straight alliances (GSAs) and diversity awareness training for students and staff. Espelage, Bosworth, and Simon (2000) also indicated that a significant decrease in bullying behavior was noted for students who spent time with adults who suggest nonviolent conflict management. Last, prevention programs broadly targeting youth aggression may not effectively target the unique characteristics of bullying, such as repetition and a power imbalance (Gladden,

Vivolo-Kantor, Hamburger, & Lumpkin, 2014). Tippett and Wolke (2014) concluded that interventions should target all students, regardless of SES levels.

Due to conflicting results for SES, further research has been suggested on social inequality within the environment versus a global measure of the economic level (Tippett & Wolke, 2014). Future research should also continue to investigate inequalities at the systemic level and the impact of diversity. School level differences could also be evaluated without combining bully, victim, and bully-victim groups. Each group may be associated with different outcomes. Per Azeredo et al. (2015), the following areas were needed but not included in several studies: response rates to show that the subjects who actually participated were representative of the population from which they were recruited, if the distribution of the main confounding factors were the same in the study sample and the source population, psychometric properties of measures showing validity and reliability, and whether there was adequate adjustment for confounding in the analyses from which the main findings were drawn. Another direction for future research would be attempting to replicate the findings from this study using a different sample of high schools from another state. Future studies would also be enhanced by use of a school climate measure and a measure of bystander behaviors.

Chapter 4: Conclusion

Bullying is a universal problem affecting the well-being of school-age children worldwide. Students involved in bullying at school have consistently reported greater health problems, poorer social-emotional outcomes, and poorer school adjustment (Nansel et al., 2004). At a systems level, bullying threatens school safety, damages school climate, and interferes with the learning environment for all students (Rossen & Cowan, 2012). Despite a growing body of research literature, researchers are continuing to investigate what factors contribute to bullying behaviors and how to improve prevention and intervention efforts. Accordingly, there has been a shift to a social-ecological framework founded on Bronfenbrenner's ecological systems theory. This theory recognizes that bullying is not solely a problem that lies within an individual; bullying is a complex social phenomenon that is the result of a bidirectional relationship between individuals and their environment. This environment consists of multiple nested systems including but not limited to peers, family, school, community, and societal norms and values.

In order to understand bullying through a socio-ecological lens, it is necessary to identify contributing factors at all levels. Although individual level risk factors have a strong research foundation, one level that has not been thoroughly investigated and has resulted in mixed findings is the school level. Thus, this dissertation addressed the need for a better understanding of how the school environment is associated with bullying behaviors. To accomplish this task, a comprehensive literature review was conducted followed by a study using secondary data analysis to investigate the variability in

prevalence rates between schools, explore how schools with high bullying rates differ, and identify the strongest school level predictors of bullying involvement rates.

Appendix A: UK Health and Safety Study Survey Bullying Items

The next section includes questions about bullying. Bullying is when students tease, threaten, spread rumors, hit, shove, or hurt another student over and over again. It is not bullying when students who are about the same size fight or tease each other in a friendly way.

30. In the past 12 months, how many times have **you been bullied** by another high school student?

- A. 0 times
- B. 1-2 times
- C. 3-5 times
- D. 6-9 times
- E. 10 or more times
- F. Yes, this happened before, but not in the past 12 months

31. In the past 12 months, how many times **have you bullied** another high school student?

- A. 0 times
- B. 1-2 times
- C. 3-5 times
- D. 6-9 times
- E. 10 or more times
- F. Yes, this happened before, but not in the past 12 months

Appendix B: UK Health and Safety Study Survey Sexual Attraction Item

5. People are different in their sexual attraction to other people. Which best describes your feelings? Are you:

- A. Only attracted to females*
- B. Mostly attracted to females*
- C. Equally attracted to females and males*
- D. Mostly attracted to males*
- E. Only attracted to males*
- F. Not sure*

Appendix C: UK Health and Safety Study Survey Depression Item

25. During the past 12 months, did you ever feel so sad or hopeless almost every day for 2 weeks or more in a row that you stopped doing some usual activities?

- A. *No*
- B. *Yes*

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EDUCATION

Educational Specialist, University of Kentucky (APA-accredited). Department of Educational, School, and Counseling Psychology. Major: School Psychology. Conferred December 2014.

Graduate Certificate, University of Kentucky. Major: Developmental Disabilities. Conferred December 2012.

Master of Science, University of Kentucky (APA-accredited). Department of Educational, School, and Counseling Psychology. Major: School Psychology. Conferred December 2010.

Bachelor of Arts, University of Kentucky, Lexington, KY. Major: Psychology. Minor: Art Studio. Conferred May 2007.

PROFESSIONAL POSITIONS HELD

Livingston County Special Services Unit, Pontiac, Illinois. Certified School Psychologist. 2014-2016.

Illinois School Psychology Internship Consortium, Livingston County Special Services Unit, Pontiac, IL (Dr. Beth Casper, Supervising Licensed Psychologist/Certified School Psychologist). APA-Accredited Pre-doctoral Internship. 2013-2014.

Phoenix Academy, Clark County Public School Day Treatment Program, Winchester, Kentucky (Mr. Dustin Howard, Supervising Certified School Psychologist). Pre-doctoral Internship. 2012-2013.

University of Louisville Autism Center, Systematic Treatment of Autism & Related Disorders (STAR) Program, Louisville, Kentucky (Dr. Grace Mathai Kuravackel, Supervising Licensed Psychologist). Advanced Practicum. Spring 2012.

Jessamine County Day Treatment, Wilmore, Kentucky (Regina Spencer, CSW, Supervising Counselor). Advanced Practicum. Fall 2011.

The Providence School and East Jessamine Middle School, Nicholasville, Kentucky (Mr. Brandon Huss, Supervising Certified School Psychologist). Practicum. 2010-2011.

West Jessamine Middle School and Rosenwald-Dunbar Elementary, Nicholasville, Kentucky (Mrs. Cindy Matherly, Supervising Certified School Psychologist). Practicum. 2010-2011.

Rosa Parks Elementary, Fayette County, Lexington, Kentucky (Mrs. Melisa Morris, Supervising Certified School Psychologist). First-year Practicum. 2009.

Mid-South Regional Resource Center, Human Development Institute, University of Kentucky (Dr. Michael Abell, Supervising Program Director). Research Assistantship. 2010-2013.

HONORS AND AWARDS

Kevin Burberry Award Finalist, University of Kentucky Human Development Institute, 2012.

Human Development Institute Certificate Fellowship, University of Kentucky, 2011-2012

PUBLICATIONS

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Boswell, M. A., & Layland, D. A. (2012). *Effective collaboration: From research to practice for the provision of technical assistance*.