2008

High school outcomes of middle school bullying and victimization

Marissa A. Feldman
University of South Florida

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by

Marissa A. Feldman

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts
Department of Psychology
College of Arts and Sciences
University of South Florida

Major Professor: Ellis Gesten, Ph.D.
Michael Brannick Ph.D.
Judith Bryant, Ph.D.

Date of Approval:
March 26, 2008

Keywords: school violence, adolescence, peers, academic achievement, families

Dedication

I would like to dedicate this work to my family and friends. It has been your unwavering support and dedication that has allowed me to pursue my dreams. Each of you has greatly contributed to who I am and where I am going. I am forever grateful. I love you.

Acknowledgements

I would like to thank my advisor, Dr. Ellis Gesten, for his support and guidance in my academic, research and clinical pursuits. I am grateful to my committee, Dr. Judith Bryant, who provided great insight into child development, and Dr. Michael Brannick, who dedicated his time and energy into ensuring that I had a clear handle on statistical procedures. Special thanks to Dr. Christine Totura who laid the foundation for this project. This research was made possible by the overwhelming support and dedication of the School District of Pasco County, and specifically, Ray Gadd, Lizette Alexander, Amelia Van Name Larson, David Scanga, and Ken Brown. Thank you all.

Table of Contents

List of Tables

List of Figures

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Marissa A. Feldman

Abstract

Previous research has revealed that bullying behaviors are negatively related to psychological, behavioral, social, and academic development. However, much of what is known has been determined from cross-sectional or year-long longitudinal studies conducted in elementary or middle school. The present study examined the longer-term correlates of bullying and victimization during the critical transition from middle to high school. Archival data from a large southern school district examined the longer-term implications of bullying and victimization of a middle school cohort (N=1,249). Results revealed that, during the initial survey year and over the following four-year period, self-identification as a bully was related to poorer academic achievement (grade point average), attendance, and discipline problems (total referrals and suspensions). No significant differences were found between victim and uninvolved student profiles, with the exception of victims having more discipline problems over the four subsequent years. Additionally, moderating factors, such as family, peer and school variables, were explored to determine why some youth involved in bullying succeed despite these challenges. Results revealed that the moderating influence of family adaptability and cohesion on student attendance and disciplinary actions persisted over a four-year follow-up period. Whereas increased family cohesion appeared to be related to increased attendance rates for victims, mixed results were demonstrated for family adaptability.

Although higher levels of adaptability may be associated with better academic performance for victims, increased family adaptability was associated with poorer behavioral conduct of victims and bullies, as indicated by increased rates of referrals and suspensions.

Introduction

Over the past several decades, bullying has been a growing focus of public, political, and research interest (Nansel, Overpeck, Pilla, Ruan, Simons-Morton & Scheidt, 2001; Natvig, Albrektsen, & Qvarnstrom, 2001; Smokowski & Kopasz, 2005; Wolke, Woods, Stanford, & Schulz, 2001). Although a minimal amount of conflict and teasing is typical of peer relations (Roberts, 2000), bullying presents a viable threat to the psychosocial adjustment of the nation's youth (Nansel et al., 2001). The many negative psychological, social, educational, and behavioral consequences of bullying call for increased prevention and intervention efforts.

Bullying is a pervasive problem affecting children worldwide. Research indicates the prevalence of bullying varies across cultures from a low 8% in Germany to a moderate 24% in England (Wolke et al., 2001) to a high of 40% in Northern Ireland (Collins, McAleavy, & Adamson, 2004). Although there is variability in overall prevalence rates, which can be attributed to variations in the definition and measurement of bullying (Wolke et al., 2001; Yang, Kim, Kim, Shin, & Yoon, 2006), there appears to be congruence across cultures in the trend of bullying. As the frequency of bullying increases, the rate of bullying decreases; said differently, there are more victims of intermittent, rather than pervasive, bullying. In a study conducted in the United States, Nansel and associates (2001) investigated the rate of bullying behaviors and observed that 25% of their sample reported bullying once or twice during the current term, 11% reported bullying sometimes, while only 8% reported bullying weekly. Similarly, a study

in Northern Ireland, which examined the rate of victimization, found that 40% of students experienced bullying to some degree in the past couple of months, while 26% of students experienced bullying two or three times in the past month, and 4% of students experienced bullying several times a week (Collins et al., 2004). As these studies demonstrate, prevalence rates are important for understanding the scope of the problem. However, it is important to note that much of this research was obtained from self-report measures, and therefore these estimates are likely to underestimate the phenomenon (Olweus, 1995).

Bullying Defined

To better understand the scope of the problem, a clear definition of bullying is necessary. Bullying has been described as the repeated exposure to negative actions committed by one or more individuals (Olweus, 1995). These negative actions include physical contact, verbal assaults, nonverbal gestures, and intentional exclusion (Olweus, 1995) and are intentionally designed to inflict harm or discomfort upon individuals who are unable to defend themselves. Thus, bullying is dependent on a real or perceived imbalance in strength creating an asymmetric power relationship (Olweus, 1995; Wolke et al., 2001). Within this relationship are those who perpetrate the negative actions (bullies) and those who are the targets of such actions (victims). A third recently identified group of bully/victims consists of individuals who both bully others and are victims of bullying. Children categorized into this group, with prevalence rates ranging from 1 % (Katiala-Heino, Rimpela, Rantanen, & Rimpela, 2000; Rigby, 1994) to 8% (Baldry & Farrington, 2005; Kokkinos & Panayiotou, 2004; Yang et al., 2006), have been described as being least popular by peers, hot tempered, and having more problems with

hyperactivity and impulsivity than do children considered 'pure' bullies or victims (Schwartz, 2000; Woods & Wolke, 2004). [1]

Characteristics of Bullies. Bullies are individuals who purposefully and repeatedly target another individual for physical or relational aggression. Boys, who are more often identified as bullies (Collins et al., 2004; Siann, Callaghan, Glissov, Lockhart, & Rawson, 1994; Wolke et al., 2001; Yang et al., 2006), generally have positive views of violence and use violence to dominate others (Carney & Merrell, 2001; Glew, Rivara, & Feudtner, 2000; Pellegrini, Bartini, & Brooks, 1999). They are usually physically stronger than boys in general and their victims, in particular (Glew et al. 2000; Olweus, 1995). Regardless of their physical stature, bullies will identify and capitalize on victims of any age, status, or physical size if they perceive there is no possibility of consequence or repercussion (Carney & Merrell, 2001). Bullies attempt to control other individuals while lacking a sense of empathy toward their victims (Glew et al. 2000; Jolliffe & Farrington, 2006; Olweus, 1995). This devastating combination of ability and will incites the perpetration of physical aggression. On the other hand, females are more likely to engage in indirect relational aggression, rather than physical aggression. Relational aggression involves the negative use of peer relations to cause harm or distress to another individual (Pellegrini, 1998). To accomplish this goal, female perpetrators employ tactics, such as spreading rumors or revealing secrets, which facilitate social exclusion and silent rejection (Ostrov, Crick, & Stauffacher, 2006; Smith, 2004). Although no

[1] Although these children are of interest when creating and implementing intervention programs, due to the limited sample size in the initial study and inconsistent manner in which these children are addressed in the literature, this population will not be examined within the current study.

physical harm comes of this form of bullying, psychological and emotional impairment is evident.

Research finds that bullies tend to experience symptoms of depression and suicidal ideation. In a recent Norwegian study, results revealed that both bullies and victims experienced more depressive symptoms than students who were uninvolved in bullying (Roland, 2002). Although this finding has been consistent, an explanation remains unclear. Some speculate that feelings of guilt or shame may be related to feelings of depression, while others speculate that the home environment is the influential factor (Rigby, 2003). Furthermore, bullies report suicidal ideation at a greater frequency than victims (Roland, 2002). This is of particular concern because aggression towards others may reveal a propensity for aggression toward themselves (Roland, 2002).

Bullies also display externalizing symptomology (Ivarsson, Broberg, Arvidsson, Gillberg, 2005) and sometimes diagnosable disruptive behavior disorders (Kikkinos & Panayiotou, 2004). As previously indicated, bullies are aggressive, destructive, enjoy dominating others, and lack empathy for their victims (Carney & Merrell, 2001), which are externalizing behaviors characteristic of Oppositional Defiant Disorder (ODD) and especially Conduct Disorder (CD). This is of concern since many conduct-disordered youth engage in delinquent, antisocial behavior as adults. Thus, early identification of bullying could facilitate screening for referral to interventions that will break this negative cycle (Kikkinos & Panayiotou, 2004).

Typically, children form peer relationships based on similarity, such as similar behavioral styles and attitudes (Pellegrini et al., 1999); therefore, bullies affiliate with other aggressive youth (Pellegrini et al., 1999) because they share physical aggression

and positive attitudes toward bullying (Carney & Merrell, 2001). For example, Espleage, Holt, and Henkel (2003) found that bullies tended to affiliate with other youths who bullied and fought at the same frequency. Although bullies do not show difficulty forming relationships with individuals who share their aggressive ideology and behavior, bullies in general tend to experience average or below average popularity with other non-aggressive peers (Carney & Merrell, 2001). This is demonstrated in the research subtyping popular and unpopular aggressive bullies (Farmer, Leung, Pearl, Rodkin, Cadwallader, & Van Acker, 2002). Popular aggressive bullies seem to engage with other popular youths and are not ostracized for their aggressive behavior. On the contrary, unpopular aggressive bullies are rejected and socially isolated by other youth and use their aggression to get and maintain attention.

In sum, bullies are individuals who repeatedly target others for physical or relational abuse. Bullying only occurs in the context of a power differential whereby the perpetrator exerts control over a victim with no empathy for his or her plight. Although research consistently finds that bullies demonstrate externalizing behaviors, less is known about the association between bullying and internalizing problems.

Characteristics of Victims. Victims are individuals who are targets of repeated negative acts. Victims are often categorized into two specific groups, aggressive victims and passive victims (Olweus, 1993; Schwartz, Dodge, & Coie, 1993; Schwartz, Dodge, Petit, & Bates, 1997). Passive victims are often physically smaller, have fewer friends, lack assertiveness, and are more submissive than similar aged peers (Glew et. al, 2000; Olweus, 1993; Schwartz, Dodge, & Coi, 1993). They tend to react to the victimization by crying or withdrawing from the situation (Smokowski & Kopasz, 2005). In contrast,

aggressive victims tend to react to their victimization and any perceived threat in an aggressive manner (Pellegrini, 1998; Schwartz et al., 1997), demonstrating an emotionally dysregulated behavioral pattern (Schwartz et al., 1997).

Victimization has been associated with internalizing symptoms and psychological distress. Victimized individuals frequently report greater symptoms of depression than do bullies and uninvolved students (Seals & Young, 2003). Recent research has revealed that 55% of primary school children classified as victims had depressive symptoms (Yang et al., 2006). Moreover, Ivarsson and colleagues (2005) determined that victims report suicidal ideation to a greater degree than bullies and controls. Consistent with these findings, Coggan, Bennett, Hooper, and Dickenson (2003) found that an alarming 33% of victims reported self-harm ideation, 20% reported having deliberately attempted to harm themselves, and 11% reported having attempted to end their own lives. These findings highlight the importance for school officials to identify victimized students and implement interventions to ensure their safety and well-being.

Individuals who are the targets of bullying behaviors generally manifest symptoms of anxiety. In a study conducted by Yang and colleagues (2006), female victims reported anxiety symptoms at a greater frequency and intensity than their male counterparts. However, there is disagreement about whether anxiety is a consequence or an antecedent that contributes to the likelihood of victimization (Katiala-Heino et al., 2000). For instance, some researchers speculate that youth with emotional problems are easy targets and therefore sought out by the bullies, thereby allowing bullies to gain rewards from observing the victims crying, withdrawing or socially isolating themselves (Roland, 2002).

Victims generally suffer from poor self-esteem (O'Moore & Kirkham, 2001; Slee, 1994), with the frequency of bullying being negatively related to self-esteem (O'Moore & Kirkham, 2001). These children often possess negative cognitions about themselves and their situations (Carney & Merrell, 2001; Glew et al., 2000; Smokoswki & Kopasz, 2005). They may see themselves as failures, stupid, or unattractive (Glew et al., 2000). Furthermore, they may wrongly blame themselves for falling victim to bullying behaviors (Carney & Merrell, 2001). This negative view of the self may perpetuate the continuance of bullying as it may invite and reinforce bullying (Ma, 2002).

Victims of bullying also demonstrate poor social adjustment (Nansel et al, 2001). Specifically, victims reported greater difficulty making and maintaining friends than their peers. In general, victims do not have a single good friend (Olweus, 1993). If friendships are formed, they may not be quality ones; victims often report lower friendship satisfaction than their non-victimized peers (Jantzer, Hoover, & Narloch, 2006). Researchers postulate that shyness and inability to trust others may be factors contributing to poor social adjustment (Jantzer et al., 2006), which often results in feelings of loneliness and avoidance of social and academic situations (Buhs & Ladd, 2001).

In summary, victims are the targets of relational and/or physical aggression. Their psychological adjustment overall is characterized by anxiety, depression, and low self-esteem. Lack of assertiveness often results in submission to peers. In addition, without necessary social skills, victims often have difficulty developing and maintaining friendships. Without friends to serve as support, these children often fall prey to continuous victimization and presumably suffer worse outcomes.

Bullying and Victimization Outcomes

Bullying is a chronic problem resulting in short-term and long-term implications for both the perpetrator and the victim. Research has identified four categories of negative health conditions that may be consequences of bullying and victimization: (1) low psychological well-being, which includes general unhappiness, low self-esteem, and anger, (2) poor social adjustment, which includes withdrawal from social situations, (3) psychological distress, which is marked by high levels of anxiety, depression, and suicidal ideation, and (4) physical unwellness, which is identified by physical illnesses or psychosomatic symptoms (Rigby, 2003) such as aches, pains, and feelings of sickness and tiredness (Baldry, 2004). Furthermore, to gain a complete conceptualization of the impact of bullying on youth, academic and behavioral outcomes need to be identified and explored.

Bully Outcomes. Few longitudinal studies have been conducted to look at the implications of bullying behaviors for the perpetrators. However, it is reasonable to assume there are ramifications for academic, social, behavioral, and psychological well-being. Thus, it is necessary to investigate the existing literature in order to demonstrate the deleterious effects that continuous aggressive behavior has on normal youth development.

Youth involved in bullying during elementary and early middle school are more likely to demonstrate psychological deviance in high school. In a study conducted in Finland, Kumpulainen and Rasanen (2000) investigated deviance in 15-year-olds who had previously been identified as bullies at the ages of eight or 12 years. In addition to discovering that bullies displayed externalizing behavior and hyperactivity during the

high school years, the probability of deviance, as defined by teacher and parent reports of neurosis, antisocial acts, and relationship problems in adolescence was also greater for youth identified as bullies during the earlier study points. Analyses indicated that youth involved in bullying at age eight, with concurrent psychological deviance accounted for, were more likely to be reported as deviant by teachers at age 15. Moreover, children who were bullies and deviant at age eight were five times more likely to display psychological deviance at age 15, while children involved in bullying at age 12 were nearly 40 times more likely to demonstrate psychological deviance at age 15. This finding supports the assumption that bullying and psychological deviance are additive in their effects.

In a similar study, researchers investigated the contributions of aggression and bullying behaviors to the prediction of later self-reported emotional and behavioral problems (Khatri, Kupersmidt, & Patterson, 2000). Peer aggression, as determined by peer nominations in middle school, was related to externalizing difficulties one year later. Interestingly, girls who engaged in peer aggression were at a greater risk for self-reported delinquency problems than their male counterparts. All together, this study shows support for the conclusion that peer aggression is predictive of subsequent delinquency.

Aggressive behavior often continues into adulthood in the form of antisocial and criminal behavior. Olweus (1995) studied the prior involvement in bullying behaviors of adult offenders. Thirty-five to 45 percent of boys who were categorized as bullies in middle school were convicted of at least three crimes by the age of 24. In contrast, only 10% of boys who were not categorized as bullies were convicted of crimes by that age. This finding supports the conclusion that young adults identified as school bullies are likely to be recidivist criminals. Similar results were found by Huesmann, Eron, and

Dubow (2002), who discovered that individuals identified as aggressive youth at age eight were more likely to have been convicted of crimes, cited for traffic violations, and displayed aggressive behaviors toward their spouse and children compared to non-aggressors by age 30. Additionally, children of these individuals were likely to display aggressive behaviors similar to those of their parents. Likewise, men who were previously identified as bullies at school age were more likely to have children who behaved in a similar aggressive manner than were children of youth who were not involved in bullying (Farrington, 1993). Although this demonstrates continuity of aggressive behaviors across generations, the mechanisms that contribute to this finding remain unknown.

Childhood bullying has also been associated with later substance abuse. Research indicates that aggressive youth are more likely to engage in excessive drinking and substance use when compared to their peers (Kaltiala-Hieno et al., 2000). In addition, youth who bullied are more likely to smoke (Nansel et al., 2001). Alarmingly, a recent study conducted by Sourander and colleagues (2006) revealed that bully identification at age eight predicted criminal drug offenses in the late teen years.

While the link between bullying and delinquent or antisocial acts has been well established, less is known about the relationship between bullying behaviors and academic performance. Currently, cross-sectional research has revealed that bullies perform worse academically than students uninvolved in bullying behaviors (Spriggs, Iannotti, Nansel, & Haynie, 2007). Furthermore, research conducted by Nansel and colleagues (2001) demonstrated that bullies reported poorer academic achievement, as measured by participants' perception of school performance, than victims and uninvolved

students. While these findings provide insight into the correlates of bullying, the long-term implications remain to be seen.

In summary, extensive research confirms the continuity of childhood aggression over time. Research indicates that as bullies age, their externalizing behaviors begin to manifest in rule-breaking and antisocial acts. In addition to externalizing consequences, bullies tend to suffer from depression. Although researchers speculate that depression may be a result of environmental factors, the mechanisms by which these consequences are evident remain unclear. Furthermore, research is needed to examine the long-term academic correlates of bullying behaviors.

Victim Outcomes. A large body of research has examined the short-term and long-term implications of victimization including externalizing behavior, internalizing behavior, social adjustment, and academic difficulties (Holt & Espelage, 2003). However, the methods employed to obtain this information have typically been case studies, retrospective surveys, or cross-sectional surveys. Because of the difficulty and demands of the design, few studies have been conducted longitudinally.

Persistent victimization has been associated with adjustment difficulties in all domains of functioning. Hanish and Guerra (2002) followed an ethnically diverse sample of primary school children over a two-year period. Although victimization predicted poor outcomes, these outcomes varied as a function of victim type. Specifically, children who endured persistent victimization were typically categorized into a subgroup of children who consistently demonstrated the worst symptomatic outcomes. Instead of exhibiting adjustment problems in one area, these children exhibited diverse and extensive problems in multiple domains. For example, victimized children categorized

into the symptomatic group displayed externalizing, internalizing, social, and school problems. Specifically, at the two-year follow-up these children experienced increased aggression, attention difficulties, delinquency, anxiety, depression, withdrawal, school absences and decreased popularity. Inclusion into the symptomatic group was greater for boys and older children who were consistently victimized at each assessment time. These findings indicate that persistent victimization has enduring maladaptive outcomes.

A great deal of research has documented the association of victimization and self-reported symptoms of anxiety or depression (Garrett, 2003). One recent study investigated psychiatric symptoms at age 15 among children involved in bullying at either age eight or age 12 (Kumpulainene & Rasanen, 2000). Results from parent, teacher, and student questionnaires revealed that victimized youth were more likely to have psychiatric symptoms by age 15 than their non-victimized peers. Victims of bullying scored higher than controls on internalizing/depressive symptoms, as reported by both parent and teacher. Similar findings from a four-year longitudinal study that followed students during the transition from elementary to middle school were reported by Paul and Cillessen (2003). However, these short-term maladjustment problems were only evidenced in females, which is a consistent finding in the literature (Bond, Carlin, Thomas, Rubin, & Patton, 2006). Therefore, research should consider possible protective factors that will help particular individuals succeed despite this adversity.

Hanish and Guerra (2002) also examined the effects of being victimized on emotional functioning. Results from the two-year longitudinal study indicated that early victimization predicted later anxiety and depression. These findings remained constant even after controlling for the effects of concurrent victimization and prior levels of

adjustment. However, it is worth noting that children who experienced persistent victimization at all time-points displayed internalizing behaviors that predated the victimization. Therefore, although depression and anxiety may be a result of bullying for a group of victims, persistent victims tend to exhibit these symptoms prior to or concurrently with victimization as well.

Victimization generally has a long-lasting impact on self-esteem. Schafer and colleagues (2004) examined the long-term correlates of elementary and middle school victimization with respect to adult functioning. Adults' retrospective reports of bullying indicated that victimization in school negatively related to adults' perception of the self. Individuals classified as victims scored significantly lower on all aspects of self-esteem, such as general self-esteem and self-esteem with regard to others, than did individuals who were uninvolved in bullying.

Peer relationships are often affected by chronic victimization (Kim, Leventhal, Koh, Hubbard, & Boyce, 2006). Goldbaum, Craig, Pepler and Connolly (2003) surveyed youth in fifth through seventh grade to identify the consequences associated with recurrent victimization. Results indicated that victims reported decreasing levels of trust and affection toward others as victimization increased. In addition, prior victims who no longer experienced victimization did not report increased social competence and interaction over time. These findings support the notion that lower peer affiliation may be a reflection of their experiences.

The implications of school victimization generally carry through to adulthood. A retrospective study conducted by Schafer and colleagues (2004) found that prior victims rated the 'fearful' attachment profile higher than their adult peers who were not

victimized. This finding suggests that, although prior victims desire emotionally close relationships, they feel uncomfortable getting close to others. Explanations for this finding include the fact that victims have difficulty trusting others and are fearful of others hurting them. These findings were especially prominent in individuals who suffered victimization in both elementary and middle school. Thus, endurance of the victimization is associated negatively with the development of relationships in adulthood.

The association between victimization and academic achievement has yielded inconsistent findings (Farrington, 1993; Hanish & Guerra, 2002). Whereas some researchers report no such link (Hanish & Guerra, 2002) or a bi-directional link between academic achievement and victimization (Austin& Draper, 1984), others demonstrate effects presumably as a result of absenteeism (DeRosier, Kupersmidt, & Patterson, 1994). This assertion is predicated on the assumption that victimized youth avoid school for fear of further victimization. In effect, the greater amount of school missed the worse academic performance. DeRosier and colleagues (1994) examined academic and behavioral problems as a function of peer rejection. Elementary school children were assessed during the spring semester of four consecutive years. Peer rejection was associated with both more absences from school and more behavioral problems. This finding demonstrates that peer rejection may result in negative perception of the school atmosphere, which may lead to active avoidance of school. Even though no direct link was found to exist between peer rejection and academic achievement, absenteeism may act as an indirect avenue through which peer rejection impacts academic functioning.

To summarize, victimization has been associated with impaired psychological, social, behavioral and academic functioning. Studies have demonstrated that victims

endorse higher levels of anxiety and depression than similar-aged peers. In addition to internalizing symptomology, externalizing behaviors have been reported by teacher, parent, and self reports, indicating that victimized students engage in acting out and delinquent acts. Victims also tend to report lower self-esteem and impaired ability to form lasting adult relationships. Inconsistent findings with regards to victimization and its association with academic functioning require further investigation.

Resilience

Not all youth who experience bullying and victimization will suffer negative outcomes (Baldry & Farrington, 2005; Dekovic, 1999). Resilience has been described as the process of, capacity for, or outcome of successful adaptation despite challenging circumstances (Masten, Best, & Garmezy, 1990). Thus, some children defy the expectation to fail by developing into successful and well-adapted individuals despite serious stressors and challenges (Luthar & Ziglar, 1991). Resilience has been described as achieving good outcomes despite high risk status, sustained competence under threat, or as recovery from trauma (Masten et al., 1990). To understand how children involved in bullying may nonetheless demonstrate adaptive functioning requires an analysis of both risk and protective factors.

Risk Factors. The field of child psychopathology has adopted a problem-focused approach to studying human behavior. Researchers have historically been concerned with identifying stressors during development that place children "at risk" for negative outcomes (Garmzey & Masten, 1986). Therefore, risk factors, such as low socioeconomic status, family instability, lower academic achievement, more emotional or behavioral problems, are statistical correlates of negative outcomes (Masten et al., 1990).

Risk factors for victimization include psychological maladjustment, poor peer relations, and low family functioning. In addition to anxiety being a consequence of victimization, anxiety may also serve as a risk factor. Because bullying is more likely to occur when youth are alone, anxious or isolated, children may lack the protection that peers can provide against bullying (Goldbaum, Craig, Pepler, & Connolly. 2003). Therefore, youth who bully anxious and withdrawn children are often reinforced for their behavior if the victim continues to be isolated. Thus, the cycle of violence is perpetuated. Additionally, lack of friendship and low quality friendships are indicated as risk factors for persistent victimization. Research consistently finds the lack of quality friendships or supportive peers may increase an individual's vulnerability to victimization (Goldbaum et al., 2003; Natvig, Albreksten, & Qvarnstrom, 2001). Goldbaum and colleagues (2003) surveyed children in grades five through seven to assess risk and protective factors that are associated with victimization. Findings from the study revealed that victims often do not have the peer support necessary to protect them from bullies. Thus, the rate of victimization is higher amongst youth who do not have peer support.

Family functioning has also been shown to place youth at an increased risk for bullying behaviors and negative outcomes. In a recent study, the relationship between family functioning and the involvement of adolescents in bullying behaviors was examined among high school students between the ages of 13 and 16 (Rigby, 1994). Results revealed that the families of bullies were functioning at a lower level than those of similar aged peers. Specifically, negative affect in families was found to be associated with the tendency of adolescents to engage in bullying behavior. In addition, adolescents who reported low levels of emotional support from their family were also more prone to

engage in acts of bullying. Researchers have suggested social learning theory or high emotionality as explanations for these findings (Baldry & Farrington, 2005). Thus, family functioning may have a negative effect on adaptive functioning.

For bullies, affiliation with deviant peers appears to be a risk factor for externalizing problems. Dekovic (1999) identified individual and family factors that could serve as possible risk and protective factors for the development of problem behaviors in adolescence. Of particular interest, relationships with peers, especially deviant peers, was related to the development of problem behaviors. This problem may occur because bullies often have friendships with others who bully (Pellegrini, Bartini, & Brooks, 1999).

Protective Factors. Recently, researchers have begun to focus not only on weaknesses and risks when describing causes of psychopathology, but also on strengths (Orpinas & Horne, 2006). This paradigm shift is demonstrated by the recent research interest in protective factors, which are described as individual, social, and institutional resources that promote a successful or positive outcome (Dekovic, 1999). Therefore, protective factors are assets that people actively use to moderate the negative effects of individual or environmental difficulties so that the development of an individual is more positive than expected (Masten et al., 1990).

Teacher support is a documented protective factor that reduces the risk for and effects of bullying. Natvig and colleagues (2001) investigated the association between bullying behavior and social support in a sample of youth aged 13-15 years. Perceived social support from teachers, as well as peers, decreased the likelihood of persistent victimization and self-reported measures of school distress. This reveals that school-

based, teacher-supported interventions would be effective at decreasing the prevalence and effects of bullying.

Just as lack of friendship may serve as a risk factor, the presence of healthy relationships may also serve a protective function (Pellegrini et al., 1999). Termed the "friendship protection hypothesis," researchers have postulated that having a reciprocal best friend protects children from victimization and its negative psychological correlates (Boulton, Trueman, Ghau, Whitehand, & Amatya, 1999). These beneficial friendships are often characterized by high levels of affection and trust (Goldbaum et al., 2003). Hodges, Boivin, Vitaro, and Bukowski (1999) examined friendship presence and quality as moderators of victimization and its ramifications. Youth in fourth and fifth grades were assessed at two times over a year. Results revealed that friendships served as a buffer against negative psychological adjustment for victimized youth. While victimization measured at Time 1 predicted an increase in internalizing problems for children without a best friend, children with a best friend suffered no increase. A possible explanation for this finding is that if victims have a mutual best friend, then the friend is more likely to intervene when there is a problem or provide support while attempting to solve problems associated with being bullied (Goldbaum et al., 2003).

Research also suggests that supportive parenting serves a protective function. In a recent study, the role of social support as moderators for the effects of bullying and victimization in a sample of middle school students was investigated (Davidson & Demaray, 2007). Participants who perceived higher levels of parental support reported lower levels of internalizing distress. These results revealed that parental support buffered the effect of victimization on internalizing distress. Therefore, children who

receive social support at home may have the knowledge or skills to react positively in the face of adversity.

In summary, not all children who experience bullying and victimization will experience negative outcomes. Some children will remain well adjusted despite this developmental challenge. Thus, to better understand the impact of bullying it is important to include potential protective factors as well. Through this analysis, researchers are better able to inform and implement prevention and intervention programs to decrease the prevalence of bullying and improve the outcomes of those affected.

Middle School Climate and Culture Study

In 2003, a district sponsored needs assessment was conducted to examine the relationships among family, school, and individual variables and bullying and victimization (Totura, 2003; Totura, MacKinnon-Lewis, Gesten, Gadd, Divine, Dunham, et al., in press). Participants were from a random selection of classrooms in 11 middle schools across 6th, 7th, and 8th grades. Students completed questionnaires assessing bullying, victimization, internalizing, and externalizing behaviors, and both family and school variables. Moreover, teachers completed a brief screening measure to assess a subgroup of students' moodiness, behavioral problems, and learning difficulties. Specific individual, school and family variables significantly contributed to differences among bully, victim, bully/victim and uninvolved students. Specifically, victims were more likely to report symptoms of depression and anxiety, low connectedness with parents, and increased difficulty with peer relationships than were uninvolved students. Bullies demonstrated externalizing problems such as anger and referrals, reported poorer family functioning, and decreased school bonding relative to uninvolved students. However,

adult supervision at the schools moderated the relationship between externalizing and bullying behaviors. Additional analyses suggested that gender played a role in determining the factors that differentiate bullying from victimization, such as externalizing behaviors experienced by boys serve a protective function against victimization.

In 2005, further analyses were conducted to examine the relationship between victimization and middle school psychological and academic outcomes (Totura, 2005). Modeling techniques indicated that psychological functioning mediated the relationship between victimization and academic motivation. Self-reported victimization was related to depressive, anxious, and anger symptomology. Those who experienced greater psychological maladjustment were also less motivated toward academic achievement. Although a proposed relationship between victimization and academic achievement was investigated, analyses revealed that academic achievement was only indirectly associated with victimization through motivation. Additionally, school, individual and family variables were examined as possible moderators of the relationship between victimization and psychological functioning. For males, aggressive behaviors, coping beliefs and school climate factors were significant moderators. Contrary to expectation, beliefs and engagement in aggressive behaviors appeared to buffer the negative psychological impact of victimization. It was proposed that victimized students who retaliate with aggression avoid additional negative effects of bullying. Also contrary to the researcher's hypothesis, supervision and intervention against negative behaviors did not protect victimized students from negative psychological outcomes. Possible explanations for these findings were presented, such as the reticence of victimized students to seek the

help of adults out of fear of further victimization or the possible inadequacies of supervision and interventions. In conclusion, these findings suggest that further research is needed to understand the academic and psychological outcomes of victimized youth.

Current Study

The current study is a follow-up of the previous cross-sectional work. The current study examined longer-term behavioral and academic correlates of middle school bullying and victimization by analyzing school records from the four years following the survey. In addition, the scope of the school records has been expanded from that of the previous studies (Totura, 2005; Totura, MacKinnon-Lewis, Gesten, Gadd, Divine, Dunham, et al., in press). In addition to disciplinary referrals, Florida Comprehensive Achievement Test scores and GPA, suspension and attendance data were also examined. Whereas several studies have sought to examine longitudinal outcomes of bullying behavior in *elementary school and adulthood* (Huesmann et al., 2002; Olweus, 1995; Schafer et al., 2004), this study is unique in that it follows a large number of students from three cohorts during the transition from *middle to high school*. Although research reveals lower rates of bullying in high school (Hoover, Oliver, & Hazler, 1992), little is known about the correlates of bullying in the formative high school years during which youth establish their identity and make academic and behavioral decisions that have lasting consequences for the experiences they will have access to in adulthood (i.e., college and employment). In addition to exploring the longer-term correlates of bullying and victimization, this study examined factors that contribute to protecting a student from the negative implications of bullying behavior. The potential moderating role of specific family, peer, and school variables in reducing the impact of bullying was studied (See

Figure 1). Information from this study will assist in both the design and implementation of *middle* and *high school* interventions.

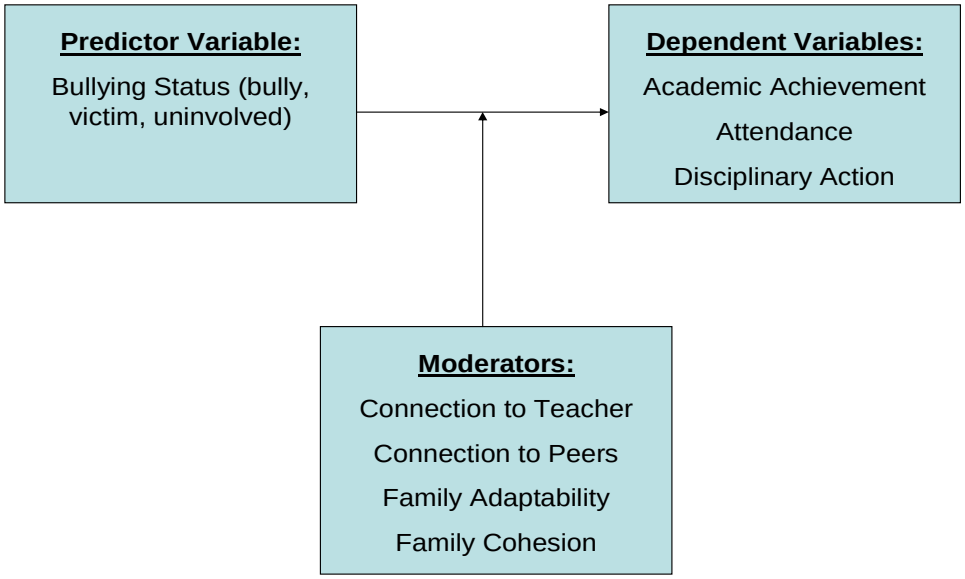

Figure 1. Predictor, dependent and moderating variables under investigation for this study.

Hypotheses

The following hypotheses were examined:

Hypothesis 1. Self-identified victims will have lower attendance rates than uninvolved students.

Hypothesis 2. Students self-identified as bullies will perform worse academically than victims and those uninvolved, as measured by GPA and FCAT scores.

Hypothesis 3. Students self-identified as victims will have lower academic achievement than uninvolved students, as measured by GPA and FCAT scores.

Hypothesis 4. Self-identified bullies will have more disciplinary problems than victims and those uninvolved.

Hypothesis 5. Children's reports of teacher support will act as a moderator between self-reported victimization and attendance.

Hypothesis 6. Children's reports of family adaptability and cohesion will act as a moderator between self-reported victimization and attendance.

Hypothesis 7. Children's reports of connection to peers will act as a moderator between self-reported victimization and attendance.

Hypothesis 8. Children's reports of teacher support will act as a moderator between self-reported victimization and academic performance.

Method

Participants

Initially, participants (ages 11-14) were surveyed while enrolled in 11 middle schools in a large school district in Florida (Totura, MacKinnon-Lewis, Gesten, Gadd, Divine, Dunham, et al., in press). Participants (N = 2,510) were classified into bullying group categories (bullies, victims, bully/victims[2], and uninvolved) based on Olweus' Bully/Victim Questionnaire. Only participants (N=1,884) with the necessary predictor, moderator and outcome data were included in the current study analyses for the 2003 survey year. The sample consisted of bullies (*n*=129), victims (*n*=211), and uninvolved students (*n*=1,544; See Table 1). There were more females (*n*=973, 51.6%) than

Table 1. Bullying Status Frequencies and Percentages for Original and Follow-Up Samples

	2003 Original Sample (N=1884)		2004-2007 Follow-Up Sample (N=1249)	
	n	%	n	%
Bullies	129	6.8	66	5.3
Victims	211	11.2	143	11.4
Uninvolved	1544	82	1040	83.3

males (*n*=911, 48.4%) in the overall sample. There was a statistically significant gender difference (χ^2 (2) = 20.33, p <.01) between bullying categories with more males being classified as both bullies (58.9%) and victims (59.7%) than females (41.1%, 40.3%; See Table 2). The majority of the sample was Caucasian/White (*n*=1,448,

[2] Bully/victim group were not analyzed in the current study because of the limited original (N=44) and follow-up (N=18) sample size and inconsistent treatment of the group within the literature.

Table 2. Sample Characteristics for Original and Follow-Up Sample

	2003 Sample				2004-2007 Sample			
	Bullies (n=129)	Victims (n=211)	Uninvolved (n=1544)		Bullies (n=66)	Victims (n=143)	Uninvolved (n=1040)	
Gender								
Female	53 (41.1)	85 (40.3)	835 (54.1)	$\chi^2(2) = 20.33, p < .01$	25 (37.9)	57 (39.9)	570 (54.8)	$\chi^2(2) = 16.99, p < .01$
Male	76 (58.9)	126 (59.7)	709 (55.9)		41 (62.1)	86 (60.1)	470 (45.2)	
Ethnicity								
Asian/Indian	0 (0)	2 (0.9)	39 (2.5)		0 (0)	2 (1.4)	31 (3.0)	
Black	8 (6.2)	9 (4.3)	46 (3)		4 (6.1)	6 (4.2)	31 (3.0)	
Latino(a)	11 (8.5)	13 (6.2)	157 (10.2)	$\chi^2(8) = 14.32, p > .05$	7 (10.6)	9 (6.3)	103 (9.9)	$\chi^2(8) = 8.03, p > .05$
White	96 (74.4)	169 (80.1)	1183 (76.6)		50 (75.8)	113 (79.0)	802 (77.1)	
Other	13 (10.1)	17 (8.1)	114 (7.4)		4 (6.1)	13 (9.1)	73 (7.0)	
Missing	1 (0.8)	1 (0.5)	5 (0.3)		1 (1.5)			
Cohort								
6th	21 (16.3)	79 (37.4)	500 (32.4)		14 (21.2)	54 (37.8)	364 (35.0)	
7th	56 (43.4)	77 (36.5)	549 (35.6)	$\chi^2(4) = 19.18, p < .01$	27 (40.9)	55 (38.5)	364 (35.0)	$\chi^2(4) = 8.04, p > .05$
8th	52 (40.3)	55 (26.1)	495 (32.1)		25 (37.9)	34 (23.8)	312 (30.0)	
Parents Marital Status								
Married	55 (42.6)	113 (53.6)	828 (53.6)		34 (51.5)	89 (62.2)	626 (60.2)	
Separated	19 (14.7)	22 (10.4)	151 (9.8)		6 (9.1)	12 (8.4)	77 (7.4)	
Divorced	41 (31.8)	53 (25.1)	386 (25.0)	$\chi^2(8) = 9.82, p > .05$	21 (31.8)	28 (19.6)	234 (22.5)	$\chi^2(8) = 9.95, p > .05$
Never Married	9 (7.0)	17 (8.1)	120 (7.8)		2 (3.0)	12 (8.4)	72 (6.9)	
Deceased	5 (3.9)	3 (1.4)	44 (2.8)		3 (4.5)	1 (0.7)	18 (1.7)	
Missing	0 (0)	3 (1.4)	15 (1.0)			1 (0.7)	13 (1.2)	
Number of Good Friends at School								
None								
1 to 2	2 (1.6)	1 (0.5)	8 (0.5)		1 (1.5)	1 (0.7)	3 (0.3)	
3 to 5	12 (9.3)	28 (13.3)	98 (6.3)	$\chi^2(8) = 56.03, p < .01$	4 (6.1)	18 (12.6)	59 (5.7)	$\chi^2(8) = 31.82, p < .01$
6 to 10	22 (17.1)	69 (32.7)	259 (16.8)		9 (13.6)	42 (29.4)	176 (16.9)	
More than 10	25 (19.4)	38 (18.0)	315 (20.4)		15 (22.7)	29 (20.3)	219 (21.1)	
Missing	68 (52.7)	74 (35.1)	859 (55.6)		37 (56.1)	53 (37.1)	580 (55.8)	
		1 (0.5)	5 (0.4)				3 (0.3)	

Note: Ns may vary due to missing data.

76.9%), while 9.6% were Latino/Latina/Hispanic (*n*=181), 7.6% self-identified as Other (*n*=144), 3% African American/Black (*n*=63), 25 Asian/Indian (*n*=41), and 1% unknown (*n*=18). There were no statistically significant differences for ethnicity across bullying categories (χ^2 (8) = 14.32, p >.05). Six hundred participants were surveyed in the 6th grade, 682 in the 7th grade, and 602 in the 8th grade. Chi-square analyses revealed significantly fewer bullies in the 6th grade than in 7th and 8th grades (χ^2 (4) = 19.18, p <.01).

Follow-up analyses focused on those students who remained (*n*=1,249) in the district for the 2004-2007 academic school years and met study criteria. The follow-up sample consisted of bullies (*n*=66), victims (*n*=143), and uninvolved students (*n*=1,040). Chi-square analyses revealed that the bullying status of students who remained was different from those who left the system. Specifically, a significantly greater number of bullies (49%) left the system during the four-year study period (See Table 3), than victims (32%) and uninvolved students (34%).

Table 3. Chi-Square Analyses Examining the Relationship of Bullying Status and Attrition

	Participants who Stayed	Participants Who Left	Total	% Decrease	
Bullies	66	63	129	49	
Victims	143	68	211	32	χ^2 (2) = 12.75, p <.01
Uninvolved	1040	504	1544	34	
Total	1249	635	1884		

The follow-up was consistent with the original sample in terms of gender and ethnicity (See Table 4). As with the initial sample, there were more females (*n*=652, 52.2%) than males (*n*=597, 47.8%) in the 2004-2007 follow-up sample. Similarly, there

were greater percentages of males categorized as bullies (62.1%) and victims (60.1%) than females (37.9% and 39.9%). The majority of the sample was Caucasian (*n*=965, 77.3%), 9.5% were Latino/Latina/ Hispanic (*n*=119), 7.2% self-identified as Other (*n*=90), 3.3% African-American/Black (*n*=41), 2.6% Asian/Indian (*n*=33), and ethnicity was only missing for one participant. There was no statistically significant difference for ethnicity when compared across bullying categories (χ^2 (8) = 8.03, p >.05). For the follow-up participant group, 34.6 % came from the original 6th grade cohort (*n*=432), 35.7% from the 7th grade cohort (*n*=446), and 29.7% from the 8th grade cohort (*n*=371).

Table 4. Chi-Square Analyses Examining the Relationship of Demographics and Attrition

	Participants who Stayed	Participants who Left	Total	% Decrease	
Gender					
Female	652	321	973	33	
Male	597	314	911	34	χ^2 (1) = .40, p > .05
Total	1249	635	1844		
Ethnicity					
Asian/Indian	33	8	41	20	
Black	41	22	63	35	
Latino(a)	119	62	181	34	
White	965	483	1448	34	χ^2 (4) = 4.75, p > .05
Other	90	54	144	38	
Total	1248	626	1874		
Cohort					
6th	432	168	600	28	
7th	446	236	682	35	χ^2 (2) = 14.85, p < .01
8th	371	231	602	38	
Total	1248	636	1884		

Note: Ns may vary due to missing data

There was no significant difference between bullying categories for cohort classification (χ^2 (4) = 8.04, p >.05). However, differences were found by cohort for participants who remained in the study versus those who left the district over the follow-up period. Fewer participants from the 6th grade cohort (28%) left the district during the study period than those from the 7th (35%) and 8th (38%) grade cohort (χ^2 (2) = 14.85, p < .01), indicating that attrition was more likely for older participants who may have moved or transferred into alternative education programs.

Predictor Measures

Predictor variables from the initial 2003 survey were selected to identify bullying status and possible protective factors that were hypothesized to moderate the negative academic and behavioral correlates of bullying and victimization.

Revised Olweus Bully/Victim Questionnaire. The Revised Olweus Bully/Victim Questionnaire (OBVQ; Solberg & Olweus, 2003) is a 39-item child self-report scale used to measure bullying behavior. The scale provides definitions for both bullying and victimization:

> "We say a student is being bullied when another student or several other students
> - say mean and hurtful things or make fun of him or her or call him or her mean and hurtful names
> - completely ignore or exclude him or her from their group of friends or leave him or her out of things on purpose
> - hit, kick, push, shove around, or threaten him or her
> - tell lies or spread false rumors about him or her or send mean notes and try to make other students dislike him or her
> - and do other hurtful things
>
> These things make take place frequently, and it is difficult for the student being bullied to defend himself or herself. It is also bullying when a student is teased repeatedly in a mean and hurtful way. But we don't call it bullying when the teasing is done in a friendly and playful way. Also, it is not bullying when two

> students of about the same strength or power argue or fight (Solberg & Olweus, 2003, p.246)."

Based on previous research, the two global measures of bullying were used to classify students as bullies, victims or uninvolved ("How often have you been bullied at school in the past couple of months?"; "How often have you taken part in bullying another student(s) at school in the past couple of months?"; Solberg & Olweus, 2003). Bullies indicated that they had bullied others "2 or 3 times a month" or more on the global bullying question (score = 3 to 5), while reporting only being bullied "only once or twice" (score = 1 to 2) on the global victimization question. Conversely, victims indicated that they had been bullied "2 or 3 times a month" or more on the global victimization question (score = 3 to 5), while reporting bullying others "only once or twice" (score = 1 or 2) on the global bullying question. The comparison group of students, also referred to as those uninvolved, only reported being bullied and bullying others "only once or twice" (score = 1 to 2). Previous studies report moderate concurrent validity (.40-.60) of the OBVQ with peer nominations (Olweus, 1978). The reliability coefficients calculated in this study for the bullying items (Cronbach's alpha = .79) and victim items (Cronbach's alpha = .82) were consistent with those calculated by Totura and colleagues (in press); (Cronbach's alpha =.71, .87).

Student Adjustment Survey. The Student Adjustment Survey (SAS) is a self-report 33-item scale assessing students' motivation, expectations of achievement, and connection to teachers, peers, and parents (Santa Lucia & Gesten, 2000). Students were asked to state the degree to which they agreed with the 33 statements along a five-point scale ranging from (0) "Strongly Disagree" to (4) "Strongly Agree." Factor analysis

yielded five scales: Connection to School (Cronbach's alpha = .78), Connection to Teachers (Cronbach's alpha = .78), Connection to Peers (Cronbach's alpha = .69), Motivation (Cronbach's alpha = .55), and Negative Expectations (Cronbach's alpha = .61). Reliability for the SAS scales of interest for the current study was low to moderate, consistent with previous research (Santa Lucia, 2004). Internal consistency was moderate for the Connection to Teachers subscale ("I think my teachers care about me," Cronbach's alpha = .79), but low for the Connection to Peers subscale ("Most students include me in their activities," Cronbach's alpha = .54).

Family Adaptability and Cohesion Evaluation Scale II. The Family Adaptability and Cohesion Evaluation Scale II (FACES II) (Olson, Russell, & Sprenkle, 1983) is a 30-item self-report measure assessing family functioning. The measure is comprised of two scales: Adaptability and Cohesion. The Adaptability scale includes 14 items that address a family's adaptive capacity and flexibility in times of stress ("In our family, everyone shares responsibilities," Cronbach's alpha = .83). The Cohesion scale includes 16 items that determine the degree of emotional bonding and individuality within a family ("Family members feel very close to each other", Cronbach's alpha = .80). Reliability for the FACES II subscales for the current study was good. Internal consistency for the Adaptability subscale was consistent with previous literature (Cronbach's alpha = .81; Olson, Russell, & Sprenkle, 1983). Similarly, the internal consistency for the Cohesion subscale was also high (Cronbach's alpha = .80), consistent with previous literature (Olson et al., 1983).

Outcome Measures

Attendance Records were collected for each student over a five-year period. A percentage of days attended was computed for: (1) the 2003 survey year, as well as (2) an average attendance from 2004-2007 based on a 180-day school year.

Academic Achievement was measured with the *Florida Comprehensive Assessment Test (FCAT)* and *Grade Point Average (GPA)*. The FCAT is a standardized Florida test administered to students in grades three through 11 to assess high-order thinking skills in accordance with the Florida Sunshine State Standards (SSS; www.fcat.fldoe.org). The FCAT is comprised of criterion-referenced tests (CRT) measuring benchmarks in mathematics, reading, science and writing. Analyses were conducted using the FCAT SSS developmental scaled scores (math and verbal), which can be compared across years. Internal reliabilities for the FCAT (SSS) range from .87 to .92 for grades four through ten (Florida Department of Education, 2004). GPA was the average grade a student received in all subjects attempted for any given year[3]. GPA was computed for: (1) the 2003 survey year and (2) a cumulative GPA for grades earned during the 2004-2007 follow-up. Calculations did not take into account additional points earned for honors or advanced placement courses, which resulted in scores ranging from zero to four. Reliability of GPA over the study period was high (Cronbach's alpha = .93).

Discipline referrals and *suspension records* were be obtained for each participant and used as an indicator of externalizing problem behaviors. Discipline referrals were written indicators of behavioral misconduct forwarded by teachers to the principal.

[3] District policy precluded attendance contributing to the calculation of course grades.

Level 1 referrals included: chewing gum, tardiness, and violation of dress code or parking regulations. Level 2 referrals included: classroom disruptions, skipping class, lewd language, defacing property, and fighting without injury. The most serious Level 3 offenses included: fights resulting in injury, possession of weapons, sexual harassment, possession of controlled or illegal substances, and intimidation of school staff or students. In and Out of School Suspensions (OSS and ISS), which require a leave of absence from all classes for a determined period of time, were targeted to the most serious Level 3 offenses. Correlation analyses revealed moderate to strong correlations among the three referral and two suspension types (See Table 5). Discipline outcome variables were therefore limited to total referrals and total suspensions calculated for: (1) the 2003 survey year and (2) a total count for the 2004-2007 follow-up. Distributions are presented to illustrate the mean values of referrals and suspension types by bullying classification (See Figures 2 & 3).

Table 5. Correlations of Referral Levels and Suspension Types

	Level 1 Referral	Level 2 Referral	Level 3 Referral	ISS	OSS
Level 1 Referral	----------				
Level 2 Referral	.44**	----------			
Level 3 Referral	.44**	.63**	----------		
In-School Suspension	.57**	.85**	.71**	----------	
Out-of-School Suspension	.34**	.63**	.66**	.50**	----------

Note: $^{**}p < .01$.

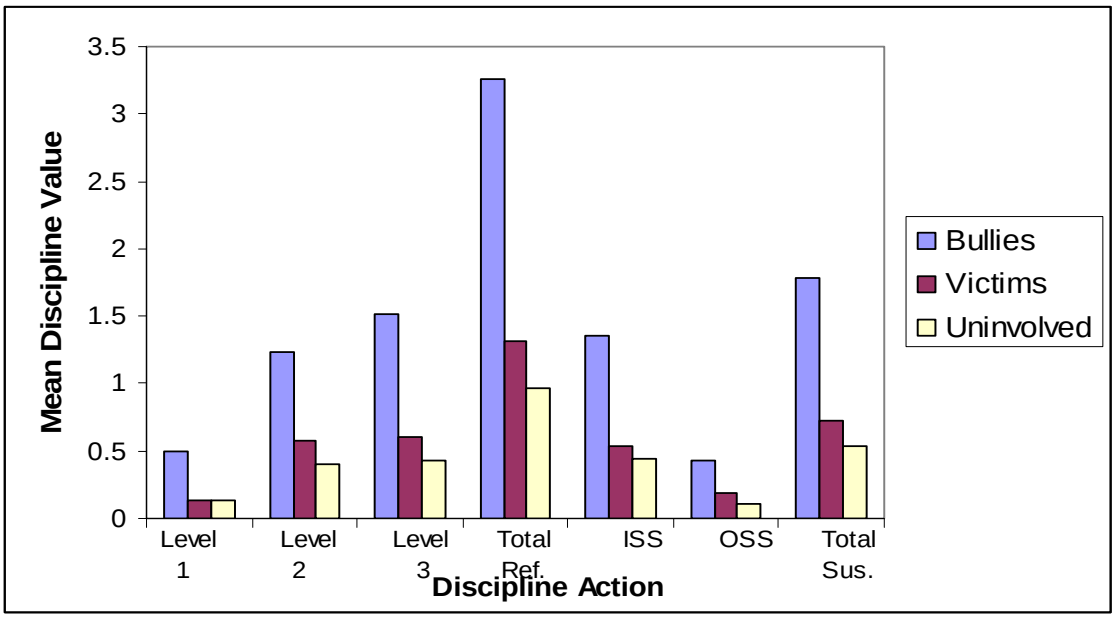

Figure 2. Distribution of discipline action according to bullying status in 2003.

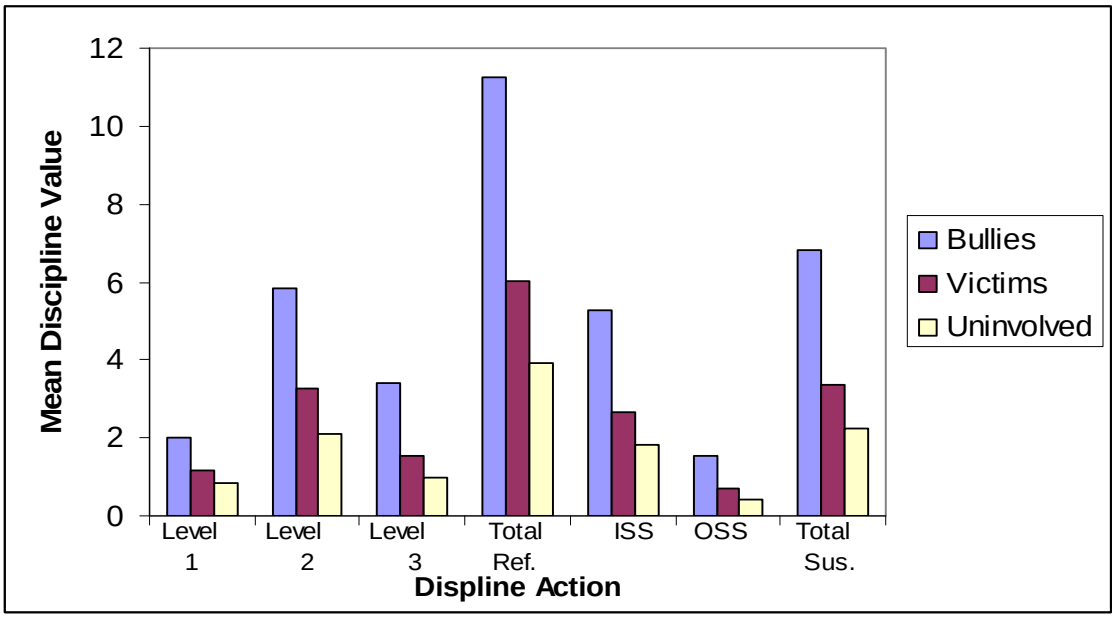

Figure 3. Distribution of discipline action according to bullying status for 2004-2007.

Procedure

The current study is a follow-up to a district sponsored needs assessment conducted in 2003. This study was conducted collaboratively with the school district, which assisted with the retrieval of all outcome data. Data were collected and transferred in a manner to ensure confidentiality – neither researchers nor district staff was able to match student name or code number to bullying status.

Data Reduction

Student data were collected for participants (N=2,483) from the original survey. A series of criteria were established for inclusion in the 2003 and 2004-2007 analyses. First, participation required the two global measures of bullying on the Revised OBVQ to classify students as bullies, victims or uninvolved (See Figure 3). Participants with incomplete data and those self-identified as bully/victims[4] were excluded. Second, data needed to be present on all outcome variables including academic achievement, attendance, and discipline reports to determine the relationship between bullying status and academic and behavioral correlates. Of the participants (N=2,243) with all outcome data in 2003, only those (N=1,884) with the required predictor measures were included in the analyses. For the 2004-2007 follow-up sample, only participants with complete data on all outcome[5] and predictor measures were included in the current analyses (N=1,249).

Analyses

To examine the academic and behavioral correlates of bullying and victimization, a series of Analysis of Variance (ANOVA) and Multivariate Analysis of Variance

[4] Bully/victim group were not analyzed in the current study because of the limited original (N=44) and follow-up (N=18) sample size and inconsistent treatment of the group within the literature.
[5] Attendance and discipline reports were identified and retained for participants who had semester grades recorded for all years during the four-year follow-up period.

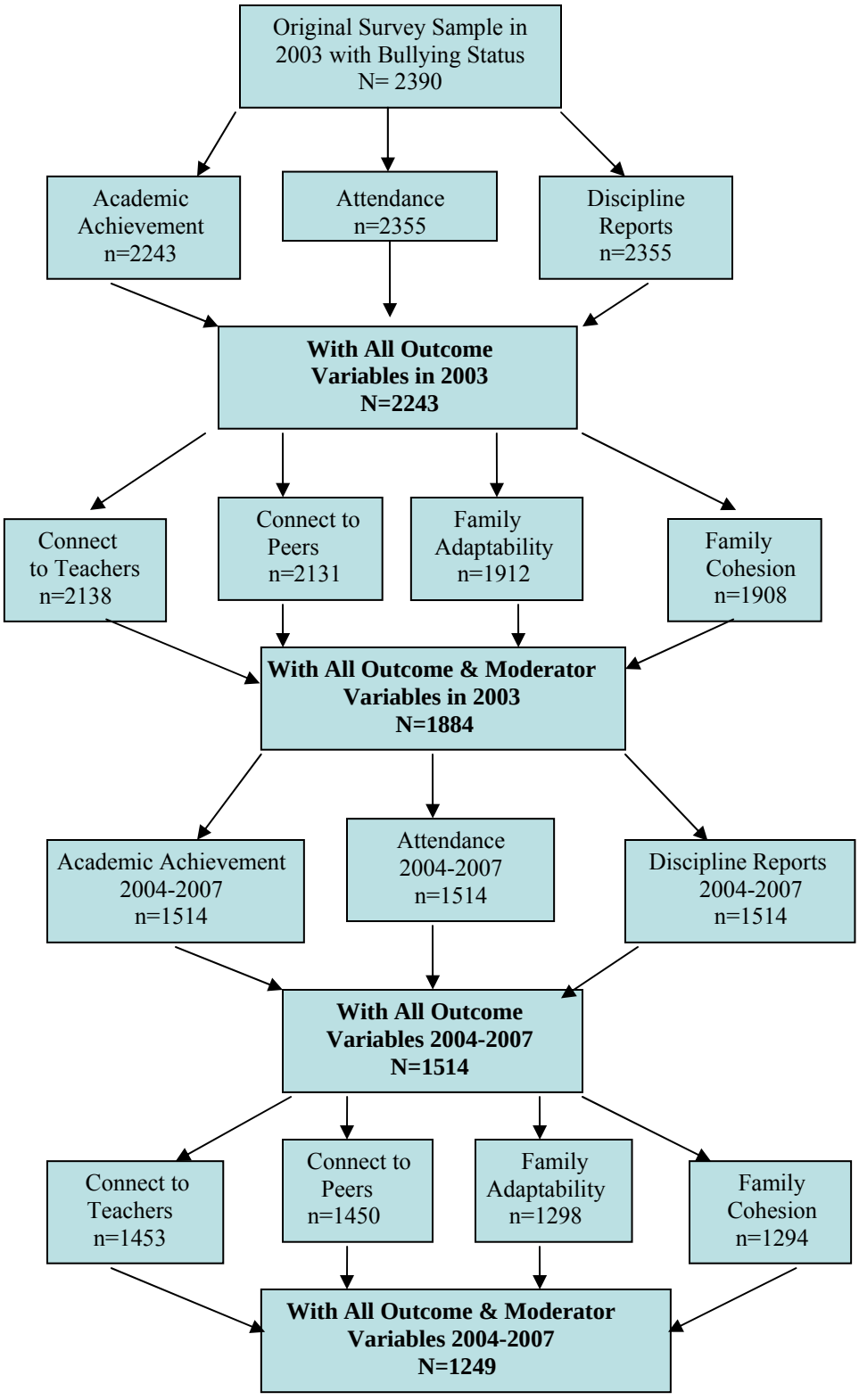

Figure 4. Attrition and data reduction.

(MANOVA) were conducted. The moderating influences of Connection to Teachers, Connection to Peers, Family Adaptability, and Family Cohesion were examined through a series of Analysis of Covariance (ANCOVA) and Multivariate Analysis of Covariance (MANCOVA). Descriptive statistics for all moderator and outcome variables were computed. Pearson Product-Moment correlations examined the associations among study variables.

Results

Results for the original and follow-up samples are presented in four sections: (1) descriptive statistics for peer, school, and family moderator variables, (2) intercorrelations among moderator and outcome variables, (3) the effect of bullying status on outcome variables, and (4) moderator analyses to examine the mitigating influence of peer, family and school variables on the relationship between bullying status and academic and behavioral correlates.

Descriptives

Descriptive statistics for peer, school and family moderator variables are presented in Table 6. Scores on the Connection to Peers, Connection to Teachers, Family Adaptability and Family Cohesion scales range from one to five, representing an average value for all completed items on each scale[6][7]. Higher scores indicate greater connection, adaptability and cohesion as self-reported by the participants. Overall, participants reported moderate levels of connection to peers and teachers. Similarly, participants reported moderate levels of family adaptability and cohesion. Analyses of Variances (ANOVAs) were conducted to determine whether there were group differences in the

[6] Although a minimum of 70% of the items on each scale were required to be complete for inclusion in analyses, 95% of the sample were not missing any items on the SAS and 85% of the sample was not missing any items on the FACES. Because participants may not have completed all items, total scale values were not computed. Instead, average scale values were calculated.

[7] A MANOVA was conducted on all participants who had met the requirements for outcome data during the study period to determine whether the amount of missing data for the scales used to assess moderation varied by bullying classification. Results revealed that there was not a significant group difference on the number of missing items per each moderator scale, Λ=.99, F(8, 2930)=1.30, p>.05 Also, a MANOVA was conducted examining sample that had met the criteria for a minimum of 70% of the items completed on each moderator scale. Again, there was not a significant difference between bullying categories on the number of missing items per each scale, Λ=.99, F(8, 2486)=.75, p>.05

way bullies, victims and uninvolved students perceived their connection to teachers, connection to peers, family adaptability, and family cohesion. Overall, results remained consistent across both the original and follow-up sample in terms of group trends. In 2003, bullies (M=3.09) reported significantly lower levels of connection to teachers than did victims (M=3.39), who also reported significantly lower levels of connection to teachers than did uninvolved students (M=3.50; F (2) = 26.80, p< .001; η^2=.03). Significant group differences remained in the follow-up sample (F (2) = 18.88, p< .001; η^2=.03). Findings for Connection to Peers in 2003 revealed that victims (M=3.25) reported significantly lower levels of connection than bullies (M=3.53), who reported significantly lower levels of connection than uninvolved students (M=3.76; F (2) = 66.59, p< .001; η^2=.07). Significant mean trends and findings for Connection to Peers remained for the follow-up sample (F (2) = 49.63, p< .001; η^2=.07). Reports from 2003 revealed that uninvolved (M=3.05) students saw their families as being more adaptable than victims (M= 2.89) and bullies (M=2.74; F (2) = 14.87, p< .001; η^2=.02) with results maintained in the follow-up sample (F (2) = 8.53, p< .001; η^2=.01). In 2003, there were significant group differences among all categories of bullying (bully M=3.03, victim M=3.26, uninvolved M=3.44) on reported family cohesion (F (2) = 27.20, p< .001; η^2=.03). For the follow-up sample differences remained between uninvolved (M=3.51) students and both victims (M=3.32) and bullies (M=3.08; F (2) = 16.56, p< .001; η^2=.03).

Table 6. ANOVA Results Examining the Relationship Between Bullying Status and Moderator Variables for the Original 2003 and Follow-up 2004-2007 Samples

	N	Bullies	Victims	Uninvolved	F	P value[+]
Connection to Teacher						
2003 Sample	1884	3.09 (.73) [a]	3.39 (.76) [b]	3.55 (.73) [c]	26.80	<.001
2004-2007 Sample	1249	3.14 (.72) [a]	3.43 (.72) [b]	3.61 (.69) [c]	17.88	<.001
Connection to Peers						
2003 Sample	1884	3.53 (.60) [a]	3.25 (.70) [b]	3.76 (.62) [c]	66.59	<.001
2004-2007 Sample	1249	3.51 (.58) [a]	3.29 (.72) [b]	3.81 (.61) [c]	49.63	<.001
Family Adaptability						
2003 Sample	1884	2.74 (.71) [a]	2.89 (.69) [a]	3.09 (.71) [b]	14.87	<.001
2004-2007 Sample	1249	2.77 (.74) [a]	2.92 (.68) [a]	3.09 (.71) [b]	8.53	<.001
Family Cohesion						
2003 Sample	1884	3.03 (.58) [a]	3.26 (.71) [b]	3.44 (.66) [c]	27.20	<.001
2004-2007 Sample	1249	3.08 (.61) [a]	3.32 (.72) [b]	3.51 (.66) [c]	16.56	<.001

Note: Mean (standard deviations)

[+]P Value calculated by conducting ANOVAs to examine group differences on the moderator variables with follow-up Tukey post-hoc tests. Significant differences are reflected by different superscripts in the same row.

Intercorrelations

Pearson Product-Moment Correlations (See Table 7) revealed moderate positive correlations among all moderator variables with a stronger correlation between the family adaptability and family cohesion (r=.72, p < .001). In both original and follow-up samples, school and family moderator variables revealed significant, small to moderate positive correlations with academic and attendance measures. As expected, all moderator variables were negatively related to total discipline referrals and total suspensions, indicating that higher levels of connection to teachers, peers and family were associated with fewer discipline actions. In addition, academic and attendance outcomes were negatively correlated with discipline reports.

Table 7. Intercorrelations of Moderator and Outcome Variables for 2003 (N=1884) and 2004-2007[+] (N=1249) Samples

	Connection to Teacher (2003)	Connection to Peers (2003)	Family Adapt (2003)	Family Cohesion (2003)	FCAT Reading (2003)	FCAT Math (2003)	GPA	Attendance	Total Referrals	Total Suspen.
Connection to Teacher (2003)		.40**	.38**	.46**	.11**	.10**.	.27**	.07*	-.20**	-.20**
Connection To Peers (2003)	.39**		.25**	.39**	.13**	.13**	.19**	.03	-.11**	-.10**
Family Adaptability (2003)	.36**	.27**		.72**	.10**	.08**	.17**	.01	-.07*	-.08*
Family Cohesion (2003)	.43**	.35**	.72**		.14**	.10**	.17**	.04	-.12**	-.12**
FCAT Reading (2003)	.14**	.13**	.11**	.16**		.71**	.39**	.08**	-.26**	-.26**
FCAT Math (2003)	.14**	.13**	.11**	.16**	.43**		.41**	.11**	-.26**	-.25**
GPA	.31**	.23**	.18**	.28**	.39**	.41**		.35**	-.51**	-.49**
Attendance	.11**	.05*	-.00	.05*	.35**	.08**	.15**		-.26**	-.27**
Total Referrals	-.18**	-.10**	-.05*	-.11**	-.43**	-.16**	-.17**	-.18**		.96**
Total Suspensions	-.18**	-.11**	-.05*	-.10**	-.40**	-.15**	-.17**	-.19**	.93**	

Note: * $p < .05$; **$p < .01$.[+] Intercorrelations for 2004-2007 sample are found in the upper quadrant and for the 2003 sample in the lower quadrant. Shaded region indicates correlations for school records from 2004-2007. No correlations for FCAT scores are reported for 2004-2007 follow-up sample because the test is not administered to 11th and 12th grade students, unless previously failed.

Bullying Status and Student Outcomes

A series of Analyses of Variance (ANOVA) and Multivariate Analyses of Variance (MANOVA) were conducted to examine the relationship between bullying status and academic and behavioral correlates. Follow-up ANOVAs and Tukey Post-Hoc tests were used to identify specific relationships.

Attendance. Two one-way between groups ANOVAs were conducted to determine whether there were significant differences between bullying groups on attendance during the original survey year and over the four-year follow-up period. For the original sample, results revealed no differences among bullies, victims, and uninvolved students on attendance, $F(2, 1881)=0.19$, $p=.83$. In contrast, a significant group difference was found for the follow-up sample, $F(2, 1246)=3.83$, $p<.05$; $\eta^2=.01$. Post-hoc comparisons revealed that the mean attendance percentage for bullies ($M=93.61$, $SD=4.70$) was significantly lower than both victims ($M=95.21$,$SD=4.20$) and uninvolved students ($M=94.94$, $SD=4.04$), who did not differ significantly from each other.

Academic Achievement. A one-way between groups MANOVA was conducted for the original 2003 sample to determine whether there was a significant difference in the means for bullying groups on academic achievement, as measured by the FCAT math and reading developmental scale score and GPA. There was a statistically significant effect of bullying status on the set of academic achievement variables, $\Lambda=.97$, $F(6, 3600)=8.69$, $p<.01$; $\eta^2=.02$. Follow-up univariate analyses revealed significant group differences for GPA, $F(2, 1802)=21.65$, $p<.01$; $\eta^2=.02$. Post-hoc comparisons indicated that the mean score for bullies ($M=2.32$, $SD=.91$) was significantly lower than that for victims ($M=2.82$, $SD=.91$) and for uninvolved students ($M=2.86$, $SD=.86$), who did not

differ significantly from each other. A one-way between groups ANOVA with the follow-up sample yielded a significant effect of bullying status on GPA, $F(2, 1246)=13.28$, $p<.01$; $\eta^2=.02$. The mean GPA for bullies ($M=2.39$, $SD=.65$) was significantly lower than victims ($M=2.70$, $SD=.77$) and uninvolved ($M=2.82$, $SD=.67$) students, who did not differ significantly from each other.

Discipline Actions. A one-way between groups MANOVA was conducted for the original 2003 and follow-up samples to determine whether there was a significant difference for bullying groups on total referrals and total suspensions. There was a statistically significant effect of bullying status on the set of disciplinary variables for the original 2003 sample, $\Lambda=.95$, $F(4, 3760)=22.16$, $p<.01$; $\eta^2=.02$. Follow-up univariate analyses revealed significant group differences for total referrals ($F(2, 1881)=44.18$, $p<.00$; $\eta^2=.05$) and total suspensions ($F(2,1881)=33.92$, $p<.00$; $\eta^2=.04$). Mean score for bullies (referrals $M=3.26$, $SD=4.86$; suspensions $M=1.78$, $SD=2.89$) were significantly higher than victims (referrals $M=1.32$, $SD=3.26$; suspensions $M=.73$, $SD=1.80$) and uninvolved students (referrals $M=.97$, $SD=2.29$; suspensions $M=.54$, $SD=1.48$). No mean difference was revealed between victims and uninvolved students. Furthermore, these discipline results persisted over the four-year follow-up period. The one-way between groups MANOVA conducted for the follow-up sample revealed statistically significant differences for bullying status on the set of disciplinary variables, $\Lambda=.96$, $F(4, 25490)=14.41$, $p<.00$; $\eta^2=.02$. Follow-up univariate analyses revealed significant group differences for total referrals ($F(2, 1246)=27.87$, $p<.00$; $\eta^2=.04$) and total suspensions ($F(2, 1246)=26.90$, $p<.00$; $\eta^2=.04$). Post-hoc comparisons indicated a significant mean score difference among all status groups: bullies (referrals $M=11.24$, $SD=12.53$;

suspensions *M*=6.82, *SD*=8.26), victims (referrals *M*=6.01, *SD*=11.98; suspensions *M*=3.34, *SD*=7.06), and uninvolved students (referrals *M*=3.91, *SD*=7.06; suspensions *M*=2.22, *SD*=4.50).

Overall, results indicated that group differences on academic, behavioral, and discipline variables persisted over the four-year study period (See Table 8). Self-identification as a bully was related to poorer academic achievement (GPA), attendance, and discipline problems (total referrals and suspensions). The only significant difference found between victim and uninvolved student profiles was that victims had more discipline problems during the four-year follow-up period.

Table 8. ANOVA Results Examining the Relationship Between Bullying Status and Outcomes for Original (N=1884) and Follow-Up (N=1249) Sample

	Bullies	Victims	Uninvolved	F	P value[+]
GPA					
2003 Sample	2.32 (.91)[a]	2.82 (.91)[b]	2.86 (.86)[b]	21.65	<.001
2004-2007 Sample	2.39 (.65)[a]	2.70 (.77)[b]	2.82 (.67)[b]	13.28	<.001
FCAT Math					
2003 Sample	1777.39 (193.54)	1780.10 (215.57)	1780.40 (211.98)	.01	.99
2004-2007 Sample[1]	----------	----------	----------	----------	-----
FCAT Reading					
2003 Sample	1768.01 (257.44)	1784.05 (292.18)	1766.25 (270.60)	.39	.68
2004-2007 Sample[1]	----------	----------	----------	----------	-----
Attendance					
2003 Sample	93.61 (5.31)	93.84 (7.06)	93.92 (5.45)	0.19	.83
2004-2007 Sample	93.61 (4.70)[a]	95.21 (4.20)[b]	94.97 (4.02)[b]	3.86	<.05
Total Referrals					
2003 Sample	3.26 (4.86)[a]	1.32 (3.26)[b]	.97 (2.29)[b]	44.18	<.001
2004-2007 Sample	11.24 (12.53)[a]	6.01 (11.98)[b]	3.91 (7.06)[c]	27.87	<.001
Total Suspensions					
2003 Sample	1.78 (2.89)[a]	.73 (1.80)[b]	.54 (1.48)[b]	33.92	<.001
2004-2007 Sample	6.82(8.23)[a]	3.34 (7.06)[b]	2.22 (4.50)[c]	26.90	<.001

Note: Mean (Standard Deviations).

[+] P Value calculated by conducting ANOVAs to examine group differences with follow-up Tukey post-hoc tests. Significant differences are reflected by different superscripts in the same row.

[1] FCAT scores not reported for 2004-2007 follow-up sample because the test is not administered to 11th and 12th grade students

Moderator Analyses

To determine whether peer, family and school variables mitigated the relationship between bullying status and academic and behavioral correlates, moderator analyses were conducted. For each outcome variable (i.e., attendance, academic achievement, and discipline actions), an Analysis of Covariance (ANCOVA) or Multivariate Analysis of Covariance (MANCOVA) was conducted in the original survey year and for the four-year follow-up period. These statistical procedures were selected based on their ability to assess the moderating influence of continuous variables (connection to teachers, connection to peers, family adaptability, and family cohesion) on a categorical predictor variable (bullying status) and continuous dependent variable (attendance, achievement, and discipline). To assess moderation, the interaction between the predictor and moderator was examined.

Attendance. Two one-way between-groups ANCOVAs (2003 and follow-up) were conducted to determine whether self-reported connection to teachers, connection to peers, family adaptability, and family cohesion act as moderators between victimization and attendance (Attendance = bullying status + connection to teachers + connection to peers + family adaptability + family cohesion + bullying status*connection to teacher + bullying status*connection to peers + bullying status*family adaptability + bullying status*family cohesion; See Table 9).

The ANCOVA conducted on the 2003 sample revealed a non-significant interaction effect of bullying status and connection to teacher, $F(2,1869)=1.01$, $p>.05$. Similar findings were found in the follow-up sample, $F(2,1234)=1.30$, $p>.05$.

Table 9. ANCOVA Results for the Moderation Effects of School and Family Variables on Attendance for Original and Follow-up Sample

Variable	Source	DF	MS	F	P
Attendance 2003	Status (F)	2	16.24	.52	.60
	Connection to Teacher (C)	1	133.99	4.27	<.05
	Connection to Peers (C)	1	.12	.01	.95
	Family Cohesion (C)	1	302.82	9.64	<.01
	Family Adaptability (C)	1	262.85	8.37	<.01
	Status*Connection to Teacher (I)	2	31.81	1.01	.36
	Status*Connection to Peers (I)	2	6.27	.20	.82
	Status*Family Cohesion (I)	2	137.54	4.38	<.05
	Status*Family Adaptability (I)	2	38.83	1.24	.29
Attendance 2004-2007	Status (F)	2	5.38	.32	.73
	Connection to Teacher (C)	1	5.36	.32	.57
	Connection to Peers (C)	1	21.59	1.29	.26
	Family Cohesion (C)	1	167.59	10.04	<.01
	Family Adaptability (C)	1	109.68	6.57	<.05
	Status*Connection to Teacher (I)	2	20.25	1.21	.30
	Status*Connection to Peers (I)	2	23.35	1.40	.25
	Status*Family Cohesion (I)	2	85.86	5.14	<.01
	Status*Family Adaptability (I)	2	42.64	2.55	.08

Note: (F = fixed factor, C = covariate, I = interaction).

A significant interaction effect was demonstrated for bullying status and family cohesion in 2003, $F(2,1869)=4.38$, $p<.02$; $\eta^2=.01$ (See Figure 5). This moderating influence of family cohesion remained significant when assessed in the 2004-2007 follow-up sample, $F(2,1234)=5.13$, $p<.05$; $\eta^2=.01$ (See Figure 6). Family cohesion moderated the negative relationship between bullying status and attendance. These results suggest that higher levels of family cohesion were beneficial for victims and bullies. For contrast, there was no difference in attendance rates as family cohesion increased for uninvolved students.

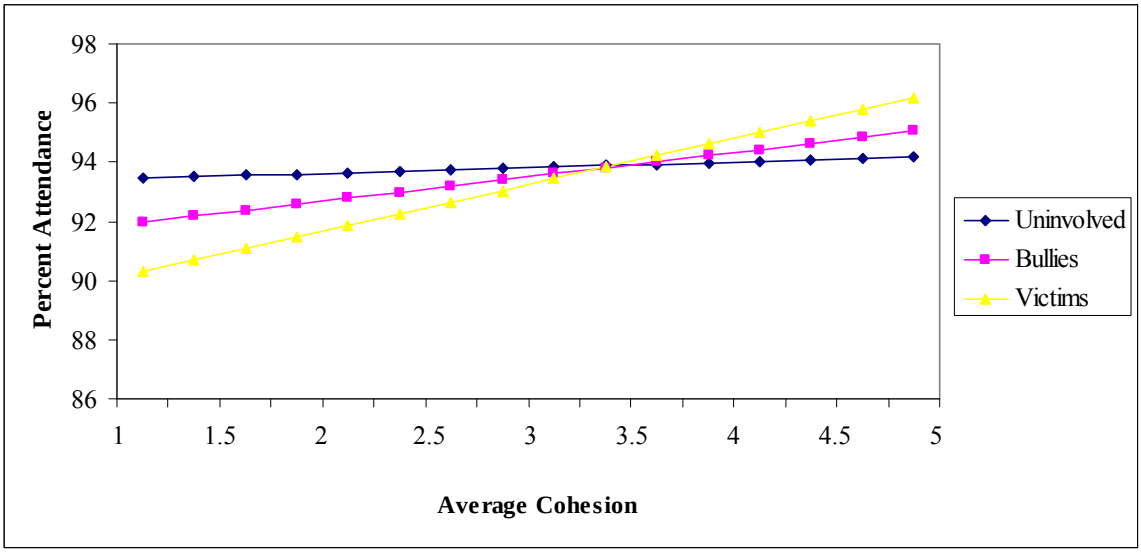

Figure 5. Moderating effects of family cohesion and bullying status on attendance in 2003

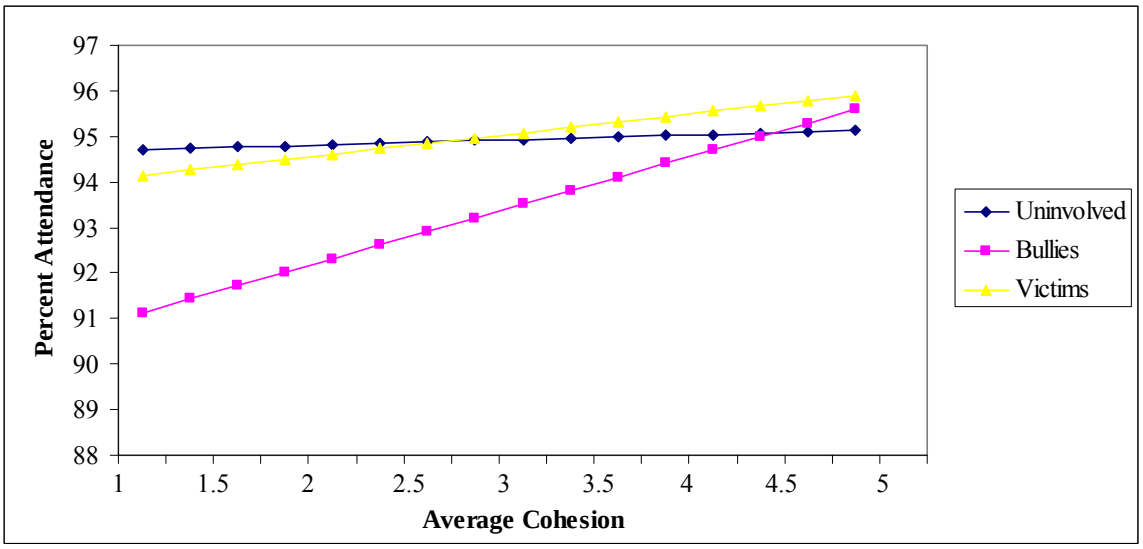

Figure 6. Moderating effects of family cohesion and bullying status on attendance for 2004-2007.

The ANCOVA conducted on the 2003 sample revealed a non-significant interaction effect of bullying status and connection to peers, $F(2,1869)=.20$, $p>.05$. Similar results were found for the 2004-2007 sample, $F(2,1234)=1.29$, $p>.05$.

Academic Achievement. Two one-way between-groups ANCOVAs were conducted in the survey year and over the four-year follow-up period to determine whether self-reported connection to teachers, connection to peers, family adaptability, and family cohesion act as moderators between victimization and academic achievement, as measured by GPA (Academic Achievement = bullying status + connection to teachers + connection to peers + family adaptability + family cohesion + bullying status*connection to teacher + bullying status*connection to peers + bullying status*family adaptability + bullying status*family cohesion; See Table 10).

Table 10. ANCOVA Results for the Moderation Effects of School and Family Variables on Academic Achievement (GPA) for Original and Follow-up Sample

Variable	Source	DF	MS	F	P
GPA 2003	Status (F)	2	.72	1.07	.34
	Connection to Teacher (C)	1	23.42	34.61	<.01
	Connection to Peers (C)	1	2.76	4.08	<.05
	Family Cohesion (C)	1	11.22	16.53	<.01
	Family Adaptability (C)	1	7.18	10.61	<.01
	Status*Connection to Teacher (I)	2	.45	.66	.52
	Status*Connection to Peers (I)	2	.48	.71	.49
	Status*Family Cohesion (I)	2	.38	.56	.57
	Status*Family Adaptability (I)	2	2.52	3.72	<.05
GPA 2004-2007	Status (F)	2	.17	.39	.67
	Connection to Teacher (C)	1	5.54	13.02	<.01
	Connection to Peers (C)	1	.67	1.58	.21
	Family Cohesion (C)	1	2.01	4.72	<.05
	Family Adaptability (C)	1	.88	2.07	.15
	Status*Connection to Teacher (I)	2	.01	.03	.97
	Status*Connection to Peers (I)	2	.08	.20	.82
	Status*Family Cohesion (I)	2	.26	.61	.55
	Status*Family Adaptability (I)	2	.55	1.30	.27

Note: (F = fixed factor, C = covariate, I = interaction).

The ANCOVA conducted on the 2003 sample revealed a non-significant interaction effect of bullying status and connection to teacher, $F(2,1869)=.66$, $p>.05$. Similar results were found in the follow-up sample, $F(2,1234)=.03$, $p>.05$.

Additional family and school moderators were analyzed, although not initially hypothesized. Examination of self-reported family cohesion, family adaptability and peer connection and their relationship with bullying status and academic achievement are reported. Non-significant interaction effects for family cohesion were found in the 2003 ($F(2,1869)=.56$, $p>.05$) and 2004-2007 follow-up sample ($F(2,1234)=.61$, $p>.05$). Although family cohesion was not found to moderate the relationship between bullying status and academic achievement, a significant interaction effect was indicated in the 2003 analyses for family adaptability, $F(2,1869)=3.72$, $p<.05$; $\eta^2=.01$ (See Figure 7). These results revealed that increased family adaptability was related to higher GPAs for victims and uninvolved students. Furthermore, increases in family adaptability were negatively related to GPA for bullies suggesting a differential relationship between bullying status and family adaptability. Non-significant findings were reported for the follow-up sample, $F(2,1234)=1.30$, $p>.05$. Finally, connection to peers did not moderate the relationship between bullying status and academic achievement. Non-significant results were found for the 2003 sample ($F(2,1869)=.71$, $p>.05$) and 2004-2007 follow-up sample ($F(2,1234)=..20$, $p>.05$).

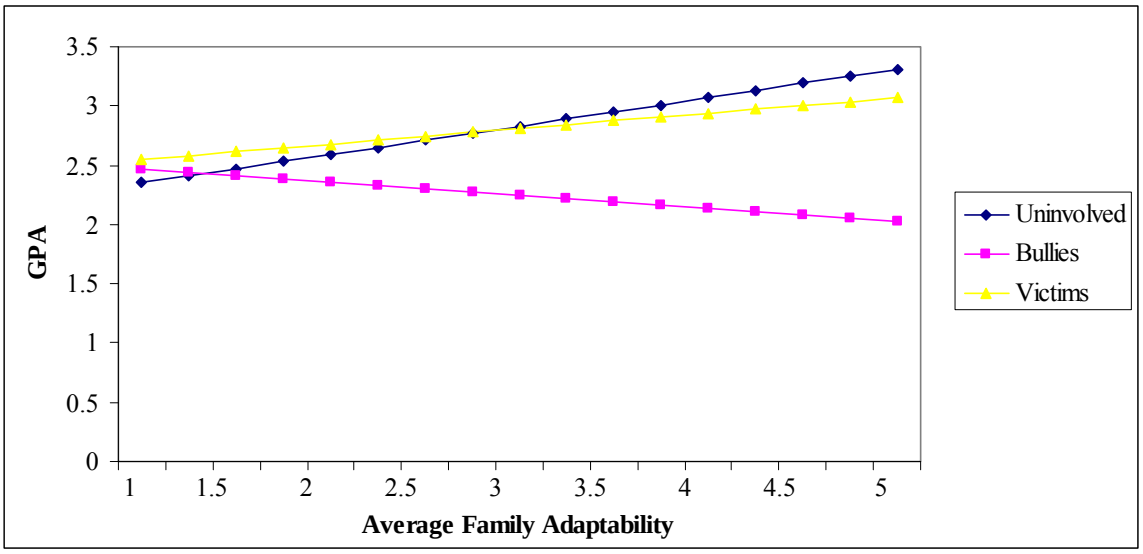

Figure 7. Moderation effects of family adaptability and bullying status on GPA in 2003.

Discipline Actions. Although no hypotheses were proposed regarding the moderating influence of school and family variables on bullying status and disciplinary actions, two one-way between-groups MANCOVAs were conducted for exploratory reasons (Disciplinary Actions = bullying status + connection to teachers + connection to peers + family adaptability + family cohesion + bullying status*connection to teacher + bullying status*connection to peers + bullying status*family adaptability + bullying status*family cohesion; See Tables 11 and 12).

Examination of the MANCOVA for the 2003 group revealed a significant interaction effect for family adaptability (Λ=.99, F(4, 3736)=4.78, p<.01; η^2=.01) and family cohesion (Λ=.99, F(4,3736)=3.07, p<.01; η^2=.01) on the disciplinary variables.

Table 11. ANCOVA Results for the Moderation Effects of School and Family Variables on Disciplinary Actions for Original Sample

Variable	Source	DF	MS	F	P
Total Referrals 2003	Status (F)	2	.09	.01	.99
	Connection to Teacher (C)	1	109.23	15.89	<.01
	Connection to Peers (C)	1	11.72	1.71	.84
	Family Cohesion (C)	1	1.16	.17	.68
	Family Adaptability (C)	1	52.12	7.58	<.01
	Status*Connection to Teacher (I)	2	10.44	1.52	.22
	Status*Connection to Peers (I)	2	2.50	.36	.70
	Status*Family Cohesion (I)	2	10.86	1.58	.21
	Status*Family Adaptability (I)	2	23.18	3.37	<.05
Total Suspensions 2003	Status (F)	2	.45	.17	.84
	Connection to Teacher (C)	1	37.46	14.11	<.01
	Connection to Peers (C)	1	4.12	1.55	.21
	Family Cohesion (C)	1	1.63	.61	.43
	Family Adaptability (C)	1	13.75	5.18	<.05
	Status*Connection to Teacher (I)	2	1.91	.72	.49
	Status*Connection to Peers (I)	2	.40	.15	.86
	Status*Family Cohesion (I)	2	.02	.01	.99
	Status*Family Adaptability (I)	2	3.61	1.34	.26

Note: (F = fixed factor, C = covariate, I = interaction)

Table 12. ANCOVA Results for the Moderation Effects of School and Family Variables on Disciplinary Actions for Follow-up Sample

Variable	Source	DF	MS	F	P
Total Referrals 2004-2007	Status (F)	2	12.26	.19	.83
	Connection to Teacher (C)	1	898.63	14.06	<.01
	Connection to Peers (C)	1	56.0	.88	.21
	Family Cohesion (C)	1	77.06	1.21	.27
	Family Adaptability (C)	1	670.77	10.50	<.05
	Status*Connection to Teacher (I)	2	37.69	.59	.55
	Status*Connection to Peers (I)	2	58.10	.91	.53
	Status*Family Cohesion (I)	2	10.86	.17	.84
	Status*Family Adaptability (I)	2	292.89	4.58	<.01
Total Suspensions 2004-2007	Status (F)	2	10.88	.43	.65
	Connection to Teacher (C)	1	331.56	13.13	<.01
	Connection to Peers (C)	1	13.49	.53	.47
	Family Cohesion (C)	1	61.18	2.42	.12
	Family Adaptability (C)	1	299.98	11.88	<.01
	Status*Connection to Teacher (I)	2	20.82	.83	.44
	Status*Connection to Peers (I)	2	12.08	.48	.62
	Status*Family Cohesion (I)	2	13.49	.54	.59
	Status*Family Adaptability (I)	2	158.47	6.28	<.01

Note: (F = fixed factor, C = covariate, I = interaction)

Although univariate follow-up analyses revealed a non-significant interaction effect for family cohesion and total referrals ($F(2,1869)=1.58$, $p>.05$) and total suspensions ($F(2,1869)=.01$, $p>.05$), a significant interaction effect was found for family adaptability and total referrals, ($F(2,1869)=.3.37$, $p<.05$; $\eta^2=.01$; See Figure 8). A non-significant interaction was found for family adaptability and total suspensions, $F(2,1869)=1.36$, $p>.05$. The MANCOVA conducted on the 2004-2007 follow-up sample revealed a significant interaction effect for family adaptability on the set of disciplinary variables ($\Lambda=.99$, $F(4, 2466)=3.53$, $p<.01$; $\eta^2=.01$). Follow-up univariate analyses indicated that family adaptability moderates the relationship between bullying status and total referrals ($F(2,1234)=.4,58$, $p<.01$; $\eta^2=.01$) and total suspensions ($F(2,1234)=.6.28$, $p<.01$; $\eta^2=.01$; See Figures 9 and 10). These findings suggest that although increased adaptability is related to better behavioral conduct for uninvolved students, adaptability was negatively related behavioral conduct for victims and bullies. Therefore, increases in perceived family adaptability were demonstrated to be related to more referrals and suspensions.

The MANCOVA conducted for the 2003 sample revealed no significant interaction effects for connection to teacher ($\Lambda=.99$, $F(4, 3736)=.53$, $p>.05$) and connection to peers ($\Lambda=.99$, $F(4, 3736)=1.04$, $p>.05$). Findings from the 2004-2007 were consistent and indicated that connection to teacher ($\Lambda=.99$, $F(4, 2466)=.54$ $p>.05$) and connection to peers $F(4, 2466)=.90$, $p>.05$) did not moderate the relationship between bullying status and disciplinary actions.

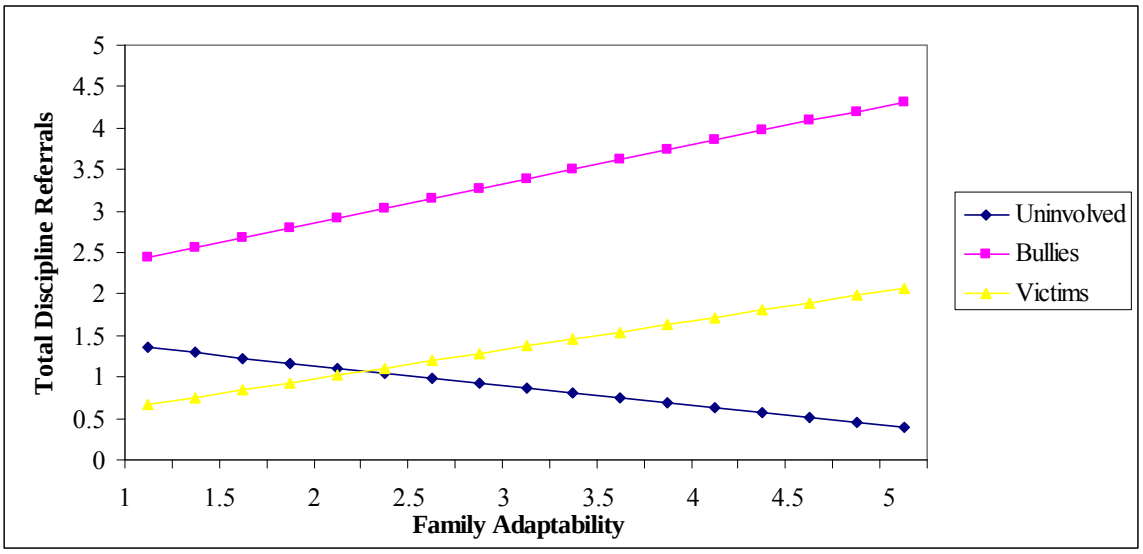

Figure 8. Moderation effects of family adaptability and bullying status on discipline referrals in 2003.

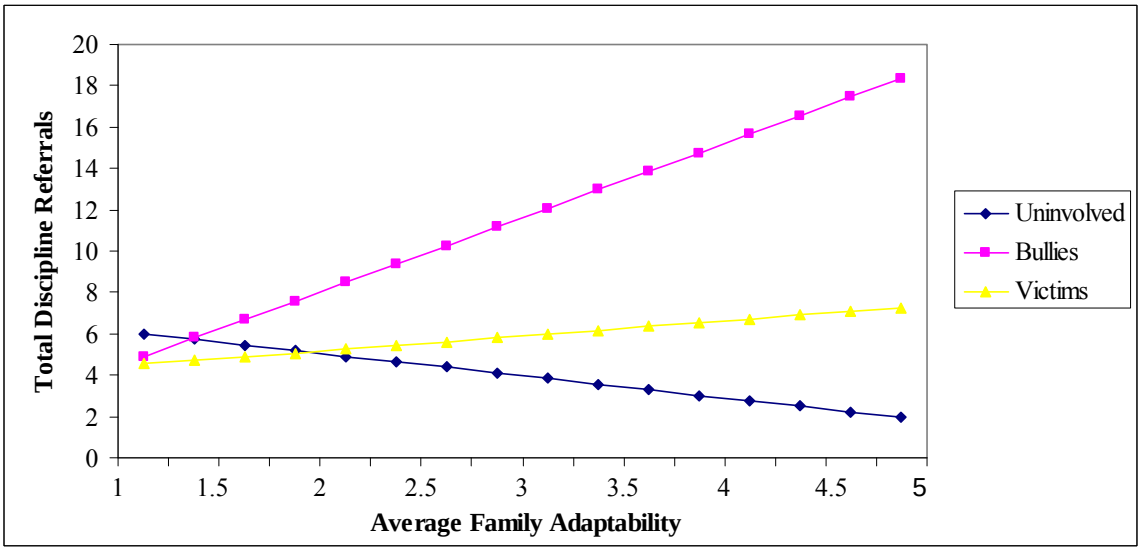

Figure 9. Moderation effects of family adaptability and bullying status on discipline referrals for 2004-2007.

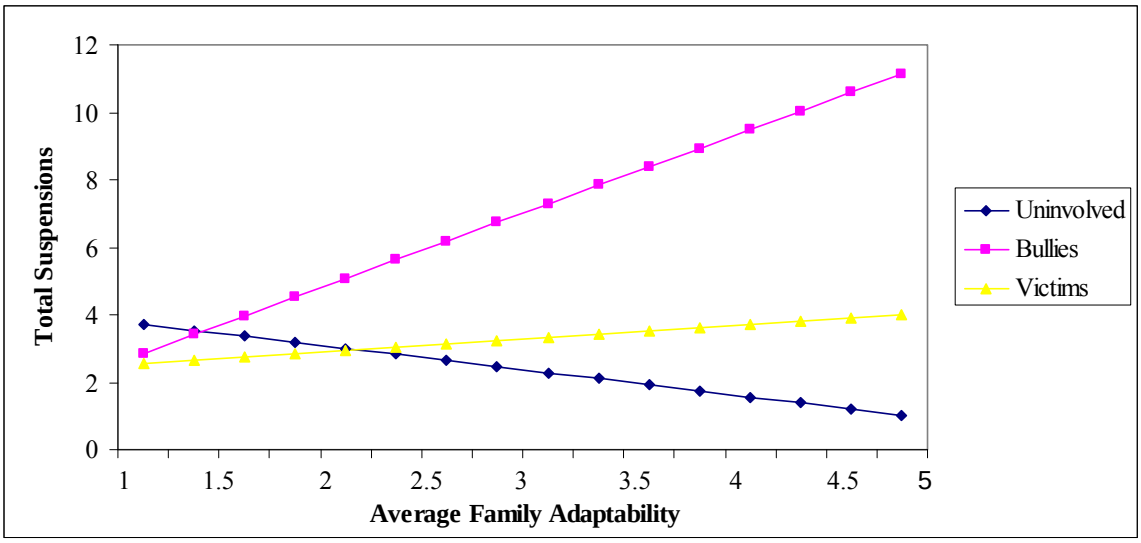

Figure 10. Moderation effects of family adaptability and bullying status on suspensions for 2004-2007.

Overall, results indicated that the moderating influence of family variables and bullying status on student attendance and disciplinary actions persisted over a four-year follow-up period in this sample. Whereas higher levels of family cohesion for self-reported victims appeared to be associated with higher attendance rates, mixed results were demonstrated for family adaptability. Increased family adaptability appeared to be related to better academic performance, but negatively associated to student's behavioral conduct, as indicated by an increase of total referrals and suspensions with higher levels of perceived family adaptability.

Discussion

Although much is known about the concurrent or short-term impact of bullying and victimization on youth development, less is known about the longer-term implications of such behavior. This study examined the longer-term correlates of bullying and victimization during the critical transition from middle to high school. Analyses of behavioral and academic school outcome data identified longer-term negative correlates of bullying and victimization, including poorer attendance, academic achievement, and behavioral conduct for bullies. The profiles for victims were similar to those of uninvolved students, with the exception of victims having more discipline referrals and suspensions during the four-year follow-up period. However, not all children involved in bullying, either as perpetrator or victim, experienced negative academic or behavioral correlates. Potential family, school and peer protective factors were explored to determine why some children succeeded in the face of these challenges. The present study is discussed in terms of findings, limitations, and implications.

Bullying Status and Student Outcomes

School adjustment variables have been investigated in relation to bullying and victimization, but have yielded inconsistent findings (Austin & Draper, 1984; DeRosier et al., 1994; Nansel, et al., 2001). Previous research using self-report measures of school adjustment (Nansel et al, 2001) with victimized students (DeRosier et al., 1994; Kochenderfer & Ladd, 1996), has typically identified a negative relationship between victimization and school adjustment. For example, a study conducted by Kochenderfer

and Ladd (1996a) revealed that children who reported victimization by their peers in the fall of their kindergarten year experienced greater adjustment difficulties, including self-reported school avoidance, at the second assessment period during the spring. Therefore, Kochenderfer and Ladd (1996b) suggested that students victimized by their peers develop negative cognitions about school and seek to withdraw from the environment that causes them distress. Support for this proposed mechanism is provided by Sharp (1995) whose survey of British primary and secondary school students indicated that 20% of children said they would skip school to avoid victimization. Though the relationship between bullying and school avoidance has been demonstrated by self-reported perceptions and strategies, initial research measuring actual school attendance behavior has not supported this finding (Glew, Fan, Katon, Rivara, & Kernic, 2005).

The present study examined the relationship between bullying behaviors and attendance using objective school records data. In the initial survey year, there were no significant attendance differences between victims and uninvolved students. This is consistent with recent research investigating school attendance, using comparable measurement and similar bullying categories (Glew et al., 2005). Further, attendance did not decline for victims over the next four years. Thus, while previous studies suggested that victims dislike school and report school avoidance as a strategy to reduce victimization, these results suggest that they do not employ this strategy enough to impact their actual rate of attendance. Limited research exists examining the relationship between bullying and school adjustment. Consistent with the findings reported by Glew and colleagues (2005), attendance rates of bullies were not significantly different from victims and uninvolved students in the initial survey year during middle school.

However, the current study revealed that bullies attended significantly fewer days of school than victims and uninvolved students over the four-year follow-up period. This finding is consistent with previous research that purports that bullies are at an increased risk for truancy (Mayer, Ybarra, & Fogliatti, 2001).

Another school-related variable frequently examined and crucial for success during this developmental period is academic achievement (e.g., DeRosier et al., 1994; Glew et al., 2005; Hanish & Guerra, 2002; Hoglund, 2007; Juvonen et al., 2000). In the initial assessment, the GPA of bullies was significantly lower than that of victims and uninvolved students who did not differ from each other. Similar findings in the follow-up analyses indicated that this middle school academic disadvantage continues for bullies. This finding is related to those reported by Nansel and colleagues (2001), who found that bullies reported poorer academic achievement, as measured by participants' perception of school performance, than victims and uninvolved students. However, it is notable that there were no group differences identified on standardized testing measures in the current study, a consistent finding in the literature (Glew et al., 2005). This suggests that the link between bullying status and GPA may be a function of bullies' behavior, rather than acquired knowledge/achievement. For example, a student's grades report more global performance, not only summarizing a set of diverse academic tasks and assignments over months but are also likely influenced by multiple contextual factors such as attendance, the amount and quality of schoolwork completed and submitted, attention and cooperation, pro-social behavior, and others. Data available on some of these variables demonstrated that bullies did in fact attend fewer days and engaged in more antisocial acts than victims and uninvolved students. It is possible that these factors,

among others, collectively contribute more to GPA than the knowledge that is applied during standardized testing, which is a more highly structured and constrained performance demand setting.

In the current study, victimization was not significantly related to worse academic performance, although a mean trend did emerge. These findings are consistent with Hanish and Guerra (2002) who found no relationship between victimization and low academic achievement. The lack of a direct link (DeRosier et al., 1994) has prompted researchers to explore an indirect link between victimization and academic achievement, through modeling techniques (Juvonen, Nishina, & Graham, 2000; Schartz, Gorman, Nakamoto & Toblin, 2005; Totura, MacKinnon-Lewis, Gesten, Gadd, Divine, Dunham, et al., in press). For example, previous research indicates that victimization predicts academic difficulties through the mediating influence of psychological adjustment, including depression, loneliness, motivation, and self-worth (Juvonen et al., 2000; Schartz et al., 2005; Totura, MacKinnon-Lewis, Gesten, Gadd, Divine, Dunham, et al., in press). Some investigators have proposed that poor attendance is part of the pathway through which victimization may contribute to academic difficulties (De Rosier et al., 1994).

Using the criteria set forth by Baron and Kenny (1986), the current study examined whether attendance is the pathway by which victimization may contribute to academic difficulties. Unfortunately, results did not support the mediation hypothesis. Although a significant main effect was demonstrated for bullying status and academic achievement during the initial and follow-up period, because there was not a significant difference between victims and uninvolved students on the dependent variable, the first

criterion was not established. Moreover, the second criterion could not be established because results revealed that victims and uninvolved students did not differ on attendance, the mediator. These findings suggest that attendance does not mediate the relationship between victimization and academic achievement. Furthermore, exploratory regression analyses comparing victims and uninvolved students on the first two steps of the model support these findings.

Significant findings were found for behavioral adjustment. Bullies had more discipline problems (referrals and suspensions) than victims and uninvolved students during both the initial study period and follow-up. This finding is consistent with prior research documenting that bullies had higher parent ratings for conduct problems, hyperactivity, and total difficulties, but lower ratings than uninvolved children for pro-social behaviors (Wolke, Woods, Bloomfied, & Karstadt, 2000). Similarly, self-report measures have also indicated a strong relationship between bullying and delinquent acts (Perren & Hornung, 2005). Furthermore, longevity of behavioral misconduct, over the five-year study period, is consistent with previous findings that aggression and bullying behaviors are related to persistent behavioral maladjustment (Khatri, Kupersmidt, & Patterson, 2000). Furthermore, the current study provides insight into the key period between middle school, the most frequently researched developmental period, and adulthood. Although previous research has examined behavioral adjustment using self- and parent-report measures with students in elementary or middle school (Khatri et al., 2000; Woods & White, 2005) and criminal records have been analyzed for adults (Huesmann et al., 2002; Olweus, 1995), the current study contributes to the literature by analyzing school records data, including both discipline referrals and suspensions of

middle and high school students. By tracking students over several years during their adolescent years, the relationship between bullying status and academic and behavioral correlates can be better understood.

Victimization was also related to behavioral misconduct. Although the mean level of referrals and suspensions was not significantly different from uninvolved students in the initial study year, the mean trend was in the predicted direction. Furthermore, analysis of the four-year follow-up period revealed that victims had significantly more discipline referrals and suspensions than uninvolved students, though less than bullies. Most studies have found that victims are more likely to manifest aggressive and acting-out behavior than students uninvolved in bullying, as indicated by parent and self reports (DeRosier et al., 1994; Khatri et al., 2000; Wolke et al., 2000). Only one study with elementary school aged students, failed to demonstrate a link between victimization and behavioral adjustment difficulties (Glew et al., 2005). However, lack of significance in that case may be due to the very low base rates of suspensions, the study's sole behavioral measure, at that age. The absence of initial findings, but evidence of longitudinal differences for victims on discipline actions suggests that the negative behavioral correlates of victimization may be additive and only reach threshold over time.

In sum, the current study revealed concurrent and longer-term academic and behavioral correlates of bullying behaviors. Findings first identified in the original survey year persisted during the four-year follow-up and revealed that bullies have worse academic and behavioral performance on all outcome measures than victims and

uninvolved students, whose profiles were similar with the exception of victims receiving more discipline referrals and suspensions during the four-year follow-up period.

Bullying Status and Protective Variables

Teacher support did not moderate the relationship between bullying status and academic or behavioral correlates in the current study. Although previous research reported a protective effect for teacher support on the frequency of bullying behaviors and on self-reported measures of school distress (Natvig et al., 2001), more objective indicators such as discipline referrals were not included. Thus, while teacher support may be protective against students' negative *perception* of school experiences, this did not extend to discipline related behaviors in the current study. However, further examination of the current analyses suggests that perceived teacher support may mediate the relationship between victimization and academic performance. Although the interaction among the variables was not significant, there was a significant main effect for students' perceived connection to teacher on academic achievement and discipline actions in both the original survey year and during the follow-up period. Moreover, the significant effect between bullying status and outcomes disappeared in this model (i.e., academic achievement = bullying status + connection to teacher + bullying status*connection to teacher). The possible mediational role of connection to teachers on victimization and its deleterious effects is supported by Herrero, Estevez, and Musitu (2006), who found that the association between victimization and psychological distress was mediated by teacher relations.

Student's report of their level of connection to peers did not moderate the relationship between victimization and academic or behavioral correlates. The lack of a

significant interaction between victimization and connection to peers on attendance, academic achievement and discipline actions may have resulted from methodological limitations. Whereas the current study assessed participants' global relationships with peers (i.e., "most students at school like to include me in their activities"), previous research has focused on the presence and quality of close relationships, which are often characterized by high levels of affection and trust (Bollmer, Milich, Harris, & Maras, 2005; Goldbaum et al., 2003; Hodges et al., 1999). For instance, Hodges and colleagues (1999) found that victims' psychological distress was buffered by the existence of having a mutual best friend. This finding supports the "friendship protection hypothesis" that having a reciprocal best friendship, which is characterized by low conflict and betrayal, protects against victimization and its detrimental effects (Boulton, Trueman, Ghau, Whitehand, & Amatya, 1999).

Family variables did have a present, but weak, moderating influence on bullying involvement and academic and behavioral correlates. Although research has consistently demonstrated that negative family relations, such as high-conflict (Baldry & Farrington, 2005), parental overcontrol (Rigby, Slee & Martin, 2007), low parental support (Perren & Hornung, 2005), and poor communication (Rigby, 1994) are risk factors for bullying and victimization, less is known about the protective function of families. Family cohesion, which represents the emotional connection of family members, moderated the relationship between bullying status on student attendance during the initial survey year and the four-year follow-up period. Although attendance rates for uninvolved students remained similar as reports of family cohesion increased, higher attendance rates for victims and bullies were associated with higher levels of family cohesion. This finding

indicates that increased levels of cohesion are selectively associated with better attendance for victims and bullies, whereas additional family support might not be needed for uninvolved students. A review of the items for the cohesion scale on the FACES-II suggests this construct may also represent perceived family support. This finding is consistent with those of Davidson and Demaray (2007) who found that parental support buffered the effect of victimization on internalizing distress. In a warm and supportive family environment, victims and bullies may be encouraged to discuss bullying related concerns and benefit from parental modeling and problem-solving input. Therefore, victims who identify their family as being cohesive may not avoid school out of fear of further victimization because they have the support needed to proceed with their daily activities. The moderating effects of family cohesion and bullying status did not extend however to academic achievement and discipline actions.

Family adaptability, by contrast, did moderate the relationship between bullying status and academic achievement, but only in the initial survey year in middle school. At that time, increased perceived family adaptability was related to higher GPA for victims and, even more so, for uninvolved students. This suggests that families that demonstrate the ability to change power structures, role relationships, and rules in response to stress may be related to improved academic performance for victims and uninvolved students. In the home, victims and uninvolved students may be practicing and learning critical thinking and problem solving skills, which are important for school success. In contrast, higher levels of perceived family adaptability/flexibility were related to worse academic achievement for bullies. While at one level puzzling, these results may be explained by

the fact that bullies need more highly structured families, wherein rules are clearly and firmly established, and parents are authoritative.

Although family adaptability moderated the relationship between bullying status and discipline actions during the initial survey year and the follow-up period, the findings were contradictory to expectations. Although prior research found moderate levels of adaptability is optimum for family functioning (Olson et al., 1982), the current study found that higher levels of perceived family adaptability were related to fewer referrals and suspensions for uninvolved students, which demonstrates better behavioral conduct. On the other hand, higher levels of perceived family adaptability were related to *more* referrals and suspensions for bullies and victims. The dramatic two-fold increase in discipline actions observed for bullies may be related to the construct of adaptability. As mentioned, high scores on the adaptability scale may reflect a less stable family structure where rules and roles are either negotiated or are unclear. If there is no clear power hierarchy because of democratization within the family, bullies may not have a clear understanding of boundaries, and consequences for their actions may not be applied. Therefore, increases in family flexibility may be related to increases in behavioral misconduct, as measured by referrals and suspensions, for both bullies and victims.

In summary, the moderating influence of school, peer, and family variables were examined to determine whether the negative correlates of bullying and victimization could be buffered. Unfortunately, few significant interactions emerged. Family cohesion appeared to buffer the relationship between bullying status and attendance, with increased perceived cohesion related to increased attendance. While high levels of adaptability are related to higher GPAs for uninvolved students and victims, high levels of adaptability

are related to lower GPAs for bullies. However, increased adaptability was related to *more* discipline actions for bullies and victims, but not uninvolved students. Adaptability as measured by the FACES II appears to operate more as a risk than protective factor in these families.

Limitations

Despite its longitudinal design, results of this study should be interpreted with caution since it is not known whether the onset of academic and behavioral difficulties predated bullying involvement. Although participants were classified into bullying categories according to the Olweus' Bully/Victim Questionnaire, which is the "gold standard" of the field (Glew et al., 2005), several limitations in the assessment of bullying and victimization should be considered. Bullies and victims may be underrepresented in the current study because participants may have been reluctant to classify themselves as such. The inclusion of multiple raters, such as peers and/or teachers, may have provided a more complete picture of peer relations and bullying status because additional raters might diminish informant bias regarding undesirable behaviors. However, with low agreement between teacher, peer, and self reports (Totura, Green, Karver, & Gesten; in press), researchers are left in the predicament of determining which reports should be used for bullying classification. Second, the current study did not investigate the academic and behavioral correlates for participants classified as bully/victims, a recurring limitation in the bullying literature. Although previous results have suggested unique characteristics and outcomes for this group, the small number of participants self-identified as bully/victims precluded their inclusion in the study. Third, assessing bullying involvement at one time period does not provide insight into the stability of

bullying and victimization over time. Therefore, the current study could not determine if academic and behavioral correlates were the result of initial or persistent bullying behaviors.

Several limitations involving the sample are worth noting. Participants came from one large southern school district, which was mostly Caucasian (77%). Therefore, findings may not apply to ethnically diverse populations. Although the overall sample size was large (original N=1,884, follow-up N=1,249), there were unequal sample sizes across bullying groups, a consistent finding in the field because of the nature of the phenomenon. The vast majority of the sample was comprised of uninvolved students (n=1,544, n=1,040) and fewer participants were self-identified as bullies (n=129, n=66) and victims (n=211, n=143), which is consistent with the nature of the bullying phenomenon. Moreover, unbalanced attrition, with more bullies leaving the system, may have contributed to decreased power. However, the differential attrition is likely a function of the construct being measured. Participants classified as bullies, who in general had the most referrals and suspensions, were at the highest risk for school change or drop out. Although differential attrition may have decreased power, significant results were still observed.

The search for protective factors may have been made more challenging by the selection of variables that served as predictors in the follow up portion of this study. The "connection to peers" factor from the Student Adjustment Scale had low reliability and may have been a less then optimal proxy for friendship quality. While previous research investigated the protective effect of having a best friend and the quality of that relationship, the scale used in the current study measured more global peer relations,

making it more difficult to find support for a moderating effect of friendship. Second, items on the adaptability scale on the FACES-II may represent more than a family's ability to change in response to stress. Instead, examination of the items and factor loadings revealed that the scale appears to assess democratization in the family, which differentially affects bullies and victims from uninvolved students. While the ability to adapt under strain may be a universal asset for individuals to possess, too much freedom and uncertainty in family roles, rules, and consequences may contribute to behavioral misconduct for those at risk for bullying and victimization. Rather, a more hierarchical family structure with authoritative parenting would be predicted to moderate the negative correlates of bullying behaviors.

Implications

The findings from this study have important implications for the design and implementation of bullying prevention and intervention programs. Results demonstrate distinct academic and behavioral outcomes across bullying categories during the initial survey year and four-year follow-up period. With bullies showing worse academic and behavioral correlates than victims and uninvolved students, specific interventions targeted to educate students at-risk for bullying behaviors and to deter these behaviors are warranted. Furthermore, although many schools implement bullying prevention and intervention programs in elementary or middle school, results from the current study revealed that the negative correlates of bullying should not be overlooked in high school. Therefore, screening for bullying behaviors should occur in high school to determine whether previous interventions were successful or additional interventions are needed.

Bullying interventions should extend beyond the schools. The current study revealed family functioning to play an important, albeit complex, role in the relationship between bullying status and academic and behavioral outcomes. Interventions only targeted to school and peer factors may fall short of their intended effects. Therefore, collaboration between school personnel and families is the first step in addressing these concerns. Since much of what we learn is taught and modeled at the home, parents should be informed regarding the policies and interventions that are being implemented in school. Furthermore, parenting practices and family interactions should be assessed to determine possible areas for intervention.

Conclusion and Future Directions

Examination of the longer-term correlates of bullying and victimization, as well as investigation into possible protective factors that buffer against the negative correlates of bullying behaviors, has contributed to a better understanding of the bullying phenomenon. However, more research is warranted. Longitudinal research, tracking students from school entry to graduation, would provide insight into many remaining questions. First, researchers could determine whether negative psychological, academic, and behavioral correlates were an antecedent to or consequence of bullying and victimization. Second, these correlates could be examined in terms of persistent or intermittent bullying and victimization to determine whether there is a differential impact of the longevity of bullying behaviors. Finally, the use of time series analyses can determine whether the effects of bullying are gradual and constant, or more variable over time. Understanding the impact of bullying and victimization, as well as its timing, may

assist the administration of frequent screeners, the creation of early prevention programs, and the implementation of time-sensitive interventions.

Research is needed to explore a broader range of possible protective factors to better guide the design of prevention and intervention programs. While the current study revealed the important protective function families may serve to mitigate the negative correlates of bullying and victimization, additional research is needed to identify additional family, school, peer, and community variables that may moderate or mediate the relationship, specifically on academic and behavioral outcomes. For example, further investigation into the "friendship protection hypothesis" as it relates to students' academic and behavioral adjustment will facilitate a better understanding of whether or not the implementation of a friendship promotion intervention will moderate the negative correlates of victimization.

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Appendices

Appendix A: Olweus Bully/Victim Questionnaire

You will find questions about your life in school. There are several answers next to each question. Each answer has a number by it. Darken in the circle on the scantron form that matches the answer that best describes you for each statement.

Here are some questions about being bullied by other students. First, we define or explain the word bullying. We say a student is being bullied when another student, or several other students:

- Say mean and hurtful things or make fun of him or her or call him or her hurtful names
- Completely ignore or exclude him or her from their group of friends or leave him or her out of things on purpose
- Hit, kick, push, shove around, or lock him or her inside a room
- Tell lies or spread false rumors about him or her or send mean notes and try to make other students dislike him or her
- And other hurtful things like that, including being teased in a mean and hurtful way.

When we talk about bullying, these things happen repeatedly, and it is difficult for the student being bullied to defend himself or herself. Note that we also call it bullying when a student is teased repeatedly in a mean and hurtful way.

But, we don't call it bullying when the teasing is done in a friendly and playful way. Also, it is not bullying when students of about equal strength or power argue or fight.

ABOUT BEING BULLLIED BY OTHER STUDENTS

Have you been bullied at school in the past couple of months in one or more of the following ways? Please answer all of the questions:

	I haven't been bullied in the past couple of months	**It has only happened once or twice**	**2 or 3 times a month**	**About once a week**	**Several times a week**
1. How often have you been bullied at school in the past couple of months?	1	2	3	4	5
2. I was called mean names, was made fun of, or teased in a hurtful way.	1	2	3	4	5

3. I was hit, kicked, pushed, shoved around, or locked indoors.	1	2	3	4	5
4. Other students told lies or spread false rumors about me and tried to make others dislike me	1	2	3	4	5
5. I had money or other things taken away from me or damaged	1	2	3	4	5
6. I was threatened or forced to do things I didn't want to do	1	2	3	4	5
7. I was bullied with mean names or comments about my race or color.	1	2	3	4	5
8. I was bullied with mean names, comments, or gestures with a sexual meaning	1	2	3	4	5
9. I was bullied in another way. In this case, please write where:_____	1	2	3	4	5

10. In which classes is the student or students who bully you?

I haven't been bullied in the last couple of months	**In my class**	**In a different class but same grade**	**In a higher grade**	**In a lower grade**	**In different grades**
1	2	3	4	5	6

11. Have you been bullied by boys or girls?

I haven't been bullied in the last couple of months	Mainly by one girl	By several girls	Mainly by one boy	By several boys	By both boys and girls
1	2	3	4	5	6

12. By how many students have you usually been bullied?

I haven't been bullied in the last couple of months	Mainly by one student	By a group of 2-3 students	By a group of 4-9 students	By a group of more than 9	By several different students of groups
1	2	3	4	5	6

13. How long has the bullying lasted?

I haven't been bullied in the last couple of months	Mainly by one student	By a group of 2-3 students	By a group of 4-9 students	By a group of more than 9 students	By several different students of groups
1	2	3	4	5	6

14. Where have you been bullied?

I haven't been bullied in The last couple of months	I have been bullied in one or more of the following places in the past couple of months
1	2

Continue here if you have been bullied in the past couple of months:

Have you been bullied:

	No	Yes
14a. on the playground/athletic field (during recess or break times)?	1	2
14b. in the hallways/stairwells?	1	2
14c. in class (with the teacher present)?	1	2
14d. in the classroom (without the teacher present)?	1	2
14e. in the bathroom?	1	2

14f. in gym class or the gym locker room/shower?	1	2
14g. in the lunch room?	1	2
14h. on the way to and from school?	1	2
14i. at the school bus stop?	1	2
14j. on the school bus?	1	2
14k. somewhere else in school?	1	2

In this case, please write where:_____

	I haven't been bullied in the last couple of months (skip the next 6 questions)	**I have been bullied but I have not told anyone (skip the next 6 questions)**	**I have been bullied and have told somebody**
15. Have you told anyone that you have been bullied at school in the past couple of months?	1	2	3

Have you told (that you have been bullied):

	No	**Yes**
15a. your class (homeroom) teacher?	1	2
15b. another adult at school (a different teacher, the principle, the school nurse, the custodian, the school psychologist, etc.)?	1	2
15c. your parents/guardians?	1	2
15d. your brothers or sisters?	1	2
15e. your friends?	1	2
15f. somebody else?	1	2

In this case, please write who:_____

	Almost Never	**Once in a while**	**Some-times**	**Often**	**Almost Always**
16. How often do the teachers or other adults try to put a stop to it when a student is being bullied at school?	1	2	3	4	5
17. How often do other students try to put a stop to it when a student is being bullied at school?	1	2	3	4	5

	I haven't been bullied in the last couple of months	**No, they haven't contacted the school**	**Yes, they have contacted the school once**	**Yes they have contacted the school several times**
18. Has any adult at home contacted the school to try to stop your being bullied at school in the past couple of months?	1	2	3	4

	That is probably what he or she deserves	**I don't feel much**	**I feel a bit sorry for him or her**	**I feel sorry for him or her and want to help him or her**
19. When you see a student your age being bullied at school, what do you feel or think?	1	2	3	4

ABOUT BULLYING OTHER STUDENTS

	I haven't bullied another student(s) in the past couple of months	It has only happened once or twice	2 or 3 times a month	About once a week	Several times a week
20. How often have you taken part in bullying another student(s) at school in the past couple of months?	1	2	3	4	5

Have you bullied another student(s) at school in the past couple of months in one or more of the following ways? Please answer all of the questions/

	I haven't bullied another student(s) in the past couple of months	It has only happened once or twice	2 or 3 times a month	About once a week	Several times a week
21. I called another student mean names, made fun of or teased him or her in a hurtful way	1	2	3	4	5
22. I kept him or her out of things on purpose, excluded him or her from their group of friends, or completely ignored him or her	1	2	3	4	5
23. I hit, kicked, pushed shoved him or her around or locked him or her indoors.	1	2	3	4	5
24. I spread false rumors about him or her and tried to make others dislike him or her.	1	2	3	4	5

25. I took money or other things from him or her or damaged his or her belongings.	1	2	3	4	5
26. I threatened or forced him or her to do things he or she didn't want to do.	1	2	3	4	5
27. I bullied him or her with mean names or comments about his or her race or color.	1	2	3	4	5
28. I bullied him or her with mean names, comments, or gestures with a sexual meaning.	1	2	3	4	5
29. I bullied him or her in another way. In this case, please write That way:_____	1	2	3	4	5

	I haven't bullied other students(s) at school in the past couple of months	**No, they haven't talked with me about it**	**Yes, they have talked with me about it once**	**Yes, they have talked with me about it several times**
30. Has your class (homeroom) teacher talked with you about your bullying other students at school in the past couple of months?	1	2	3	4
31. Has any adult at home talked with you about your bullying other students at school in the past couple of months?	1	2	3	4

	Yes	Yes, Maybe	I don't Know think so	No, I don't	No	Definitely No
32. Do you think you could join in bullying a student whom you didn't like?	1	2	3	4	5	6

	I have never noticed that students my age are bullied	I take part in the bullying	I don't do anything but I think the bullying Is OK	I just watch what goes on	I don't do anything but I think I ought to help the bullied student	I try to help the bullied student in one way or another
33. How do you usually react if you see or understand that a student your age is being bullied by other students?	1	2	3	4	5	6

	Never	Seldom	Some-Time	Fairly often	Often	Very often
34. How often are you afraid of being bullied by other students in your school?	1	2	3	4	5	6

	Little or Nothing	Fairly little	Some-what	A good deal	Much
35. Overall, how much do you think your class teacher has done to counteract bullying in the past couple of months?	1	2	3	4	5

Appendix B: Student Adjustment Survey

Directions: Read each sentence carefully and darken the circle on the scantron form for the number that sounds most like you for each statement.

	Strongly Disagree	**Disagree**	**I don't know**	**Agree**	**Strongly Agree**
1. Students usually get along well with each other in this school	1	2	3	4	5
2. Making friends is very difficult in this school*	1	2	3	4	5
3. I am in the wrong group to feel a part of this school	1	2	3	4	5
4. A student can be himself/herself and still be accepted by other students in this school*	1	2	3	4	5
5. Most students at school like to include me in their activities*	1	2	3	4	5
6. I always seem to be left out of important school activities*	1	2	3	4	5
7. I think my teachers care about me+	1	2	3	4	5
8. Teachers are not usually available before class to talk with students	1	2	3	4	5
9. My teachers often get to know me well+	1	2	3	4	5
10. Most teachers like my friends and me+	1	2	3	4	5
11. I care what most of my teachers think about me+	1	2	3	4	5
12. Some teachers would choose me as one of their favorite students+	1	2	3	4	5
13. I like school	1	2	3	4	5
14. My teachers don't pay much attention to me	1	2	3	4	5
15. I get a lot of encouragement at my school	1	2	3	4	5
16. Other kids in my class have more friends than I do*	1	2	3	4	5
17. I feel a sense of school spirit	1	2	3	4	5
18. I don't feel safe at this school	1	2	3	4	5
19. I have friends who are of different racial and ethnic backgrounds at this school	1	2	3	4	5
20. Discipline is fair at this school	1	2	3	4	5

Appendix B (Continued)

	Strongly Disagree	Disagree	I don't know	Agree	Strongly Agree
21. I feel like I am learning a lot at school	1	2	3	4	5
22. School is important to me	1	2	3	4	5
23. I believe I am learning important things in school	1	2	3	4	5
24. I liked school more last year than I do this year	1	2	3	4	5
25. I feel that I can go to my teacher for advise or help with schoolwork[+]	1	2	3	4	5
26. I feel that I can go to my teacher for advise or help with non-school related problems[+]	1	2	3	4	5
27. Most of my teachers don't expect very good work from me	1	2	3	4	5
28. I don't care how well I do in school	1	2	3	4	5
29. I try as hard as I can to do my best at school	1	2	3	4	5
30. I am an important member of this school	1	2	3	4	5
31. It bothers me when I don't do something well	1	2	3	4	5
32. Education is important for success in life	1	2	3	4	5
33. I feel prepared for middle school	1	2	3	4	5
34. I think I will go to college	1	2	3	4	5

Note: * indicates items on the Connection to Peers subscale. [+] indicates items on the Connection to Teachers subscale

Appendix C: Family Adaptability and Cohesion Evaluation Scale II

Directions: Describe your family. How often does each behavior happen in your family according to the following scale?

	Almost Never	**Once in a while**	**Sometimes**	**Frequently**	**Almost Always**
1. Family members are supportive of each other*	1	2	3	4	5
2. In our family, it is easy for everyone to express his/her opinion	1	2	3	4	5
3. It is easier to discuss problem with people outside the family than with other family members*	1	2	3	4	5
4. Each family member has input in major family decisions	1	2	3	4	5
5. Out family gathers together in the same room*	1	2	3	4	5
6. Children have a say in their discipline	1	2	3	4	5
7. Our family does things together*	1	2	3	4	5
8. Family members discuss problems and feel good about the solutions	1	2	3	4	5
9. In our family, everyone goes his/her own way*	1	2	3	4	5
10. We shift household responsibilities from person to person	1	2	3	4	5
11. Family members know each other's close friends*	1	2	3	4	5
12. It is hard to know what the rules are in our family	1	2	3	4	5
13. Family members consult other family members on their decisions*	1	2	3	4	5
14. Family members say what they want	1	2	3	4	5
15. We have difficulty thinking of things to do as a family*	1	2	3	4	5
16. In solving problems, the children's suggestions are followed	1	2	3	4	5

Appendix C (Continued)

	Almost Never	Once in a while	Sometimes	Frequently	Almost Always
17. Family members feel very close to each other*	1	2	3	4	5
18. Discipline is fair in our family	1	2	3	4	5
19. Family members feel closer to people outside the family than to other family members*	1	2	3	4	5
20. Our family tries new ways of dealing with problems	1	2	3	4	5
21. Family members go along with what the family decides to do*	1	2	3	4	5
22. In our family, everyone shares responsibility	1	2	3	4	5
23. Family members like to spend their free time with each other*	1	2	3	4	5
24. It is difficult to get a rule changed in our family	1	2	3	4	5
25. Family members avoid each other at home*	1	2	3	4	5
26. When problems arise, we compromise	1	2	3	4	5
27. We approve of each other's friends*	1	2	3	4	5
28. Family members are afraid to say what is on their minds	1	2	3	4	5
29. Family members pair up rather than do things as a total family*	1	2	3	4	5
30. Family members share interests and hobbies with each other*	1	2	3	4	5

Note: * indicates items on the Cohesion subscale, the Adaptability subscale consists of all other items.

Appendix D: Comparison across Groups on Measures of Adjustment

Two scales from the initial 2003 survey were selected to assess group differences on measures of adjustment. The *State/Trait Anxiety Inventory for Children-Trait Anxiety* (STAIC) is a 20-item self-report measure of anxiety (Spielberger, 1973). The questionnaire is comprised of two twenty-item scales: State and Trait anxiety. The Trait anxiety scale, which measures consistent and cross-situational levels of anxiety, was used for analyses ("I worry too much," Cronbach alpha = .93). The second scale that was used to assess group differences on adjustment was the *Center for Epidemiological Studies-Depression Scale* (CES-D), which is a 20-item self-report measure of depressive symptoms (Radloff, 1977). The questionnaire has demonstrated high reliability (Cronbach alpha = .81) and included items such as, "I felt that I could not shake off the blues even with help from my family and friends," "I felt lonely" and "I had trouble keeping my mind on what I was doing." On both scales, average scores were calculated and range from 0-5, with higher scores indicating maladjustment.

Appendix D (Continued)

State-Trait Anxiety Inventory for Children

Directions: A number of statements that boys and girls use to describe themselves are given below. Read each statement carefully and decide if it is hardly ever, sometimes, or often true for your. Then darken the scantron circle with the same number as the statement that descries you best. There are no right or wrong answers. Do not spend too much time on any one statement. Remember to darken the circle for each statement that best describes how you *usually feel.*

	Hardly Ever	Sometimes	Often
1. I worry about making mistakes	1	2	3
2. I feel like crying	1	2	3
3. I feel unhappy	1	2	3
4. I have trouble making up my mind	1	2	3
5. It is difficult for me to face my problems	1	2	3
6. I worry too much	1	2	3
7. I get upset at home	1	2	3
8. I am shy	1	2	3
9. I feel troubled	1	2	3
10. Unimportant thoughts run through my mind and bother me	1	2	3
11. I worry about school	1	2	3
12. I have trouble deciding what to do	1	2	3
13. I notice my heart beats fast	1	2	3
14. I am secretly afraid	1	2	3
15. I worry about my parents	1	2	3
16. My hands get sweaty	1	2	3
17. I worry about things that may happen	1	2	3
18. It is hard for me to fall asleep at night	1	2	3
19. I get a funny feeling in my stomach	1	2	3
20. I worry about what others think of me	1	2	3

Appendix D (Continued)

Center for Epidemiological Studies – Depression Scale

Directions: For each statement below, darken in the circle on the scantron form for the number that best describes how often you felt or behaved this way for each of the following statements *during the past week.*

	Rarely or none of the time (Less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me	0	1	2	3
2. I did not feel like eating; my appetite was poor	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family or friends	0	1	2	3
4. I felt that I was just as good as other people	0	1	2	3
5. I had trouble keeping my mind on what I was doing	0	1	2	3
6. I felt depressed	0	1	2	3
7. I felt that everything I did was an effort	0	1	2	3
8. I felt hopeful about the future	0	1	2	3
9. I thought my life had been a failure	0	1	2	3
10. I felt fearful	0	1	2	3
11. My sleep was restless	0	1	2	3
12. I was happy	0	1	2	3
13. I talked less than usual	0	1	2	3
14. I felt lonely	0	1	2	3
15. People were unfriendly	0	1	2	3
16. I enjoyed life	0	1	2	3
17. I had crying spells	0	1	2	3
18. I felt sad	0	1	2	3
19. I felt that people disliked me	0	1	2	3
20. I could not get "going"	0	1	2	3

Appendix D (Continued)

ANOVA Results Examining the Relationship Between Bullying Status and Adjustment for Original and Follow-Up Sample

	Bully	Victim	Uninvolved	F	P value[+]
Anxiety					
2003 Sample	1.68 (.46) [a]	1.94 (.49) [b]	1.59 (.43) [a]	59.72	<.01
2004-2007 Sample	1.67 (.45) [a]	1.90 (.49) [b]	1.57 (.41) [a]	38.72	<.01
Depression					
2003 Sample	1.17 (.32) [a]	1.38 (.35) [b]	1.20 (.29) [a]	36.63	<.01
2004-2007 Sample	1.16 (.32) [a]	1.38 (.34) [b]	1.12 (.28) [a]	25.94	<.01

Note: Mean (standard deviations), Ns vary because of missing data.

[+]P Value calculated by conducting ANOVAs to examine group differences with follow-up Tukey post hoc tests. Significant differences are reflected by different superscripts in the same row

T-Test Results Examining the Effects of Attrition on Adjustment

	Participants Who Stayed	Participants Who Left	T	P
Anxiety	1.61 (.44)	1.67 (.47)	-2.81	<.01
Depression	1.22 (.30)	1.22 (.32)	.03	.98

Note: Mean (standard deviations). Ns vary because of missing data.

Appendix E: Exploratory Gender Analyses

Two-Way ANOVA Results Examining the Relationship Between Bullying Status, Gender and Outcomes for the Original (N=1884) and Follow-up Sample (N=1249)

	Gender		Bullying Status			Two-Way ANOVA Results		
	Males	Females	Bullies	Victims	Uninvolved	Status F	Gender F	Status* Gender F
Attendance								
2003	93.88 (5.77)	93.90 (5.53)	93.61 (5.31)	93.84 (7.06)	93.92 (5.45)	.17	.00	.12
2004-2007	95.48 (3.64)	94.42 (4.43)	93.61 (4.70) [a]	95.21 (4.20) [b]	94.97 (4.04) [b]	4.72**	14.39**	1.49
GPA								
2003	2.63 (.94)	2.97 (.80)	2.28(.94) [a]	2.80 (.92) [b]	2.85 (.87) [b]	23.02**	16.94**	.69
2004-2007	2.67 (.72)	2.88 (.64)	2.39 (.65)[a]	2.70 (.77)[b]	2.82 (.67) [b]	13.16**	.57	3.24*
Referrals								
2003	1.65 (3.22)	.72 (2.04)	3.26 (4.86)	1.32 (3.26)	.97 (2.29)	35.41**	36.09**	4.84**
2004-2007	5.65 (9.29)	3.52 (7.14)	11.24 (12.53) [a]	6.01 (11.98) [b]	3.91 (7.06)[c]	26.93**	.37	1.87
Suspensions								
2003	.92 (1.97)	.40 (1.30)	1.78 (2.89) [a]	.73 (1.80) [b]	.54 (1.48) [b]	27.21**	27.50**	3.04**
2004-2007	3.22 (5.81)	2.01 (4.53)	6.82 (8.26) [a]	3.34 (7.06) [b]	2.22 (4.50) [c]	26.13**	.26	1.63

Note: * p < .05; **p < .01.

Appendix F: Exploratory Follow-up Analyses Controlling for Initial Values on Outcomes

ANCOVA Results for the Relationship between Bullying Status and Follow-Up Outcomes Controlling Initial Scores on Attendance, Academic Achievement and Discipline Actions in 2003

Variable	Source	DF	MS	F	P
Attendance 2004-2007	Status (F)	2	75.87	6.46	<.01
	Attendance 2003 (C)	1	6300.45	536.80	<.01
	Error	1245	11.74		
GPA 2004-2007	Status (F)	2	.66	3.10	<.05
	GPA 2003 (C)	1	306.23	1428.39	<.01
	Error	266.91	.21		
Referrals 2004-2007	Status (F)	1	501.37	10.81	<.01
	Referrals 2003 (C)	2	7126.72	153.55	<.01
	Error	1244	12.08		
Suspensions 2004-2007	Status (F)	1	218.61	11.14	<.01
	Suspensions 2003 (C)	2	20.45	1.04	.31
	Error	1244			

Note: (F=fixed factor, C=covariate)

ANCOVA Results for the Moderation Effects of School and Family Variables on Follow-up Outcomes Controlling for Initial Scores on Attendance and Academic Achievement in 2003

Variable	Source	DF	MS	F	P
Attendance 2004-2007	Status (F)	2	.003	2.18	.11
	Attendance 2003(C)	1	.17	142.43	<.01
	Connection to Teacher (C)	1	.000	.04	.85
	Connection to Peers (C)	1	.001	.61	.43
	Family Cohesion (C)	1	.01	8.18	<.01
	Family Adaptability (C)	1	.01	5.24	<.05
	Status*Connection to Teacher (I)	2	.001	.94	.39
	Status*Connection to Peers (I)	2	.001	.72	.49
	Status*Family Cohesion (I)	2	.003	2.47	.09
	Status*Family Adaptability (I)	2	.002	1.46	.23
GPA 2004-2007	Status (F)	2	.01	.03	.97
	GPA 2003(C)	1	60.17	281.74	<.01
	Connection to Teacher (C)	1	.20	.93	.33
	Connection to Peers (C)	1	.03	.14	.71
	Family Cohesion (C)	1	.52	2.45	.12
	Family Adaptability (C)	1	.11	.53	.47
	Status*Connection to Teacher (I)	2	.01	.06	.95
	Status*Connection to Peers (I)	2	.19	.91	.40
	Status*Family Cohesion (I)	2	.25	1.16	.32
	Status*Family Adaptability (I)	2	.07	.32	.72

Note: (F = fixed factor, C = covariate, I = interaction)

Appendix F (Continued)

ANCOVA Results for the Moderation Effects of School and Family Variables on Follow-up Outcomes Controlling for Initial Levels of Discipline Action in 2003

Variable	Source	DF	MS	F	P
Discipline Referrals 2004-2007	Status (F)	2	109.35	2.45	.09
	Referrals 2003(C)	1	18236.91	407.84	<.01
	Connection to Teacher (C)	1	197.09	4.41	<.05
	Connection to Peers (C)	1	.96	.02	.88
	Family Cohesion (C)	1	16.00	.36	.55
	Family Adaptability (C)	1	251.98	5.64	<.05
	Status*Connection to Teacher (I)	2	106.23	2.38	.09
	Status*Connection to Peers (I)	2	4.71	.11	.90
	Status*Family Cohesion (I)	2	36.45	.82	.44
	Status*Family Adaptability (I)	2	204.20	4.57	<.05
Suspensions 2004-2007	Status (F)	2	44.94	2.25	.11
	Suspensions 2003(C)	1	5295.41	265.47	<.01
	Connection to Teacher (C)	1	93.64	4.69	<.05
	Connection to Peers (C)	1	.001	.000	.99
	Family Cohesion (C)	1	43.95	2.20	.14
	Family Adaptability (C)	1	197.37	9.90	<.01
	Status*Connection to Teacher (I)	2	52.64	2.64	.07
	Status*Connection to Peers (I)	2	2.14	.11	.90
	Status*Family Cohesion (I)	2	7.87	.40	.67
	Status*Family Adaptability (I)	2	121.43	6.09	<.01

Note: (F = fixed factor, C = covariate, I = interaction)

A series of one-way between groups Analysis of Covariance (ANCOVA) was conducted using the 2004-2007 follow-up sample to determine whether the relationship between bullying status and school outcomes (ie. attendance, academic achievement and discipline actions) was maintained when controlling for initial values on those measures. Results revealed that significant group differences remained on attendance ($F(2, 1245)=6.46$, $p<.01$), GPA ($F(2, 1245)=3.10$, $p<.05$), referrals ($F(2, 1245)=10.81$, $p<.01$) and suspensions ($F(2, 1245)=11.14$, $p<.01$) when controlling for 2003 values. Post hoc tests revealed that bullies consistently demonstrated poor attendance, achievement and behavioral conduct when compared to victims and uninvolved students. There were no differences been victim and uninvolved student profiles.

A series of one-way ANCOVAs were conducted using the 2004-2007 follow-up sample to determine whether peer, family and school variables mitigated the relationship between bullying status and academic and behavioral outcomes when controlling for initial values on attendance, GPA and discipline actions. Results revealed that family adaptability remained a moderating influence on bullying status and discipline actions, including total referrals ($F(2, 1231)=4.57$, $p<.05$) and total suspensions ($F(2, 1231)=6.09$, $p<.01$). However after controlling for initial rates of attendance in 2003, family cohesion no longer moderated the relationship between bullying status and rate of attendance for the follow-up sample ($F(2, 1231)=6.46$, $p>09$).

Appendix G: Summary Table for Original and Follow-up Analyses

	Original Sample 2003	Post Hoc Comparisons			Follow-up Sample 2004-2007	Post Hoc Comparisons		
Outcome Variables		B	V	U		B	V	U
Attendance								
Academic Achievement								
FCAT Math								
FCAT Reading								
GPA								
Discipline Actions								
Referrals								
Suspensions								
Moderator Variables								
Connection to Peer x Attendance								
x GPA								
x Referrals								
x Suspensions								
Connection to Teacher x Attendance								
x GPA								
x Referrals								
x Suspensions								
Family Cohesion x Attendance								
x GPA								
x Referrals								
x Suspensions								
Family Adaptability x Attendance								
x GPA								
x Referrals								
x Suspensions								

Note: Dark shadings indicate p <.01 and light shadings indicate p <.05. Tukey post-hoc comparisons are reported for outcomes.