BULLYING IN SCHOOLS:
THE ROLE OF EMPATHY, TEMPERAMENT, AND EMOTION REGULATION

by

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ABSTRACT

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Peer aggression and bullying are significant problems for children in American schools. While a large body of research has been conducted in this area, none to date has examined the combined roles of temperament (behavioral activation system, or BAS, and behavioral inhibition system, or BIS), and empathy in predicting participation in bullying interactions. Previous research has found that low empathy facilitates aggressive behavior, while high empathy inhibits it, and has linked poor emotion regulation to conduct disorders. Thus, if these factors can predict behaviors towards peers, they may also predict (independently and in combination) involvement in bullying, specifically the roles assumed in those interactions—that is: bully, victim, bully-victim (a child who is both bully and victim), or defender/protector. The present study tested 226

middle school students on a measure of empathy (Interpersonal Reactivity Index), and a measure of temperament (BIS/BAS Scales). The students also completed a Peer Nomination Inventory to identify children who were aggressive toward others, victimized by peers, and/or protected peers from bullies. Although not all predictions were supported, results showed that certain sub-components of empathy, such as empathic concern (affective empathy) and personal distress (a measure of emotion regulation) predicted the behavior of "pure bullies" (bullies who are not themselves victimized), but not of other aggressive children such as bully-victims. High BAS drive and low BIS were significant predictors of aggressive behavior, and BAS reward responsiveness predicted protective behavior. Victimized children had higher fantasy (ability to identify with fictional characters) and lower perspective-taking (cognitive empathy) skills, and tended not to have overlapping characteristics and behaviors with protective children. These characteristics did not interact significantly with each other or with age, gender, ethnicity, or SES of students. It was concluded that pure bullies lack affective empathy, and victims lack cognitive empathy. That is, empathy is multi-dimensional and empathy deficits vary in type, but all lead to some form of socio-emotional impairment. Furthermore, aggressive victims are a unique sub-group of children with unique characteristics.

DEDICATION

This manuscript is dedicated to the two women who always believed in my abilities and first taught me to believe in myself, to trust my instincts, and to never, ever give up: my mother Denise Bachand Gagnon and my friend and mentor Dr. Lynette Feder.

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CHAPTER 1

INTRODUCTION

The Epidemic of Bullying

The Centers for Disease Control and Prevention has reported that close to 20% of students in grades nine through twelve are bullied on school property each year (CDC, 2010), and Nansel et al. (2001) found that 30% of sixth to tenth graders have been victims of bullying. Other researchers (e.g., Farrington, 1993) have found that more than 50% of children have been involved in bullying, either as bullies or victims, at one point in their lives. In addition, 16% of all violent crimes are committed by juveniles, and perpetrators of school-related homicides are more than twice as likely as others to have been bullied by peers (CDC, 2010).

Children who are bullied are more likely to suffer from depression and anxiety, have low self-esteem, exhibit signs of helplessness and distress, be rejected by peers, feel general malaise, have migraines, and are more at risk for suicide (Limber 2002; Scholte 2007). Similarly, bullies are at risk for broader criminality and aggression and are more likely to be truant and to develop substance abuse problems (Hampel, Manhal,& Hayer, 2009; Scholte, Engels, Overbeek, de Kemp, & Haselager, 2007). Given the magnitude of this problem,

it is not surprising that researchers have become increasingly interested in identifying the factors that contribute to bullying. By understanding which children are at risk for becoming bullies or victims, and why, we can develop more targeted and more effective early interventions.

In the last 10 to 15 years, researchers have begun to establish links between empathy and aggression (e.g., Decety, Michalska, Akitsuki, & Lahey, 2009; Miller & Eisenberg, 1988; Strayer & Roberts, 2004), and more recently, between empathy and bullying behavior specifically (Gini, Albiero, Benelli, & Altoè, 2007; Jolliffe & Farrington, 2006). The theoretical framework for this line of research is that empathy promotes the development of prosocial behavior (Eisenberg & Fabes, 1998; Hoffman, 1987). Thus, if empathy inhibits aggression in general, empathy deficits likely plays a role in bullying behaviors specifically, in that children who have less empathy towards others, may be more prone to bullying them. The present study aims to further elucidate this relationship. Additionally, based on previous work that has suggested some chronic victims of bullying may also have empathy deficits (Woods, Wolke, Nowicki & Hall, 2009), the present study seeks to extend previous research by investigating the potential link between empathy deficits and victims of bullying. In other words, deficits in empathy likely not only contribute to the development of aggressive behaviors, but also to the development of behaviors and traits that increase the likelihood of becoming the target of bullying.

Empathy

The empathy literature is characterized by a wide variety of conceptualizations of empathy (Preston & De Wall, 2002). Some have focused on cognitive aspects (e.g., Baron-Cohen, 1994; Hogan, 1969), others on prosocial and/or altruistic behaviors (e.g., Eisenberg & Strayer, 1987), and still others on affective responses (e.g., Baron-Cohen, 2005; Hoffman, 1987). Jolliffe and Farrington (2004) assert that empathy can be conceptualized as either being on a continuum (i.e., degrees of low to high empathy) or dichotomous (i.e., lack of empathy). In our recent review of the literature (Jones & Gagnon, 2007) we have chosen to dichotomize empathy but not in terms of lack of empathy. Instead, we consider empathy to be *regulated* (i.e., healthy) or *dysregulated* (i.e., unhealthy). For instance, a healthy empathic response is one where the observer of someone else's distress is able to cognitively recognize what that person is feeling (*cognitive empathy*), emotionally relate to that feeling (*affective empathy*), experiences a moderately heightened physiological reaction typically characterized by an increase in heart and respiratory rate (*physiological empathy*), and subsequently implements a behavioral response (*empathic response*). A disruption of any component of that process (cognitive, affective, physiological, or behavioral response) would be considered evidence of dysregulated empathy. From our perspective, this reflects empathy's complexity. For example, an individual might have high cognitive empathy, but low affective

empathy (such as is the case with psychopaths), or high physiological and affective empathy, but low cognitive and behavioral empathy (as is the case with autistic children). Regulated, or healthy, empathy results from normal responses at the physiological, cognitive, affective, and behavioral levels. Dysregulated empathy implies that one or more of these four components is deficient.

Regardless of exactly how empathy is defined, the subjective experience of empathy is thought to make individuals more responsive to the feelings of others (Jolliffe & Farrington, 2004). Consistent with the idea that empathy facilitates positive social relations, research has indeed found that children who are more empathic are more socially competent and demonstrate more prosocial behaviors and less aggression (Findlay, Girardi, & Coplan, 2006). Additionally, prosocial responding is dependent on the ability to understand others, to regulate one's own emotions, and to show initiative in social interactions (Miller, Eisenberg, Fabes, & Shell, 1996). Taken together, these findings suggest that theory-of-mind or perspective-taking skills, emotion regulation, and temperamental traits all play a role in the development of empathy. In fact, recent research has uncovered that the cognitive component of empathy seems to play a significant role in overall empathy. For example, Knight, Johnson, Carlo, and Eisenberg (1994) found that children with a better understanding of mathematical concepts were more empathic. Thus, it seems that greater ability to understand abstraction and higher reasoning skills contribute to understanding others. This is consistent with the idea that some researchers have proposed:

that executive functions undergird empathy (Eisenberg, 2000), and indeed deficits in executive functioning have been linked to low levels of empathy (Eisenberg, 2000). Intuitively, this makes sense. In order to have an affective, physiological, or behavioral response to the distress of another, one must first be able to realize or understand that the other person is experiencing distress. Hence, accurate cognitive appraisal of social stimuli is key. Moreover, Silfver and Helkama (2007) found that better perspective-taking skills also lead to increased guilt for adolescent boys, suggesting that when one can understand how one's behavior has negatively impacted another, feelings of guilt are more likely to ensue.

The ability to experience and express empathy based only on the cognitive appraisal of the distress of another has also been demonstrated in very young children. In a study by Vaish, Carpenter, and Tomasello (2009), toddlers (ages 18 to 25 months) were shown two scenarios: one in which one adult hurt another adult by destroying one of the target adult's possessions, and one in which the behavior of the first adult did not harm the second adult in any way. The key component of this study was that the adults displayed no expression of emotion. Nonetheless, the toddlers were able to correctly infer the feelings of the adult in the harm condition, even in the absence of overt emotional cues. Additionally, a statistically significant portion of toddlers implemented a prosocial, or helping, behavioral response in the harm condition. Given these findings,

Vaish et al. (2009) argue that sympathy and empathy are present early in development and rely, at least partially, on cognitive perspective-taking abilities.

Nonetheless, the affective component of empathy—that is, the ability to respond emotionally to the distress of others—has also been found to play a key role in prosocial behavior (Davis, 1994; Eisenberg & Fabes, 1998; Hoffman, 2001). Consistent with this line of reasoning, some authors (e.g., Garandeau & Cillessen, 2006; Sutton, 2003; Sutton, Smith, & Swettenham, 1999) have suggested that it is the affective component of empathy that is deficient in bullies, since the ability to bully effectively implies a cognitive understanding of how the victim feels. To date, the evidence for this perspective — of the cognitively competent but emotionally callous bully—is inconclusive (Caravita, Blasio, & Salmivalli, 2010).

Overall, it appears that both cognitive and affective empathy play a role in promoting healthy social interactions, and dysfunctions in social interaction have been attributed to deficits in empathy (Miller & Eisenberg, 1988). In their meta-analytic review of the literature to date at the time, Miller and Eisenberg (1988) concluded that empathy may inhibit aggression, as lower levels of empathy are associated with more aggression, and more externalizing and antisocial behaviors. More recently, researchers have begun to examine the role that empathy may play in victimization. For example, Gleason, Jensen-Campbell, and Ickes (2005) found that children with higher empathy had better friendships and lower levels of victimization. In this study, boys in fifth to eighth grade

completed a modified version of the Peer Nomination Inventory (Wiggins & Winder, 1961) and a laboratory procedure (Ickes, Bissonnette, Garcia, & Stinson, 1990) in which the children watched videotaped interaction and were asked to infer the thoughts and feelings of the actors. Children who were more skilled at these inferences had lower levels of relational victimization (but no differences in overt victimization) and experienced more internalizing problems. Empathy Accuracy, that is, the ability to corrected infer the thoughts and feelings of others (i.e., cognitive empathy), was also related to better friendships for girls, but not for boys, and empathy accuracy was not found to be a good predictor of externalizing problems. Taken together, the above findings suggest that empathy may not only play a role in inhibiting aggressive behavior, but that empathy dysregulation may also play a role in chronic victimization. For instance, children who have poor abilities at inferring the thoughts and feelings of others likely have more difficulty developing and maintaining friendships and may be less successful in social interactions and may be more susceptible to victimization (Hodges & Perry, 1999; Parker & Asher, 1987).

Empathy and Aggression

In general, the literature supports the existence of a link between empathy deficits and aggressive behavior. Lower empathy is associated with more aggression (e.g., Robinson, Roberts, Strayer, & Koopman, 2007) higher empathy has been associated more prosocial behaviors (e.g., Findlay et al., 2006). On

closer examination, however, the exact nature of this relationship is unclear. For instance, some researchers have found that aggressive children as well as adult offenders are likely to interpret social cues in a way that leads to personal feelings of distress, threat, or anger (Miller & Eisenberg, 1988) and misinterpret the intentions of others (Jolliffe & Farrington, 2004). In a systematic review and meta-analysis of the literature on empathy and offending, Jolliffe and Farrington (2004) found that low cognitive empathy was more strongly related to offending than was low affective empathy, and the relationship between empathy and offending varied somewhat with the offense type. This suggests that, at least for some types of offenses, cognitive empathy may play a more significant role than affective empathy. However, the relationship between overall empathy (cognitive and affective) and offending disappeared when socio-economic status (SES) was held constant, and was significantly reduced when IQ was held constant. This key finding may in large part be explained by the established relationship between IQ and SES (i.e., that individuals in lower socio-economic groups tend to score lower on conventional measures of IQ such as standardized IQ tests). Since executive functions and abstract thinking are tapped by IQ tests, it is possible that without good executive functioning and abstract thinking skills it is more difficult to correctly infer the thoughts and emotions of others.

Jolliffe and Farrington (2004) speculate that the relationship between empathy, IQ, and offending can be explained in several ways. First, empathy may have no relationships to offending. Instead, low intelligence may impact

offending behavior and empathic abilities separately; second, low intelligence may lead to low empathy, which in turn leads to offending behaviors; and third, deficits in executive functions specifically may independently contribute to low IQ scores, offending, and low empathy. For example, some research on psychopaths (Newman, Patterson, & Kosson, 1987) supports the link between executive functions deficits specifically and low empathy, but overall the literature to date is not conclusive and more investigation of these relationships is needed. More specifically, additional research is needed to understand which executive functions are necessary components to the development of healthy empathy. The present research takes a first step toward that goal by measuring perspective-taking skills (an ability related to executive functioning) and affective responding separately.

Notwithstanding the above, there does appear to be an additional factor in low SES individuals, beyond the contributions of cognition or IQ, that prevents them from experiencing healthy empathic responses, because when controlling for IQ only, the relationship between empathy and offending is lowered, but does not disappear. However, when SES is held contact, the relationship between empathy and offending disappears completely. One possible explanation is that violence is more prevalent in low-SES neighborhoods, and in those environments it may be more adaptive for individuals to develop a defensive distance from the suffering of others. If that is the case, then therapeutic interventions aimed at increasing sensitivity toward others would be effective in addressing empathy

deficits in this population. Thus, in order to help clarify the role of SES in the relationship between empathy and aggression, the present study will statistically control for and explore the impact of SES.

In spite of the findings mentioned above, the issue of which component, cognitive or affective, is more important in the development and maintenance of healthy empathy responses and in the prevention of aggressive behavior is complex, and clear relationships have yet to be substantiated. While cognitive functions clearly play a role in empathic accuracy, research has also found that deficits in the affective component of empathy contribute to aggressive behavior (Jolliffe & Farrington, 2006), and many contradictory results exist in the literature. For instance, in some studies, vicariously experiencing the pain or distress of another seems to inhibit acts of harm (e.g., Mehrabian & Epstein, 1972). Yet in other studies, victims' pain responses served as an indicator of successful goal achievement for the aggressor (e.g., Perry & Perry, 1974). Thus, it appears that witnessing the pain of others has a varying impact on individuals. For some, it prevents them from engaging in aggression, while others seem to view it as reward for their aggression. These contradictory results underscore the complexity of both empathy and aggression and parallel the findings in the literature on children and adolescents' bullying behavior where, much like in the literature on empathy and aggression in general, the relationship between empathy and bullying/aggressive behavior has not been conclusively established.

Nonetheless, it does seem that offenders in general have a tendency to misinterpret social cues. For instance, Mohr, Howells, Gerace, Day, and Wharton (2007) found that poor perspective-taking skills are linked to increased anger following interpersonal interactions. In their study, Mohr and colleagues (2007) presented over 600 male and female adult participants with video vignettes of two scenarios. For each scenario, two versions of the vignette were created: in one the transgression was ambiguous, in the other it was more evident. For example, one transgression scenario took place in a parking lot where a car waiting for a parking space is abruptly cut off by another driver who "steals" his space. In the ambiguous version, the driver "stealing" the parking space does not look at the camera (implying that he may not have noticed the driver waiting for the parking space), whereas is the low-ambiguity version, he looks directly at the camera and makes an obscene one-finger gesture.

In the study described above, Perspective-taking skills were assessed using the Interpersonal Reactivity Index (IRI; Davis, 1980; 1983). The IRI is a self-report measure of empathy and has four sub-scales: 1) perspective-taking (PT), which measures the cognitive appraisal component of empathy, 2) empathic concern (EC), which assesses affective empathy, 3) personal distress (PD), which evaluates the participant's tendency to become personally distraught and overwhelmed by the distress of others, and 4) fantasy (FS), which measures the participant's ability to use their imagination to immerse themselves in the experiences of fictional characters.

In Mohr et al.'s (2007) study, participants who got angry more often showed a tendency to attribute hostile intent to others more often. Interestingly, the hostile attribution bias exhibited by individuals with low perspective-taking skills was just as high in response to less ambiguous stimuli as it was in response to highly ambiguous stimuli. This suggests that a more global deficit in social cognition may be involved in aggressive behaviors. It appears that individuals who are quick to anger may be less accurate at interpreting social cues in general, and consequently may react with anger and aggression in situations that are innocuous. Thus, a hostile attribution bias may play a role in the link between low empathy and aggressive behavior. Furthermore, scores on the IRI (Davis, 1980; 1983) personal distress subscale were higher for participants who were prone to anger, indicating that those participants experienced increased emotional intensity and poor emotion regulation and an inward focus in response to the stimuli. This finding is consistent with previous research on emotional intensity and emotional regulation, which has linked personal distress to poor emotion regulation (Eisenberg et al., 1994). Individuals prone to anger also scored high on the fantasy subscale, indicating a greater tendency to imagine themselves involved in fictional scenarios. Taken together the finding on the PT, PD, and FS subscales suggest a portrait of an individual who tends to misinterpret the intent or perspective of others, easily creates fictitious scenarios in his/her head (such as perhaps imagining that other people are talking about him/her when they are not), and who has difficulty down-

regulating negative affective states when they arise. Such an individual would be prone to over-react or react inappropriately in a range of social situations, including situations where empathic behavior would be the normative response. Thus, it appears that both cognitive abilities (such as perspective-taking skills) and emotion regulation skills play a role in promoting or inhibiting aggressive behavior.

A review of the literature on the link between empathy and bullying specifically appears to indicate that this relationships is not as of yet as well established as the link between empathy and aggression or offending in general. While the literature on the general topic of bullying is extensive, the literature on bullying and empathy is minimal, and the few studies that have been conducted yielded inconclusive results (Jolliffe & Farrington, 2006). Some studies have found that aggressive children in general score low on empathy measures (e.g., Olweus, 1993; Sutton, et al., 1999), whereas others have found that this relationship holds true only for boys but not for girls (Gini et al., 2007); and some researchers found the opposite – that low empathy was more significantly related to bullying for females than for males (Jolliffe & Farrington, 2006). These contradictory findings could be explained by differences in methodology. Studies differ in how they defined bullying (for example, physical aggression vs. cyber-bullying) and in how empathy was conceptualized and measured. Yet, when examining the overall psychosocial adjustment of bullies, research does show that they are more aggressive and disruptive than other children (Pelligrini,

Bartini, & Brooks, 1999; Rigby & Cox, 1996). Moreover, when comparing clinical to non-clinical populations of adolescents, research shows strong associations between low empathy and conduct disorders, which are characterized by disruptive behavior, aggression, rule-breaking, and lack of respect for others (American Psychiatric Association, *DSM-IV-TR*, 2007).

Another possible explanation for the contradictory findings in the literature is that not all bullies have the same psychological and behavioral characteristics. More specifically, some children may be both bullies and simultaneously victims of other bullies. First identified about thirty years ago, Olweus (1978) referred to such children as "provocative victims," and this category of children has been given more attention in the more recent research on bullying (e.g., Solberg, Olweus, & Endresen, 2007; Unnever, 2005). These children, also referred to as "aggressive victims" or "bully-victims," appear to represent a distinct group. This group seems to experience a wider range of psycho-social and academic problems (Solberg et al., 2007), and are more rejected by both peers (Schwartz, Proctor, & Chien, 2001) and teachers (Olweus, 2001). And while no studies to date have been conducted specifically examining empathy deficits in this group of children, research has found that they are more emotionally and behaviorally dysregulated than pure bullies or pure victims (e.g., Schwartz, 2000; Toblin, Schwartz, Hopmeyer Gorman, & Abou-ezzeddine, 2005; Unnever, 2005). Thus, it is possible that researchers who do not examine this group of children separately would find different results that those who do.

In spite of the inconsistencies in research findings, some patterns have nonetheless begun to emerge in the last several years of research. Three general patterns that have emerged and merit further examination are: (a) cognitive and affective empathy seem to play different roles in girls versus boys, with affective empathy playing a bigger role in inhibiting girls' aggression while both cognitive and affective empathy are important in inhibiting boys' aggression; (b) cognitive and affective empathy appear to be differentially important in children versus adolescents (with cognitive empathy accounting for more variance in childhood) perhaps because children and adolescents are at different cognitive developmental stages; and (c) studies that use experiential procedures as opposed to survey and self-report methods find greater associations between empathy deficits and aggression (Lovett & Sheffield, 2007).

Gender. In examining gender differences, studies have found that girls who engage in aggressive behaviors (including relational aggression, which includes acts designed to exclude or ostracize others, to make them feel bad about themselves, etc.) do understand the emotional perspective of their victims on a cognitive or intellectual level, but are deficient in affective empathy. In other words, they are callous and unaffected by the suffering of their victims (Gini et al., 2007). In boys, however, poor perspective-taking skills are more strongly linked to bullying behavior than affective empathy (Ang & Goh, 2010). This finding is consistent with previous research showing that males in general have lower empathy than females (Baron-Cohen, 2005). Thus, what is likely happening is

that for boys, the affective component of empathy is not as relevant because accurate cognitive appraisal of others' emotions is a prerequisite to vicariously experiencing that emotion. If males in general have a lower ability to infer and accurately label the thoughts and feelings of others, it seems plausible that offending males may have even greater difficulty correctly inferring the intent and perspective of others. This lower perspective-taking ability combined with a hostile attribution bias may lead to greater anger and aggression.

Research has also found gender variation in the role of affective and cognitive empathy among adolescents who defend victims of bullying (Caravitaet al., 2010). For example, affective empathy played a stronger role in boys' defending behavior, but there were no gender differences in the role cognitive empathy played. Moreover, research on bully-victims indicates that these children are almost always male (Xu, Farver, Schwartz, & Chang, 2003). This suggests that closer examination of the different components of empathy (cognitive, affective, etc.) and their interactions with gender among all participants of bullying interactions (bullies, victims, bully-victims, defenders) is warranted.

Children vs. adolescents. Additionally, the need for further research to elucidate the developmental factors associated with bullying and aggression is underscored by research findings that there may exist sub-types of bullies and that these sub-types may have different developmental pathways and different empathy deficits (Gasser & Keller, 2009). For instance, Gasser and Keller (2009)

found that children who are bullies have deficits in what they termed *moral motivation*, which includes affective empathy, but children who are both bullies and victims (termed *bully-victims*) had a deficit in perspective-taking skills, or cognitive empathy. Some theorists (Mayberry & Espelage, 2007) have proposed that these differences may reflect a difference in instrumental versus reactive aggression. In other words, bullies may aggress from an instrumental motivation—that is, to achieve a predetermined goal, whereas bully-victims may aggress as a reaction to being bullied themselves. Some studies of children (e.g., Webster-Stratton & Spitzer, 1996) have found that aggressive children have difficulty with perspective-taking skills, while studies of adolescents (e.g., Gini et al., 2007) have found that deficits in affective empathy are more strongly linked to aggression. However, there continues to be inconsistent findings in the literature on this issue and more research is needed to clarify the effects of age.

Additionally, emotion regulation might moderate the link between empathy and bullying. In other words, some children (and adolescents) may be able to understand the distress of others, but are unable to regulate their own emotional reactions in order to behave appropriately. For example, a child might understand that hitting a peer can hurt the peer, but is unable to modulate his anger to prevent him from taking that aggressive action. Indeed, research on juvenile offenders has found that offenders compared to non-offenders score higher on personal distress, thus supporting the notion that emotion regulation

plays an important role in inhibiting aggressive responses (Lindsey, Carlozzi, & Eells, 2001).

In sum, it is clear that empathy deficits play an important role in the development and maintenance of bullying behavior; however, it is not as yet clear how the different components of empathy (e.g. cognitive and affective) interact with other factors, such as personal distress and emotion regulation, to predict if and how children and adolescents participate in bullying.

Survey vs. Experiential Methods

Another component that seems to impact the findings on empathy and aggression is the method used for measuring empathy. Some studies use survey methods such as Davis' (1983) Interpersonal Reactivity Index, while other studies have used a variety of laboratory procedures. For example, in their review of the literature on empathy deficits in aggressive children and adolescents, Lovett & Sheffield (2007) found that some studies use empathy-eliciting behavioral procedures, some use story vignettes, some measure vocal and facial expression, while others use parent and teacher ratings, or self-report questionnaires. It is not yet clear which measures are more accurate, and in spite of the different ways to measure empathy, most studies reviewed by Lovett & Sheffield did find a negative relationship between empathy and aggression, with studies using experiential procedures finding a stronger link between those variables.

Emotion Regulation

Research has confirmed that emotion regulation plays a role in positive social skills (Eisenberg, 2000), and some theorists (K. Balazs, personal communication, July 2, 2009) have proposed that children's ability to regulate their own emotions allows them to regulate the emotional climate of social groups, making them more liked among peers. Additionally, emotion can alter cognitions and influence an individual's ability to think in rational, moral ways (Eisenberg, 2000). In addition, children who have poor emotion regulation skills tend to violate social norms and are at risk for psycho-social maladjustment (Eisenberg, Liew, & Pidada, 2004). In short, self-regulation skills increase social competence (K. Balazs, personal communication, July 2, 2009), and emotion regulation abilities, negative emotionality, and shyness have all been shown to be predictors of social functioning and peer rejection (Eisenberg et al., 2004).

Emotions are a powerful motivator of human behaviors, and basic emotions such as anger and fear – and more cognitively complex or advanced emotions such as guilt, shame, and empathy – have been implicated in moral and immoral behavior (Eisenberg, 2000). For instance Eisenberg (2000) reported several findings related to empathy and behavior: 1) shame was associated with personal distress and is correlated with externalizing problems, including aggressive behavior, 2) sympathy and empathy were associated with increased prosocial behavior and decreased aggressive behavior, while personal

distress was negatively correlated to prosocial behavior. In other words, children who are unable to effectively regulate their own emotional arousal are less equipped to come to the aid of others. Similarly, individuals who are well regulated experience more sympathy toward others.

When children are overwhelmed by their own emotional response, they become focused on themselves, making it more difficult for them to focus on what others are experiencing (Eisenberg, 2000). Evidence from neurological studies is consistent with the notion that poor emotion-regulation skills are implicated in empathy deficits. For example, Decety et al. (2009) found that when viewing intentionally inflicted pain on others, adolescents with a diagnosis of conduct disorder showed no activation in the brain regions responsible for emotion regulation. Studies have also linked self-regulatory abilities in children to the long-term development of conscience and theory-of-mind skills (Stifter, Cipriano, Conway, & Kelleher, 2009). And, in studies of bulling, bully-victims have been found to me more emotionally dysregulated than other children (Haynie, Nansel, Eitel, Crump, Saylor, Yu, & Simmons-Morton, 2001) and experience more psychological distress (Cassidy and Taylor, 2005).

Moreover, there appears to be an optimum range of emotional arousal for empathic responding and prosocial behavior. Physiological research has provided empirical support for the theoretical viewpoint that both children who are under-aroused by another's distress and children who are over-aroused and/or unable to modulate their arousal are more at risk for developing aggressive and

anti-social behavior problems (Cole, Fox, Zahn-Waxler, Usher, & Welsh, 1996). Temperament also appears to play a role in children's experiences of emotion and ability to modulate those emotions. Many researchers (e.g., Lengua, West, & Sandler, 1998; Tangney, Wagner, & Gramzow, 1992; Stice & Gonzales, 1998) have found a link between temperamental negative emotionality and externalizing problems such as aggression (see Eisenberg, 2000). Additionally, temperament factors, including impulsivity and behavioral inhibition, are linked to the development of conscience and antisocial behavior (see Eisenberg, 2000; Eisenberg, Fabes, Guthrie, Murphy, & Maszk, et al., 1996; Stice & Gonzales, 1998).

Temperament: Behavioral Inhibition and Activation

Temperament is often understood to stem from biological predispositions that manifest as behavior tendencies toward either approach or withdrawal to novel stimuli, including social stimuli (Fox, Calkins, & Bell, 1994; Young, Fox, & Zahn-Waxler, 1999). For example, children who have approach temperaments would be expected to engage and explore unfamiliar situations, whereas children who tend to be withdrawn or inhibited would shy away out of fear or anxiety. Additionally, these temperamental tendencies are believed to be innate and related to physiological responding (Fox & Schmidt, 2002). In other words, individuals are born with a physiology that either facilitates curiosity and the approach of novel stimuli in the environment, or promotes anxiety or fear of

novelty. This explains, for example, why some people are quite comfortable meeting new people and quickly make themselves at ease, while others are nervous, shy and tend to avoid situations where they will have to interact with people they don't know.

Psychophysiological studies have found strong support for this idea. Researchers have found differences in the emotional and physiological reactivity of newborns (e.g., Field, Diego, Hernandez-Reif, & Fernandez, 2007; Jones, 2012; Simner, 1971), as well as support for a genetic link or cause for shy or inhibited behavior (Kagan & Fox, 2006). Most notably perhaps, Fox (1991; 2001) found not only that temperamental inhibition is linked to clear differences in physiology (EEG patterns, heart rate, and salivary cortisol), but that these differences are stable over time, in spite of any changes in overt behavior. In other words, while shy children tend to remain shy over time, even children who learn to behaviorally overcome their shyness still demonstrate an underlying physiology in which they experience heightened anxious arousal. This likely makes it more difficult for inhibited individuals to regulate or modulate their emotional responses, as these are responses that are felt at a visceral level and are associated with physiological changes such as increased heart rate and higher levels of stress hormones.

Consistent with this, research has demonstrated individual differences in how people experience their environments. Both children and adults who tend to be inhibited attend more closely to unpleasant stimuli, are more nervous, and

have more socio-emotional difficulties, whereas children and adults with approach temperaments attend more to pleasant stimuli, are happier, and are more psychologically well-adjusted (e.g., Carver & White, 1994; Coplan, Wilson, Frohlick, & Zelenski, 2006).

It follows then, that if inhibited children experience more anxiety and arousal when faced with new situations, they will have more negative emotionality to modulate when they witness another's distress. Thus, temperamentally inhibited children are less likely to assist others in distress, because they have to expend more focus and energy on attending to and regulating their own distress and arousal. Consistent with this framework, individual differences in empathy have been documented in toddlers (e.g., Jones, Field, Davalos, & Pickens, 1997), and infants who were unreactive at 4 months showed less empathy at 2 years of age (Young et al., 1999).

Historically (Schneirla,1959), approach and withdrawal were conceptualized to be two ends of one continuum. More recently, however, these dimensions, currently referred to in the literature as the behavioral activation system (BAS) and the behavioral inhibition system (BIS), are believed to be two separate components of personality. The BAS is believed to control approach behavior, while the BIS is believed to inhibit behavior (Scholten, Van Honk, Aleman, & Kahn, 2006). And consistent with the research on approach/withdrawal, BIS and BAS levels are stable over time and clinical state, and are thought to reflect stable personality traits (Scholten et al., 2006). The

BIS/BAS scales (Carver & White, 1994) were developed based on Gray's (1981) theoretical perspective that physiology undergirds behavioral approach or appetitive motivation, and are becoming increasingly used in studies of social and personality psychology (e.g., Cooper, Gomez, & Buck, 2008; Harmon-Jones, 2003; Hewig, Hagemann, Seifert, Naumann & Bartussek, 2006)

BAS has been associated with decreased cognitive self-regulation, extraversion, hyperactivity, and aggression (Coplan et al., 2006). Moreover, the BAS–fun seeking scale has been shown to predict aggressive behavior (Cooper et al., 2008), suggesting a possible link to impulse control, as high scores on the BAS Fun-Seeking scale have been linked to compulsive behaviors (Claes, Bijttebier, Mitchell, de Zwaan, & Mueller, 2010). This is consistent with the finding that individuals with higher BAS scores have higher rates of substance abuse and antisocial behavior than individuals with lower scores.

BIS, on the other hand, has been associated with increased self-regulation, neuroticism, anxiety, and emotional problems (Coplan et al., 2006). Inhibited children have been described as timid, fearful, and shy, and are at risk for developing anxiety disorders (van Brakel, Muris, & Bögels, 2004). But it is the interaction of the two systems that yields behavioral outcomes. To illustrate, an individual who is extremely high in Activation and extremely low in Inhibition is likely to be someone who is sensation-seeking and takes risks with little thought about consequences, whereas someone who is high in Activation but moderate to high in Inhibition is likely to have an assertive, engaged personality with some

degree of risk-taking, but his/her risk-taking behavior is the type that is measured rather than impulsive, where the individual might evaluate potential consequence before deciding to take action. Similarly, someone who is low in Activation and low in Inhibition may tend to be more withdrawn and shy, but because they lack appropriate levels of inhibition, may be easily influenced by others to participate in harmful activities. Coplan and colleagues (2006) suggest that the interaction between BIS and BAS is particularly important to study in children, as it appears that the combination of behavioral activation and behavioral inhibition is what influences children's affiliative behaviors. Only by understanding how the two systems interact can we fully understand the contributions of temperament to the development of empathy and prosocial behavior.

In the past, approach was theorized to be an appetitive motivation and withdrawal to reflect aversion. But in the last decade, research has shown that behavioral activation/inhibition are not the same as emotional valence. A 2003 study by Harmon-Jones challenged the notion that approach motivation is always associated with positive affect. In this study, he found that BAS correlated with anger and BIS correlated with aggression. Using the old approach/withdrawal framework, this finding would not make sense because anger and aggression would be expected to stem from the same motivational system. But Harmon-Jones' (2006) finding can be explained by examining emotion regulation. Individuals who engage more often with others may experience more anger, but

it is individuals who are unable to regulate anger who commit aggressive acts. And as stated before, low BIS correlates with poor impulse control.

Summary and Hypotheses

To summarize, for decades empathy has been thought to inhibit aggressive behavior and promote prosocial behavior such as aiding others in distress. By extension, if empathy inhibits aggression it should also inhibit bullying. However, as we have seen from the inconsistencies in the literature reviewed, social behavior is not so easily explained.

The purpose of the present study is two-fold: (a) to confirm that empathy, temperament, and emotion regulation interact to predict bullying and victimization, and (b) to explore the detailed nature of those interactions.

Based on the findings on empathy, social success, aggression, emotion regulation, and temperamental dispositions of the BIS and BAS, the present study proposes that these factors interact to predict which role children will play in the social phenomenon of bullying in schools. Specifically, I examined children involved in bullying with respect to roles: bullies, victims, defenders, and bully-victims. Empathy will be measured using Davis' (1983) Interpersonal Reactivity Index (IRI) and temperament will be assessed with Carver & White's (1994) Behavioral Inhibition Scale/Behavioral Activation Scale (BIS/BAS). Bullying-related behaviors (i.e., bullies, victims, etc.) will be measured using a modified

version of the Peer Nomination Inventory (Wiggins & Winder, 1961) in which children's behavioral characteristics are identified by their classmates.

Hypothesis 1: Children who score high on the aggression scale are expected to be high on BAS drive and fun-seeking and IRI personal distress and fantasy, and low on BIS, BAS reward-responsiveness, and IRI empathic concern and perspective-taking.

Hypothesis 2: Children who score high on the victimization scale are also expected to be low on IRI perspective-taking and BAS, and high on IRI fantasy, personal distress, and empathic concern, and BIS. This prediction is based on previous findings that children who are low in empathic accuracy are socially less successful than others and may be at greater risk of social rejection. Thus, I expect victimized children to be high on IRI sub-scales of fantasy, personal distress and empathic concern, but low on perspective-taking. I also predict that victimized children will score high on BIS and low on BAS. This would mean that these children may be more likely to be anxiety-prone, shy, and not fight back when taunted, thus making them "good victims."

Hypothesis 3: Children who score high on the protective/defender scale are expected to score high on IRI perspective-taking and empathic concern, BAS drive and reward responsiveness, and low on IRI personal distress. They are thought to have high empathy, specifically to score high on perspective-taking and empathic concern and low on personal distress (no predictions are being made for the fantasy sub-scale), and be high on BAS and low to moderate on

BIS, and therefore take action to defend victims. With respect to BAS, protective children are predicted to score high on drive and reward responsiveness, with no predictions being made for the fun-seeking sub-scale. Conversely, uninvolved children are expected to be low on both BIS and BAS. Because their tendency toward behavioral activation and engagement is lower, they are relatively uninterested in participating in the conflict in any way. But because they are also low on BIS, their lack of neuroticism makes them poor candidates to be selected as victims. Depending on their empathy skills, these children may either be ignored children, or children who are not popular (i.e., not well-known) but tend to get along well with others.

Hypothesis 4: Children who score high on the bully-victim scale are expected to be low on IRI perspective-taking, IRI empathic concern, and BIS, and high on IRI fantasy, IRI personal distress, and BAS. Based on previous research indicating that bully-victims are more emotionally dysregulated and more easily provoked (i.e., show a hostile attribution bias) and have greater difficulties forming and maintaining friendships, on the IRI these children are expected to be low on perspective-taking and empathic concern and high on fantasy and personal distress. On the BIS/BAS, they are expected to score high on BAS (on all three sub-scales) and low on BIS.

Based on structural equation modeling by Ross, Millis, Bonebright, and Bailley (2002) that suggests the BAS subscales should be treated as separate constructs (drive, fun seeking, reward responsiveness), these results will be

examined both as a whole, and separately. Similarly, the IRI will be examined both as an overall measure of empathy, and the IRI subscales will be analyzed individually.

CHAPTER 2

METHOD

Participants

Participants were middle school children recruited through a local public middle school. Appendix A shows a copy of the IRB approval letter. During data collection it was observed that the school seemed exceptionally well-run, that the staff seemed to have positive relationships with the students, and that the children were very polite and well behaved.

Of the 522 children in grades six through eight eligible to participate, 252 returned parental permission slips (see Appendix B), and two children declined assent (see Appendix C). Thus, 48.3% of eligible children participated in the study. Participants did not receive any compensation or reward for participation. All participants were treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 2002).

The sample consisted of 138 girls (54.8%) and 114 boys (45.2%), close to the proportions in the full student body (49.6% and 59.4%, respectively). Students in the sample ranged in age from 10 to 15 years, with a mean age of 11.9 (*SD*= 0.93), also close to the average age of all children or 12.7. Of the

total, 107 (42.5%) were sixth graders, 76 (30.2%) were seventh graders, 64 (25.4%) were eighth graders, and 5 (2.0%) failed to indicate their grade level. Ethnicity was specified as follows: White, non-Hispanic: 106 (42.1%, compared to 44.3% in the student population), African-American: 29 (11.5%, compared to 22.2% overall), Haitian, Caribbean Island, or other Hispanic: 69 (27.4%, compared to 30.5%), and Other, mixed, or declined to state: 48 (19.1). School records show other ethnicities as comprising only 3.1% of the student body, suggesting that many of the students who listed "other" or declined to state an ethnicity were officially counted in one of the three main ethnic groups. The education level of parents ranged from never completed high school to graduate degree, with the mean being 2 years of college. For parental family income, the range was under $17,000 to over $140,000, with a mean of approximately $60,000. This information was not available from the school, although it was known that 55.4% of children qualified for free or reduced school lunches.

Measures

The Interpersonal Reactivity Index (IRI; Davis, 1980). Empathy was measured using the Interpersonal Reactivity Index, a 28-item self-report questionnaire. This multidimensional scale is a widely used measure of empathy in both children and adults. The IRI has been shown to have good internal reliability, ranging from .71 to .77 (Davis, 1980; Mullins-Nelson, Salekin, & Leistico, 2006), high test re-test reliability in young adults, ranging from .62 to

.71, and is highly correlated with other measures of empathy (Davis, 1980; Davis & Franzoi, 1991). Additionally, the four sub-scales of the IRI have been successfully factored into four first-order factors, and two orthogonal dimensions representing empathy and emotional regulation (Pulos, Elison, & Lennon, 2004). Other researchers (Carey et al., 1988) have confirmed the item composition of the sub-scales using scree plot analysis of principal components and Varimax rotation.

The subscales of the IRI are: (a) *empathic concern*, which represents an affective dimension of concern for others and includes items such as "Sometimes I don't feel very sorry for other people when they are having problems," (b) *perspective taking*, which represents the cognitive appraisal component of empathy and includes items such as "Before I criticize somebody, I try to imagine how I would feel if I were in their place," (c) *personal distress*, which represents a second affective component measuring negative emotional arousal to another's distress and includes items such as "Being in a tense emotional situation scares me," and (d) *fantasy*, which measures tendency to identify with fictional characters and includes items such as "I really get involved with the feelings of a character in a novel." A copy of the IRI can be found in Appendix D.

The Behavioral Inhibition Scale / Behavioral Activation Scale (BIS/BAS; Carver & White, 1994). Based on Gray's (1972, 1981) theory that human behavior is guided by an aversive motivational system and an appetitive motivational system, and consistent with the approach/withdrawal

conceptualization of temperament (Fox et al., 1994; Young et al., 1999), the BIS/BAS Scale was used to assess individual differences in trait disposition. The BIS/BAS Scales are a 20-item self-report questionnaire consisting of a single scale for behavioral Inhibition and three sub-scales to measure behavioral activation. These subscales are: (a) *reward responsiveness*, which assesses the degree to which rewards induce positive emotions, (b) *drive*, which assesses motivation to pursue goals, and (c) *fun seeking*, which measures tendency to seek out and impulsively engage in rewarding activities. The BIS/BAS Scale has good reliability and validity (Carver & White, 1994) and has been shown to have good psychometric properties in both adult (Carver & White, 1994) and child samples (Muris, Meesters, Dekanter, & Timmerman, 2005). Overall, internal consistency scores range from .66 (Coplan et al., 2006) to .89 (Cooper et al., 2007). Appendix E contains a copy of the BIS/BAS.

Peer Nomination Inventory (PNI). The PNI is a 40-item questionnaire designed to measure several behavioral characteristics of children, including *aggression* toward peers, *victimization*, and *protective* behavior. The PNI is a modified version of the Peer Nomination Inventory first used by Wiggins and Winder (1961). It has undergone several revisions (e.g., Hodges & Perry, 1999; Yunger, Carver, & Perry, 2004). The version used in the present study was the Spring, 2003 version, obtained from D. G. Perry (personal communication, December 1, 2010). Psychometric characteristics of the PNI appear to be strong. Hodges and Perry (1999) reported stability coefficients of around .80 for

the subscales and high one-year test-retest stability (e.g., for aggression: *r*= .73; for victimization: *r*= .84). In the present study, Cronbach's alphas were .79 for aggression, .84 for victimization, and .86 for protective behavior; these scales are based on three items each. An example of the PNI (for one class's boys) is reproduced in Appendix F.

Procedure

An explanation of the study was given to the children, and the assent form was read aloud, with each child having a copy in front of him or her to follow along. Children were given an opportunity to ask questions about the study, the procedure, the assent form, and confidentiality. Children were also given the opportunity to refuse to participate in the study. The participants were told that by answering the questions truthfully to the best of their ability, they would be assisting the researchers in better understanding children and would be making an important contribution to the field of scientific psychology. The IRI and BIS/BAS were administered to participants in their regular classrooms. For the PNI, children were removed from their regular classrooms and brought to another room with desks and chairs. Only one child per classroom was brought to the PNI administration room at a time to avoid having the classmates each participant was rating in the room at the same time. After completing the PNI, participants returned their questionnaire to the researcher and were escorted back to their regular classroom.

CHAPTER 3

RESULTS

While causal relationships between variables cannot be confirmed in a correlational study, in discussing the results of the present research, the term *predictors* is used to refer to self-rated measures of empathy and temperament and *behaviors* to refer to the peer evaluations of children's interactions with others. The term *covariate* is used to refer to other information that could possibly be related to the main relationships between predictors and behaviors: age, grade level, SES of parents, and number of children participating in a class (all continuous variables) and gender and ethnicity (categorical variables).

Predictor Variables

Table 1 displays descriptive statistics for the predictor variables.

Table 1
Descriptive Statistics for Predictor Variables

	N	Min	Max	Mean	*SD*	Skew[a]
IRI						
Fantasy	241	0.00	4.00	2.16	0.81	0.05
Perspective-taking	241	0.29	4.00	2.21	0.69	-0.09
Empathic concern	241	0.71	4.00	2.63	0.63	-0.17
Personal distress	241	0.00	4.00	1.78	0.76	0.18
Total	241	3.14	14.57	8.79	1.99	-0.05
BAS						
Drive	235	1.00	4.00	2.63	0.67	0.05
Fun seeking	235	1.25	7.75	2.96	0.66	1.39
Reward responsiveness	235	1.20	4.00	3.43	0.49	-1.42
Total	235	5.20	13.40	9.02	1.36	-0.14
BIS total	235	1.00	7.57	2.90	0.63	1.49

[a]SE_{skew}= 0.16 for all.

Behaviors

As the study developed, both conceptually and after preliminary analysis of the data, it was found that PNI aggressive and PNI victimized scales were independent, so that a child high on one scale might be either high or low on the other. This meant that some of the children who might be regarded as bullies were also victims themselves. Furthermore, there appeared to be a distinct subgroup of children who were high on both—that is, there were more children with scores of 5 or more on each scale than would have been expected by chance. Therefore, in order to explore this subgroup of children, a bully-victim scale was generated by summing the normalized (*z*-scores) scores of the two

scales. To capture a tendency to be a “pure bully,” that is, one who bullies others but is not a victim, the normalized victimized scale was subtracted from the normalized aggressive scale.

Because of concerns regarding non-normality of distributions of the aggressive and victimized behavior measures, log and square-root transformations were performed. The log scales were still highly skewed and were dropped. Analyses for the first two stages of hypothesis testing were performed using both original and square-root transformed data to see if results differed. They differed very little, so the transformed scales were dropped and will not be presented here. Moreover, in reviewing previous studies using the PNI, other researchers (e.g., Hodges & Perry, 1999; Yunger, Carver, & Perry, 2004) have used the original scales and not transformed scores in their analyses. Descriptive statistics are shown in Table 2, and correlations among the behaviors are in Table 3.

PNI (behavior) scores indicate the proportion of nominations received for that behavior divided by number of possible nominations, which is the number of children rating each child multiplied by the number of questions for that scale. For example, the mean of 0.05 for aggressive behavior indicates that if a child was rated by 20 other children, a typical child would have received 3 nominations out of the 60 possible. The maximum of 0.53 indicates that for one child, more than half of the items relating to aggressive behavior were endorsed by the other children.

Table 2
*Descriptive Statistics for Behavior Scores (Proportion of Possible Nominations by Peers) (*N= *234)*

	Min	Max	Mean	*SD*	Skew[a]
Aggressive behavior	0.00	0.53	0.05	0.08	2.97
Victimized behavior	0.00	0.75	0.05	0.10	3.70
Protective behavior	0.00	0.58	0.19	0.11	0.71
Bully-victim behavior	-1.09	7.74	0.00	1.49	2.31
Pure bully behavior	-6.08	5.96	0.00	1.33	-0.49

[a]SE_{skew}= 0.16 for all.

Table 3
*Correlations among Behaviors (*N= *234)*

		PNI aggressive	PNI victimized	PNI protective	Bully-victim	Pure bully
PNI aggressive	*r*=	—				
PNI victimized	*r*=	.11	—			
PNI protective	*r*=	-.09	-.17***	—		
Bully-victim	*r*=	.75***	.75***	-.16*	—	
Pure bully	*r*=	.67***	-.67***	.07	.00	—

Note. Correlations among aggressive, bully-victim, and pure bully scales, and among victimized, bully-victim, and pure bully scales are inflated because the latter two scales were constructed from the PNI scales.
* *p*< .05; **p*< .01; ***p*< .001.

Covariates

Descriptive statistics for age, grade level, gender, and ethnicity were reported in the Method chapter. Age and grade level were strongly correlated at $r = .87$ ($p < .001$), so it was evident that these variables were largely redundant. In addition, data were available on the number of children participating in each class. This value ranged between 5 and 22, with a mean of 13.86, and *SD* of 4.31. Normal transformations of the reported parental income and educational level were added to yield a measure of socioeconomic status (SES). Finally, because some race/ethnic categories had only a few cases, smaller ones were combined to yield four groups: White (n=106), African-American (n= 29) Haitian/Caribbean Island (n= 52), and Hispanic, other, mixed or not reported (n= 52). Potential covariates were evaluated to see if they were related to predictors and behaviors. Table 4 shows the results for continuous covariates.

Table 4
Correlations between Continuous Prospective Covariates and Predictors and Behaviors

		Grade	Age	SES	Number students participating
IRI total	*r*=	.01	.02	-.09	.07
IRI fantasy mean score	*r*=	.03	-.02	-.07	.16*
IRI perspective-taking mean score	*r*=	-.06	-.05	-.04	.09
IRI empathic concern mean score	*r*=	.11	.12	-.05	.07
IRI personal distress mean score	*r*=	-.04	.01	-.09	-.14*
BAS total	*r*=	.11	.04	.04	.05
BAS drive mean score	*r*=	.02	.01	.03	.07
BAS fun seeking mean score	*r*=	.15*	.08	.04	.01
BAS reward responsive mean score	*r*=	.07	-.01	.02	.04
BIS total	*r*=	-.08	-.08	-.15*	.13*
Aggressive behavior	*r*=	.01	-.01	.00	-.19**
Victimized behavior	*r*=	.15*	.17**	-.07	-.08
Protective behavior	*r*=	.07	.08	-.02	-.23***
Bully-victim behavior	*r*=	.10	.11	-.05	-.18**
Pure bully behavior	*r*=	-.11	-.14*	.06	-.08

Note. *N*s ranged between 229 and 241 due to scattered missing data.
* *p*< .05; **p*< .01; ***p*< .001.

Age was used as a covariate rather than grade, since it was slightly more sensitive to other variables, there was a wider range of scores on age (10-15) than on grade (6-8), and five scores on grade were missing. Table 5 shows that females scored significantly higher on many of the predictors and on protective behavior. For race/ethnicity, it might be noted that there were no significant differences in SES across ethnic groups, $F(3, 228)= 1.74$, *ns*. One-way ANOVAs were performed across ethnic groups with each of the predictors and behaviors as dependent variables. Groups differed significantly only on protective behavior, $F(3, 228)= 4.96$, $p< .01$. African-Americans and Haitians/Caribbean Islanders were evaluated as higher on protective behavior than whites or other groups. Specifically, means and *SD*s were as follows: African-American: $M= 0.26$, $SD= 0.12$; Haitian/Caribbean Islander: $M= 0.21$, $SD= 0.12$; White: $M= 0.18$, $SD= 0.10$; and others: $M= 0.18$, $SD= 0.11$.

Table 5
Comparison of Males and Females on Predictors and Behaviors

	Gender	Mean	*SD*	*t*[a]
IRI total	Male	8.17	2.02	-4.44***
	Female	9.27	1.83	
IRI fantasy score	Male	1.97	0.80	-3.30***
	Female	2.31	0.79	
IRI perspective-taking score	Male	2.13	0.65	-1.75
	Female	2.28	0.71	
IRI empathic concern score	Male	2.48	0.63	-3.40***
	Female	2.75	0.61	
IRI personal distress score	Male	1.59	0.77	-3.50***
	Female	1.93	0.71	
BAS total	Male	8.87	1.33	-1.54
	Female	9.14	1.38	
BAS drive score	Male	2.65	0.67	0.47
	Female	2.61	0.68	
BAS fun seeking score	Male	2.86	0.62	-2.21*
	Female	3.05	0.68	
BAS reward responsive score	Male	3.36	0.53	-1.96
	Female	3.48	0.46	
BIS total	Male	2.73	0.58	-3.72***
	Female	3.03	0.64	
Aggressive behavior	Male	0.06	0.09	1.27
	Female	0.04	0.07	
Victimized behavior	Male	0.05	0.11	1.04
	Female	0.04	0.09	
Protective behavior	Male	0.16	0.09	-4.15***
	Female	0.22	0.12	
Bully-victim behavior	Male	0.17	1.66	1.55
	Female	-0.13	1.34	
Pure bully behavior	Male	0.02	1.51	0.17
	Female	-0.01	1.18	

[a] *df*= 232 to 239 due to scattered missing values.
* *p*< .05; **p*< .01; ***p*< .001.

In summary, IRI scores were largely unrelated to continuous variables, but girls were higher on 4 of the 5 scales. There was also a small relationship with number of students participating in each class. BAS scores were also largely unrelated to covariates, except to gender: girls scored bit higher in fun seeking than boys. BIS total was the only variable related to SES, such that higher SES was associated with lower BIS. BIS was strongly related to gender, such that girls scored higher than boys. Among the behaviors, interestingly, older children tended to be victims more often than younger children. However, aggressive behavior appeared to be virtually identical across grades and age. Furthermore, older children tended to be lower on pure bully behavior.

Aggressive, protective, and bully-victim behaviors were all negatively related to number of participants in the class. That is, in classes in which few children participated, these scores were higher. With protective behavior, girls were higher than boys, and so were African-American and Haitian and Caribbean Island groups, compared to whites and all others.

Hypotheses in Terms of Continuous Variables

Table 6 summarizes the hypotheses as correlations between individual predictors and individual behaviors expected to be as shown.

Table 6
Hypotheses in Terms of Continuous Variables.

	Behavior				
Predictor	Aggr-essive	Victim-ized	Protect-ive	Bully Victim	Pure bully
IRI total	-	-	+	-	-
Fantasy	+	+	0	+	+
Perspect-taking	-	-	+	-	-
Empathic concern	-	+	+	-	-
Personal distress	+	+	-	+	+
BAS total	+	-	+	+	+
Drive	+	-	+	+	+
Fun seeking	+	-	0	+	+
Reward respons	-	+	+	+	-
BIS	-	+	-	-	-

Note. - = significant negative correlation; + = significant positive correlation; 0 = not significant

Hypothesis Tests

Hypotheses were tested in three stages. Stage 1 was a comparison of each individual predictor with each behavior using Pearson *r* statistics, as in Table 6. Stage 2 involved combining the predictors in stepwise multiple

regressions, one for each behavior. This was done in three steps: First, the subscales within IRI and (separately) BAS were combined to see how they related to each other in terms of predicting each behavior. Second, the three total scores (IRI, BAS, BIS) were combined to predict each behavior. Third, the seven subscales plus BIS were combined in multiple regressions to predict the behaviors. All multiple regressions reported in this chapter were stepwise. That is, the analysis automatically enters the predictor with the strongest predictive ability first, and then subsequent predictors are entered in the order in which they contribute additional predictive ability.

Stage 3 tested whether the relationships seen in Stage 1 would differ with the inclusion of covariates. The covariates were: race/ethnicity, gender, age, combined SES (income + education), and number of children participating in each class. For some analyses, the interaction of age and predictor was also included.

Stage 1 of Analysis

For a basic test of hypotheses, each predictor was correlated with each behavior. Results are displayed in Table 7.

Table 7
*Correlations between Predictors and Behaviors (*N= *226)*

Predictor		Behavior				
		Aggres-sive behavior	Victimized behavior	Protective behavior	Bully-victim behavior	Pure bully behavior
IRI total	*r*=	-.06	.04	.01	-.01	-.08
IRI fantasy	*r*=	-.05	.15*	-.05	.06	-.15*
IRI perspect-ive-taking	*r*=	-.04	-.07	-.02	-.07	.02
IRI empathic concern	*r*=	-.09	.09	.00	.00	-.14*
IRI personal distress	*r*=	.01	-.06	.11	-.03	.05
BAS total	*r*=	.11	.10	.08	.14*	.01
BAS drive	*r*=	.22***	.11	-.02	.22***	.08
BAS fun seeking	*r*=	.03	.02	.08	.03	.00
BAS reward responsive	*r*=	-.04	.11	.14*	.05	-.11
BIS total	*r*=	-.17*	.07	.01	-.07	-.18**

*p< .05; **p< .01; ***p< .001.

Of the 48 hypothesized relationships, nine were supported. It was expected that aggressive behavior would be related positively to BAS drive and negatively to BIS, and both these predictions were confirmed. However, the other eight predictions concerning aggressive behavior were not supported (see Table 6).

For victimized behavior, results were even weaker. Victimized behavior correlated significantly with IRI fantasy as predicted, but all other tests of hypotheses concerning victimized behavior were non-significant (see Table 6). For protective behavior, there had been eight hypotheses, of which one (a positive correlation with BAS reward responsiveness) was confirmed. Of the 10 hypotheses concerning bully-victim behavior, two were supported (positive correlations with BAS total and BAS drive). With the pure bully behavior scale, three of the 10 hypotheses were supported (negative relationships with IRI fantasy, IRI empathic concern, and BIS).

From the perspective of the predictors, it was clear that BAS drive was the most sensitive predictor of behaviors. Two of the five hypotheses concerning it were strongly supported. BIS scores were also good predictors of some behaviors.

Stage 2 of Analysis

Stage 2 was concerned with whether predictors, combined, were significantly related to the behaviors. In Step 1, the subscales of IRI and BAS were examined. Table 8 shows results for aggressive behaviors. This table summarizes the results of two separate multiple regressions: with aggressive behavior scores as the outcome and with IRI subscales and BAS subscales as separate groups of predictors. It is clear from these results that only BAS drive was a significant predictor of aggression.

Table 8
Regression Analysis Summary for Predictors of Aggressive Behaviors, IRI and BAS Subscales Separately

Behavior measure Predictor	*B*	SE_B	β	R^2	Signif. test
Aggressive behavior				0.011	$F_{(4, 221)}$= 0.62
IRI fantasy	-0.003	0.007	-0.028		
IRI perspective-taking	0.001	0.009	0.013		
IRI empathic concern	-0.013	0.010	-0.103		
IRI personal distress	0.005	0.007	0.045		
Aggressive behavior				0.061	$F_{(3, 222)}$= 4.80**
BAS drive	0.030	0.008	0.260***		
BAS fun seeking	-0.002	0.008	-0.015		
BAS Reward Responsive	-0.020	0.012	-0.117		

*p< .05; **p< .01; ***p< .001.

Table 9 shows parallel results using the measure of victimized behavior as outcomes. Here, IRI fantasy and perspective-taking combined to significantly predict the victimized behavior measure. Both of these predictors were in the direction hypothesized. BAS subscales were ineffective in predicting victimization.

Table 9
Regression Analysis Summary for Predictors of Victimized Behaviors, IRI and BAS Subscales Separately

Behavior measure Predictor	*B*	SE_B	β	R^2	Signif. test
Victimized behavior				0.058	$F_{(4, 221)}$= 3.40*
IRI fantasy	0.022	0.009	0.172*		
IRI perspective-taking	-0.027	0.011	-0.184*		
IRI empathic concern	0.025	0.013	0.154		
IRI personal distress	-0.014	0.009	-0.103		
Victimized behavior				0.019	$F_{(3, 222)}$= 1.46
BAS drive	0.014	0.011	0.089		
BAS fun seeking	-0.006	0.011	-0.041		
BAS reward responsive	0.022	0.016	0.096		

*p< .05; **p< .01.

Table 10 presents the results of six multiple regressions for the combinations of IRI subscales and BAS subscales as predictors and protective, bully-victim, and pure bully scales as outcome measures. Here the only significant results were for bully-victim behavior predicted by BAS, in which clearly only BAS drive was influential, and for the pure bully scale and IRI subscales. In the latter, fantasy and empathic concern both contributed to the prediction, accounting for 5.8% of the variance in the behavior.

Table 10

Regression Analysis Summary for Predictors of Protective, Bully-Victim, and Pure Bully Behaviors, IRI and BAS Subscales Separately

Behavior measure Predictor	*B*	SE_B	β	R^2	Signif. test
Protective behavior				0.016	$F_{(4, 221)}$= 0.91
IRI fantasy	-0.009	0.010	-0.063		
IRI perspective-taking	-0.004	0.013	-0.022		
IRI empathic concern	0.000	0.015	-0.002		
IRI personal distress	0.019	0.011	0.122		
Protective behavior				0.028	$F_{(3, 222)}$= 2.10
BAS drive	-0.015	0.012	-0.087		
BAS fun seeking	0.010	0.013	0.058		
BAS reward responsive	0.037	0.018	0.148*		
Bully-victim behavior				0.016	$F_{(4, 221)}$= 0.87
IRI fantasy	0.180	0.137	0.096		
IRI perspective-taking	-0.246	0.171	-0.114		
IRI empathic concern	0.081	0.198	0.033		
IRI personal distress	-0.078	0.142	-0.039		
Bully-victim behavior				0.049	$F_{(3, 222)}$= 3.84*
BAS drive	0.524	0.158	0.235**		
BAS fun seeking	-0.086	0.165	-0.037		
BAS reward responsive	-0.047	0.236	-0.014		
Pure bully behavior				0.058	$F_{(4, 221)}$= 3.40*
IRI fantasy	-0.251	0.119	-0.150*		
IRI perspective-taking	0.285	0.149	0.148		
IRI empathic concern	-0.416	0.172	-0.193*		
IRI personal distress	0.199	0.124	0.111		
Pure bully behavior				0.029	$F_{(3, 222)}$= 2.20
BAS drive	0.257	0.143	0.129		
BAS fun seeking	0.039	0.149	0.019		
BAS reward responsive	-0.470	0.213	-0.160*		

*p< .05; **p< .01.

Step 2 of the analysis was to include the total scores of the three separate predictors (IRI total, BAS total, and BIS total) in multiple regressions on the outcome behaviors. The analysis of aggressive behaviors yielded a significant result (R^2= .045, $F_{(3.\ 221)}$= 3.47, p< .05). In this analysis, the only significant predictor was BIS total (beta= -.190, p< .05). In analyses with the other four behavior scales, overall R^2 did not reach significance. In two, however, individual predictors were significant: Using bully-victim behavior as the outcome, BAS total was significant (beta= .148, p< .05), and using pure bully as the outcome, BIS total was significant (beta= -.187, p< .05). These results mirror the pattern of significances seen in Table 7, in which the only significances among the total score predictors were BIS total for aggressive, BAS total for bully-victim, and BIS total for pure bully behaviors.

In the third step of the Stage 2 analysis, the goal was to see whether all the predictors combined could significantly predict the outcome behaviors. Table 11 shows the results of two multiple regressions in which the IRI subscales, the BAS subscales, and the BIS scale were used as predictors of the measure of aggressiveness. In both analyses, BAS drive and the BIS scales were strong significant predictors, with all others correlations being nonsignificant. The predictors accounted for around 10% of the variance in aggressive behavior.

For victimized behavior, as Table 12 shows, only IRI perspective-taking had a significant impact on predicting behavior, and this was quite weak. Table 13 shows the results of similar analyses for protective, bully-victim, and pure

bully scales as outcome measures. As with previous analyses using protective behavior as the outcome, results were very weak. Bully/victim behavior was predicted moderately by the scales, but again this was due almost entirely to BAS drive. The scale measuring bullying behavior without victimization was significantly predicted by the variables. Those accounted for 10.2% of the variance in the pure bully scale, and here more than a single predictor contributed, with IRI personal distress and BIS significant in the directions hypothesized, and some others were close to significance.

Table 11
Regression Analysis Summary for Predictors of Aggressive Behaviors, IRI and BAS Subscales and BIS Scale Combined

Behavior measure Predictor	*B*	SE_B	β	R^2	Signif. test
Aggressive behavior				0.098	$F_{(8, 216)}$= 2.93**
IRI fantasy	0.004	0.007	0.039		
IRI perspective-taking	0.001	0.009	0.007		
IRI empathic concern	-0.006	0.010	-0.052		
IRI personal distress	0.012	0.008	0.113		
BAS drive	0.029	0.008	0.251***		
BAS fun seeking	-0.003	0.008	-0.026		
BAS reward responsive	-0.016	0.013	-0.094		
BIS total	-0.025	0.010	-0.205***		

*p< .05; **p< .01; ***p< .001.

Table 12
Regression Analysis Summary for Predictors of Victimized Behaviors, IRI and BAS Subscales and BIS Scale Combined

Behavior measure Predictor	*B*	SE_B	β	R^2	Signif. test
Victimized behavior				0.074	$F_{(8, 216)}$= 2.16*
IRI fantasy	0.019	0.010	0.146		
IRI perspective-taking	-0.026	0.011	-0.176*		
IRI empathic concern	0.025	0.013	0.155		
IRI personal distress	-0.018	0.010	-0.128		
BAS drive	0.016	0.011	0.108		
BAS fun seeking	-0.009	0.011	-0.055		
BAS reward responsive	0.011	0.017	0.050		
BIS total	0.008	0.013	0.046		

*p< .05.

Table 13

Regression Analysis Summary for Predictors of Protective, Bully-Victim, and Pure Bully Behaviors, IRI and BAS Subscales and BIS Scale Combined

Behavior measure Predictor	*B*	SE_B	β	R^2	Signif. test
Protective behavior				0.047	$F_{(8, 216)}$= 1.34
IRI fantasy	-0.014	0.011	-0.102		
IRI perspective-taking	-0.003	0.013	-0.018		
IRI empathic concern	-0.003	0.015	-0.014		
IRI personal distress	0.020	0.011	0.130		
BAS drive	-0.017	0.012	-0.099		
BAS fun seeking	0.010	0.013	0.058		
BAS reward responsive	0.043	0.019	0.172*		
BIS total	-0.007	0.014	-0.041		
Bully-victim behavior				0.073	$F_{(8, 216)}$= 2.13*
IRI fantasy	0.232	0.144	0.124		
IRI perspective-taking	-0.245	0.169	-0.113		
IRI empathic concern	0.165	0.197	0.068		
IRI personal distress	-0.019	0.151	-0.009		
BAS drive	0.539	0.161	0.241***		
BAS fun seeking	-0.125	0.166	-0.054		
BAS reward responsive	-0.098	0.251	-0.030		
BIS total	-0.259	0.189	-0.107		
Pure bully behavior				0.102	$F_{(8, 216)}$= 3.08**
IRI fantasy	-0.135	0.127	-0.080		
IRI perspective-taking	0.264	0.148	0.137		
IRI empathic concern	-0.335	0.173	-0.155		
IRI personal distress	0.325	0.133	0.181*		
BAS drive	0.216	0.141	0.108		
BAS fun seeking	0.045	0.146	0.022		
BAS reward responsive	-0.321	0.220	-0.109		
BIS total	-0.407	0.166	-0.189*		

*p< .05; **p< .01; ***p< .001.

Stage 3 of Analyses

Stage 3 of the analyses tested whether the relationships seen in Stage 1 would differ with the inclusion of covariates. As described in a previous section, age, gender, and number of students participating were frequently associated with predictors and/or behaviors, so they were used in all analyses. SES was related only to BIS (see Table 7), so that covariate was included only in analyses that used BIS as the predictor. Finally, race/ethnicity was associated only with protective behavior (see Table 7), so that was included only in analyses with that behavior.

Note that several descriptions of the analyses in this stage refer to Table 7. In effect, the question asked in this stage is, "Are any of the relationships shown in Table 7 affected if additional predictors are included as covariates along with the 10 main predictors?" The analyses consisted of multiple regressions with each behavior as the outcome and with each predictor in turn with the addition of one covariate at a time. Condensed summaries of the multiple regression results can be found in Appendixes G through L.

Predicting aggressive behavior. Despite the strong relationship of IRI with gender, including gender along with IRI total and subscales did not yield any significant predictions of aggression. BAS total combined with gender was not significant, nor were fun seeking or reward responsiveness.

With BAS drive, overall results were strongly significant, $R = .235$, $R^2 = .055$, $F(2,223) = 6.50$, $p < .01$, but this was true of drive alone. Including gender

improved the relationship only slightly; the Pearson correlation (see Table 7) between drive and aggressive behavior had been *r* = .218. Table 14 shows the results of the multiple regression.

Table 14
Summary of Multiple Regression with Gender and BAS Drive as Predictors and Aggressive Behavior as Outcome

	Unstandardized Coefficients		Standard-ized Coefficients		
Predictor	B	Std. Error	Beta	*t*	Sig.
Gender	-0.014	0.010	-0.088	-1.345	0.180
BAS drive	0.025	0.007	0.217	3.339	0.001

With BIS total, including gender yielded a significant result, but like BAS drive, BIS had already had a significant relationship with aggressive behavior, and adding gender only slightly improved that. BIS was also related to SES, but including SES along with BIS made no difference.

Aggressive behavior was also related to number of student participants in a class. Predictions using IRI, BAS, and BIS were re-run including this variable as a covariate. In every case, number of students was a very strong predictor of aggressive behaviors, but including it as a covariate did not change the pattern of results seen in Table 7, namely, only BAS drive and BIS total were significant predictors.

Analyses were re-run including age as a second predictor. Results were very similar to those using gender as a second predictor. That is, the same two predictors of BAS drive and BIS total were significant, but the addition of age made very little difference to the predictive power. For example, as Table 7 showed, BAS drive alone correlated significantly with aggressive behavior at r = .22, p< .001. The combined predictors in the multiple regression correlated at only r = .224, p= .004, R^2= .050, F(2,215)= 5.65. Results are summarized in Table 15.

Table 15
Summary of Multiple Regression with Age and BAS Drive as Predictors and Aggressive Behavior as Outcome

	Unstandardized Coefficients		Standardized Coefficients		
Predictor	B	Std. Error	Beta	*t*	Sig.
Age	0.000	0.006	-0.006	-0.094	0.925
BAS drive	0.026	0.008	0.223	3.362	0.001

Finally, each predictor was entered along with age and the interaction of age and the predictor. In this set of analyses, results were generally non-significant. As Table 16 shows, the previously strong relationship between BAS drive and aggressive behavior was rendered weaker by the addition of age and age × BAS drive, r = .224, R^2= .050, F(2,214)= 3.75, p< .05. However, none of the three predictors were significant in themselves. Appendix G summarizes all analyses conducted for this section.

Table 16

Summary of Multiple Regression with Age, BAS Drive, and their Interaction as Predictors and Aggressive Behavior as Outcome

	Unstandardized Coefficients		Standard-ized Coefficients		
Predictor	B	Std. Error	Beta	*t*	Sig.
Age	0.006	0.023	0.072	0.264	0.792
Age × BAS_drive	-0.003	0.009	-0.280	-0.296	0.768
BAS drive	0.056	0.104	0.491	0.542	0.589

Predicting victimized behavior. As with predicting aggressive behavior, the main candidates as covariates for victimized behavior were gender, SES (along with BIS only), and number of participants. In all 21 analyses, results were essentially the same as in Table 7. That is, only IRI fantasy was a significant predictor of the behavior. Victimized behavior was also associated with age, so the analyses using the 10 predictors were repeated including this as the covariate, and finally, with the age and the age × predictor covariate along with each predictor. These results also showed no advantage in including age as a covariate, and as in the predictions of aggressive behavior, including the interaction term weakened the relationship such that no analyses were significant (see Appendix H).

Predicting protective behavior. The pattern of covariate relationships with protective behavior was similar to those with victimized, so the 41 analyses

above were repeated with protective behavior as the outcome variable. Again, results were very similar to those shown in Table 7. That is, the only predictor related to protective behavior was BAS reward responsiveness (with number of students participating); however, with gender and age or age × predictor included, the BAS reward responsiveness–protective relationship fell below significance. These results are summarized in Appendix I.

As noted above, protective behavior was related to ethnicity, so that characteristic, in the form of three dummy variables, was used as a covariate (see Appendix J). Results of one of the analyses are shown in Table 17. In Table 7, it can be seen that the only predictor with which protective behavior correlated significantly was BAS reward responsiveness, $r = .14$, $p < .05$. By adding the ethnicity dummy variables, the predictive relationship was raised to $r = .291$, $R^2 = .085$, $F(4,224) = 5.12$, $p < .001$; however, this improvement in predictive strength was due to the addition of ethnicity; reward responsiveness fell to insignificance.

Table 17
Summary of Multiple Regression with Race/ethnicity Dummy Variables and BAS Reward Responsiveness as Predictors and Protective Behavior as Outcome

	Unstandardized Coefficients		Standard-ized Coefficients		
Predictor	B	Std. Error	Beta	*t*	Sig.
Dummy White	0.010	0.020	0.042	0.490	0.625
Dummy AfAm	0.095	0.027	0.268	3.540	0.000
Dummy Haitian/Carib	0.038	0.022	0.146	1.747	0.082
BAS reward responsive	0.030	0.016	0.120	1.850	0.066

Predicting bully-victim behavior. The 41 analyses were repeated with the bully-victim behavior score as the outcome measure. As previously, the addition of these covariate predictors did not improve predictive ability of the 10 main predictors, and the addition of the interactions with age yielded all non-significant results (Appendix K).

Predicting pure bully behavior. As with the previous outcome measures, adding covariate predictors to the main ones did not improve prediction. In fact, in three cases, it reduced predictive strength. Table 18 shows the result for the inclusion of number of students participating along with IRI empathic concern. As Table 7 showed, this predictor by itself correlated at r = -.14, p< .05, but with the addition of number of students participating, R = .160 approached significance, R^2= .025, $F_{(2,223)}$= 2.92, p= .056. Similar results were found with the

inclusion of age and of age plus the interaction of age and empathic concern. Appendix L summarizes the analyses performed for this section.

Table 18
Summary of Multiple Regression with Number of Students Participating and IRI Empathic Concern *as Predictors and Pure Bully Behavior as Outcome*

	Unstandardized Coefficients		Standard-ized Coefficients		
Predictor	B	Std. Error	Beta	*t*	Sig.
Number of students particip in class	-0.026	0.021	-0.081	-1.228	0.221
IRI empathic concern	-0.281	0.143	-0.130	-1.965	0.051

In summary, the modest ability of the IRI, BAS, and BIS scales to predict the various bullying-related behaviors was not improved by including other variables as covariates.

CHAPTER 4

DISCUSSION

Summary of Results

The present research investigated the links between empathy, temperament, and involvement in bullying in middle-school children. Generally, it was hypothesized that children who are less empathic would be more involved in bullying, either as victims, perpetrators, or both. It was further hypothesized that children who demonstrate more behavioral activation and who are less inhibited would show either more aggressive behaviors or more protective behaviors, and that inhibited, withdrawn children would be more at risk for victimization. Overall, many of the main hypotheses of this study were not supported, although a few were, and exploratory analyses of the measurement sub-scales yielded some interesting findings that merit further investigation.

Correlational analyses indicated that the measures of aggressive behaviors and victimization are separate scales and do not represent opposite ends of one continuum. However, some children score high on both aggressive behaviors and victimization, thus lending support to the concept of the bully-victim, who may present a different psychological profile than aggressive children (i.e., pure bully) or victimized children (i.e., pure victim). Additionally, the negative

correlation between victimization and protectiveness suggests that children high on either have mutually exclusive personality traits. That is, some of the characteristics of protective children insulate them to some significant degree from victimization by peers. Similarly, some of the characteristics of victimized children prevent them from engaging in protective behaviors.

Evaluation of Hypotheses

The main hypotheses of this study were related to the predictive value of empathy (as measured by the IRI) and temperament (as measured by the BIS/BAS) in the roles children play in bullying interactions. Specifically, the roles examined were: children who scored high on the aggression scale (referred to as aggressive children or bullies), victimized children (i.e., children who scored high on the victimized scale), and protective children (i.e., children who scored high on the protective scale). Additionally, based on previous work (Solberg et al., 2007) demonstrating that a distinct group of children are both victimized by peers and aggressive toward peers, a bully-victim scale was examined as a separate construct. Similarly, a pure-bully scale was also constructed and analyzed (pure-victim children would be those scoring very low on this scale).

Hypothesis 1: Children who score high on the aggression scale are expected to be high on BAS drive and fun-seeking and IRI personal distress and fantasy, and low on BIS, BAS reward-responsiveness, and IRI empathic concern and perspective-taking. It was expected that aggressive children would score

low on overall empathy, high on BAS and low on BIS. And conversely it was expected that less aggressive children would score high on overall empathy, low on BAS and high on BIS. This hypothesis was only partially supported. Aggressive children scored higher on BAS and lower on BIS, but there was no significant result for the relation between aggression level and empathy.

Hypothesis 2: Children who score high on the victimization scale are also expected to be low on IRI perspective-taking and BAS, and high on IRI fantasy, personal distress, and empathic concern, and BIS. For victimized children, it was predicted that they would score low on empathy, low on BAS and high on BIS. These predictions were not supported, although some interesting results were found when examining subscales of the measure of empathy individually. These will be discussed below.

Hypothesis 3: Children who score high on the protective/defender scale are expected to score high on IRI perspective-taking and empathic concern, BAS drive and reward responsiveness, and low on IRI personal distress. Protective children were expected to be high on empathy, high on BAS and low on BIS. Unfortunately, these predictions were not supported in the present study, except that concerning reward responsiveness, discussed below.

Hypothesis 4: Children who score high on the bully-victim scale are expected to be low on IRI perspective-taking, IRI empathic concern, and BIS, and high on IRI fantasy, IRI personal distress, and BAS. After noting that a relationship existed between those who were bullies and those who were also

victims, I expected that bully-victim children would score low on empathy, high on BAS and low on BIS. Similar to the predictions for aggressive children, these hypotheses were only partially supported. Bully/victims scored high on BAS, but I did not achieve significant results on empathy measures or BIS. And finally, pure bully children were also thought to be low on empathy, high on BAS and low on BIS. Two of these hypotheses were supported. Pure bully children scored low on empathy and low on BIS, but did not differ from other children on BAS.

With regard to the exploratory analyses of the sub-scales, some interesting findings did emerge, although most of the results were non-significant. For aggressive behavior, including bully-victim but not pure bully, BAS-drive (a measure of activation related specifically to persistent pursuit and motivation to achieve desired goals) accounted entirely for the elevation in BAS scores. Thus, for aggressive behaviors, fun-seeking and reward responsiveness did not play a significant role.

The present results on empathy and aggression are not fully consistent with previous research on this topic (see Jolliffe & Farington, 2004). Unfortunately there were only a few significant results on the individual empathy sub-scales. Pure-bully children scored low on fantasy and on empathic concern. This indicates that children who victimize others, but who are not victimized themselves, have difficulty immersing themselves in the experience of fictional characters (such as in books or movies) and lack affective empathy, that is, the ability to vicariously experience the emotional state of others or to experience

some form of compassion. Victimized children scored low on the perspective-taking (cognitive empathy) sub-scale of the IRI. That is, they have difficulty inferring and accurately labeling the emotional states of others. All other analyses of sub-scales were non-significant.

Discussion of the Results for Each Behavior

Aggressive, Bully-Victim, and Pure Bully

Previous research has demonstrated a link between empathy and aggression, in that individuals who score lower on empathy measures are more prone to aggressive behaviors (e.g., Burke, 2001; Hogan, 1969; Jolliffe & Farrington, 2006; Kurtines & Hogan, 1972). However, in their meta-analytic review of studies examining this link in children specifically, Lovett and Sheffield (2006) found that the literature in this area was inconclusive. Indeed, this study's findings parallel those results. Empathy did not predict aggressive behavior in general, but three subscales of the IRI did predict "pure bully" behavior. Specifically, low scores on fantasy and empathic concern and high scores on personal distress were predictive of pure bully behaviors. Thus, children who are aggressive toward others, but are not victimized themselves, tend to be lower on affective empathy and have more difficulty imagining themselves in another's place or point of view and experience more personal distress. This finding is partly consistent with Schechtman's (2002) results that aggressive boys showed lower levels on affective empathy but did not differ on cognitive empathy. This

finding is consistent with the theoretical viewpoint in the adult literature of the socially competent but callous offender (e.g., Hare, 1998; Smith, 1978). Specifically, this offender type understands cognitively what others are feeling (cognitive empathy) but is unable to relate to it affectively. For instance, Hare (1999) cited a comment made by a violent offender regarding his ability to experience affective empathy toward his victims: “They are frightened, right? But you see, I don’t really understand it. I’ve been scared myself, and it wasn’t unpleasant” (p. 44).

However, research in this area continues to be somewhat inconclusive, particularly when examining children and adolescents (Lovett & Sheffield, 2006). One possible explanation, beyond differences in measurement and methodology, is that empathy patterns vary based on the type of offense. For example, in a study by Covell, Huss, and Langhinrischsen-Rohling (2007) examining the role of empathy in predicting domestic violence, the researchers found several different patterns of empathy deficits on the IRI subscales based on the type of domestic violence (e.g., physical violence versus psychological violence) perpetrated. Thus, future research on bullying and empathy should distinguish between physical aggression, relational aggression, and cyber-bullying, for example.

With respect to temperament, BAS predicted aggressive behaviors and bully-victim behaviors but not pure bully behavior. Moreover, this result was due almost entirely to BAS drive. That is, the other two subscales of BAS (i.e., fun seeking and reward responsiveness) were non-significant. BIS predicted

aggressive behaviors and pure bully behaviors but not bully-victim behaviors. This is consistent in part with the theoretical viewpoint presented in the introduction chapter. that aggressive children lack inhibitory control, and that self-regulation is linked to the development of conscience. Additionally, consistent with Schmidt & Fox's (2002) work, I further proposed that victimized children would tend to be more temperamentally inhibited. This would explain why for aggressive victims (i.e., bully-victim), I did not find significant results on BIS. Perhaps the BIS-related trait they have in common with pure bullies cancels out the traits they have in common with pure victims.

Victimized

Empathy was related to victimization, in that children who scored high on the victimization scale also scored high fantasy (that is, the ability to identify with fictional characters) and low on perspective-taking (that is, the ability to correctly infer the thoughts and feelings of others). While few studies have examined the link between the abilities measured by the fantasy subscale and social functioning, previous research has found that children who are rejected by peers are more at risk for victimization (Woods et al., 2009) and that children who are more skilled at inferring the thoughts and feelings of their peers have better peer relationships and fewer adjustment problems (Gleason et al., 2005). The results are consistent with this idea, that perspective-taking skills (i.e., cognitive empathy) contribute to social competence. However, despite the theoretical

viewpoint that children who experience higher levels of personal distress may be less able to interact successfully with peers, and thus be more rejected and susceptible to victimization by peers, the hypothesis that victimized children would score high on personal distress was not supported.

Protective

With respect to protective behaviors, only BAS reward responsiveness (which measures sensitivity or positive responses to anticipated rewards) was a significant predictor, and that appeared to be due to its relationship with gender. While there are no studies that I know of that have specifically examined this link, it appears that children who protect others may be sensitive to social approval, perhaps from adults, for pro-social behaviors, and this may be gender-linked. However, future research is needed to investigate this potential relationship.

Another interesting finding that emerged from the data is that there is a negative correlation between protective behaviors and victimized behaviors. It appears that the traits or abilities that protective children possess make them very unlikely to be victims of aggression. This is consistent with literature that has found protective children to be more socially competent than other children (Camodeca & Goosens, 2005). The present study's finding in this area is important because understanding what these specific traits and abilities are could lead to more effective interventions for victimized children. For example, it is highly plausible that one of these traits or skills is assertiveness. If so, then

assertiveness training could be a protective factor for children at risk of victimization, or children who are currently being victimized. Moreover, a negative correlation was also found between protective behaviors and bully/victim behaviors, but this correlation was only slightly varied from the protective and victimized correlation, suggesting that aggressive victims may be more similar to victims than to pure bullies in some important ways.

Covariates

In order to examine and control for the impact of development, age was used as a covariate. It was decided to use age (as opposed to grade) as a covariate because it was slightly more sensitive than grade and had a wider range of scores. Only two behaviors correlated with age: victimized behavior and pure bully behavior. As age increased, victimization increased, but pure bullying decreased. Socio-economic status (SES) of parents correlated only with BIS total in that children from lower SES families were more inhibited behaviorally.

Ideally, inclusion of a covariate in a multiple regression improves the overall predictive ability of the regression. However, in the present study there were few examples in which combining a predictor and a covariate led to improved prediction. This was surprising in that most past research (Jolliffe & Farrington, 2004) has found that controlling for gender and SES in particular affects the relationship between empathy and aggression, for example. It is unclear why covariates did not play a more significant role in this study. Perhaps

some of the methodological limitations discussed below that likely affected the results of the main hypotheses had a similar impact on the covariates.

Brief Discussion of the Bully-Victim Concept

Past research has demonstrated that aggressive victims (bully-victims) are a distinct group of children (Solberg, Olweus, & Endresen, 2007; Toblin, Schwartz, Hopmeyer Groman, & Abou-ezzeddine, 2005; Unnever, 2005). This study has confirmed those findings. Additionally, Toblin et al. (2005) found that aggressive victims have poorer self-regulation abilities, are lonelier and more depressed than other children, including pure bullies, hold beliefs that aggression is effective, and interestingly, are high in both assertiveness and submissiveness. This last point is consistent with the idea that aggressive victims share dispositional traits with both offenders and victims. It suggests that aggressive victims are likely submissive when they should be assertive, and overly assertive, perhaps aggressive, in situations where passivity or cooperation would be more effective. This is consistent with previous findings that aggressive victims are more disliked by peers than any other group (Kupersmidt, Patterson, & Eckholt, 1989). Moreover, studies have also shown that this group of children is more likely to have experienced being victimized at home (Schwartz, Dodge, Pettit, & Bates, 1997). Taken together, these findings suggest that this group of children, who are likely victimized at home, at school, and in turn victimize others, may represent the highest at-risk group and the most in need of intervention.

Therefore, future studies should explore this sub-group of children in greater depth, from multiple theoretical perspectives.

Strengths of the Study

This study is the first project that I know of to examine the combined effects of temperament and empathy and how these traits are linked to bullying-related behavioral outcomes. This approach was based on past research findings indicating that individual differences in temperament are associated with differences in self-regulation of emotions and behaviors, and that children with self-regulation difficulties may have greater difficulty experiencing normal empathy. In turn, previous research has shown that lack of empathy is associated with increased aggression toward others. Thus, this study was an attempt to extend and combine these two lines of research to develop a more comprehensive understanding of the personality characteristics that predict bullying-related behaviors. Another strength of this study is that I was able to obtain a good sample size, with some diversity in gender, race/ethnicity, and SES.

The present study has provided some evidence that empathy and temperament are likely implicated in peer victimization in middle-school aged children. While significant results were not reached for many of the main hypotheses, some interesting results nonetheless have emerged from this research. First, my data lends support for what other researchers have found

regarding aggressive victims. Children in this category seem to differ in some important ways from children who are pure bullies or pure victims. This finding has implications for applied interventions, and further research should be conducted to determine the risk and developmental factors involved, and the types of interventions that would be most effective with this subgroup of children.

Another strength of this project is that it confirmed that BAS drive plays an important role in behavioral outcomes and that cognitive empathy (as measured by the IRI perspective taking scale) and affective empathy (as measured by the IRI empathic concern scale) both play a role, but for different behaviors. Pure bullies seem to lack affective empathy, and victims seem to lack cognitive empathy. This makes sense conceptually: aggressors lack the ability to feel compassion for their victims, and victims have weaker social cognition skills, possibility resulting in them being less liked by peers in general (previous research has established that having more friends is a protective factor against bullying).

Overall, the results I did obtain are consistent with previous work in the field and suggest a potentially fruitful path for future studies although strong confirmation for the majority of my main hypotheses was not achieved,

Limitations of the Study

In my view, the most important limitation of this study may have been the sample itself. Due to site cooperation issues, I was only able to collect data at

one school, and this school was located in a suburban district; during the collection the research team observed that the school staff seemed to have very positive relationships with the students and good behavioral control of the classrooms and related activities. Thus, it is possible that the management climate in this school has created an environment in which less bullying is present. Future studies should attempt to collect data from several schools, including some urban schools where more bullying incidents have been documented.

Additionally, in some classes, many children did not return permission slips to participate in the study. Due to school regulations as well as my own concern for protecting child participants, I was unable to follow up with those parents and their children. It is possible that some self-selection occurred and impacted the results, in that children who may be at higher risk for either aggression or victimization may have more chaotic home lives and less involved parents who did not complete consent forms.

Another potential limitation is that the nature of peer nomination measures may inhibit some children from answering in a completely honest manner. Although my data collection team took measures to ensure that children from the same class did not take the PNI at the same time or in the same room, it is possible that some children were apprehensive about naming their peers as aggressive.

Finally, I was surprised that the number of participants per class was correlated with other variables. Further investigation of this finding should be undertaken in designing future studies to ensure that the procedure used did not affect the validity of the data.

Implications for the Field

The present study did confirm some of the expected relationships between empathy, temperament and involvement in bullying in middle school children. The finding that aggressive children seem to lack affective empathy while victimized children seem to lack cognitive empathy fits well with the theoretical framework that I and others (Davis, 1980; Jones & Gagnon, 2007) have argued. That is, empathy is multi-dimensional and empathy deficits vary in type, but all lead to some form of socio-emotional impairment. For example, as discussed in Jones and Gagnon (2007), both autistic individuals and psychopaths have been shown to have empathy deficits. However, these deficits are very different and lead to different psychiatric disorders or social and behavioral impairments.

Additionally, the present study's findings have provided evidence that aggressive victims are a unique sub-group of children with unique characteristics. This provides further support for the idea that empathy is not a singular construct.

These findings also extend the body of work on emotional regulation and temperament and suggest that temperament is indeed measured on two

independent dimensions, behavioral activation and behavioral inhibition, and is not represented as two ends of the same continuum.

While the present study was not able to confirm many of the hypotheses, it nonetheless extended research in the area of bullying and victimization in some important ways and can help to guide future studies. More research is needed before this line of research can be useful to the development of applied and clinical interventions.

Recommendations for Future Research

Future studies in this area should investigate more variations in aggressive behavior (e.g., relational aggression, cyberbullying) to distinguish between different types of bullies. For instance, parallels in the adult literature on reactive versus instrumental aggression should be explored, as well as differences between physical and relational aggression.

These results suggest that future studies may benefit from using a more diverse sample, including schools known to have had incidents of moderate to severe violence and other forms of peer victimization. In addition, multiple methods of subject recruitment should be used, such as contacting parents directly, coordinating with PTA leaders, and finding appropriate parent incentives to increase the participation rate of students. Utilizing broader sampling methods may enable researchers to capture more accurate data from student populations where bullying is prevalent.

Finally, future studies should seek to use additional methods (in addition to Peer Nomination Inventories) of identifying aggressive, victimized, and protective children. These methods could include teacher reports and experimental procedures wherein children are directly observed for different forms of aggressive behaviors by researchers.

APPENDIX A

IRB APPROVAL

FAU
FLORIDA ATLANTIC UNIVERSITY

Institutional Review Board

Tel: 561.297.0777 Fax: 561.297.2319
www.fau.edu/research/rcs

Nancy Aaron Jones, Ph.D., Chair

Administrative Staff
Elisa Gaucher
Angela Clear
Tina Horton

DATE: May 4, 2011

TO: Nancy Jones, PhD
FROM: Florida Atlantic University IRB

IRBNET ID #: 196107-2
PROTOCOL TITLE: [196107-2] Chantal Gagnon Dissertation- Empathy and Bullying

PROJECT TYPE: New Project
ACTION: APPROVED

APPROVAL DATE: May 4, 2011
EXPIRATION DATE: May 3, 2012

REVIEW TYPE: Expedited Review
REVIEW CATEGORY: Expedited review category # B7

Thank you for your submission of Response/Follow-Up materials for this research study. The Florida Atlantic University IRB has APPROVED your New Project. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

- This study is approved for a maximum of 250 subjects.
- It is important that you use the approved, stamped consent documents or procedures included with this letter.
- **Please note that any revision to previously approved materials or procedures, including modifications to numbers of subjects, must be approved by the IRB before it is initiated. Please use the amendment form to request IRB approval of a proposed revision.
- All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed, if applicable.
- Please report all NON-COMPLIANCE issues or COMPLAINTS regarding this study to this office.
- Please note that all research records must be retained for a minimum of three years.
- **This approval is valid for one year.** A Continuing Review form will be required prior to the expiration date if this project will continue beyond one year.

If you have any questions or comments about this correspondence, please contact Elisa Gaucher at:

Institutional Review Board
Research Integrity/Division of Research

Florida Atlantic University
ADM Bldg. 10, Suite 239
Boca Raton, FL 33431
Phone: 561-297-0777

* Please include your protocol number and title in all correspondence with this office.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within our records.

APPENDIX B

PARENTAL PERMISSION AND INFORMED CONSENT

John D. MacArthur Campus
5353 Parkside Drive
Jupiter, FL 33458
Tel: 561.799.8632
Fax: 561.799. 8535
njones@fau.edu

Dear Parent/Guardian,

We are currently conducting a study entitled: "Empathy and Bullying" in which we would like your child to participate at school. This study is a new project in our lab at Florida Atlantic University and has been approved by the School Director and has met all the applicable guidelines for ethical and safe treatment of children who participate in research as established by the FAU Institutional Review Board (telephone: 297-0777).

We are interested in studying individual variation in childhood emotions and how children use these emotions to relate to one another in school. In this study, the goal is to investigate the factors that contribute to bullying and victimization by peers in school environments as well as how individual differences in empathy affect peer relationships. We will meet with children for one session lasting about one hour. During the session, children will fill out a paper and pencil survey in which they will answer questions about their thoughts, feelings, and behaviors, and their interactions with their peers.

Allowing your child to participate in this study will help us learn more about peer relationships during childhood, and we hope that our research results will help counselors and educators develop interventions and strategies that will more effectively prevent problematic peer relationship in school.

Since participation is voluntary, we would appreciate your completing the enclosed permission slip and returning it to your child's teacher as soon as possible. For some children, we may also invite you to participate in another portion of this study and ask you for your phone number (or email address) to contact you later for this purpose. If you are giving permission for your child to participate in the study, please also complete the Family Demographic Form enclosed, and return it with the permission slip. All aspects of this study are voluntary and you are free to withdraw your consent at any time. Your child's permission will also be obtained prior to testing and she/he will be free to withdraw from the study at any time as well.

We sincerely appreciate your cooperation in this endeavor. If you have any questions, please feel free to contact either of us.

Sincerely yours,

Nancy Aaron Jones, Ph.D.
Professor of Psychology
njones@fau.edu
561-799-8632

Ms. Chantal M. Gagnon, MS, MA
Doctoral Student
cgagnon4@fau
954-559-2936

Approved on:	5/4/2011
Expires on:	5/3/2012

Institutional Review Board

Consent Form

Title of Research Study: Empathy and Bullying
Investigators: Dr. Nancy Aaron Jones, Ph.D. And Ms. Chantal M. Gagnon, Doctoral Student
Purpose: The study is designed to investigate the links between empathy, temperament, and bullying in middle schools. Our objective is to learn about the factors that predict involvement in bullying in order to inform the development of effective interventions aimed at modifying risk factors in a way that promotes the prevention of violence in children prone to bullying, and that increases protective factors to prevent children from becoming targets of bullies.

Procedures: After an age-appropriate explanation of the study, the children will be giving an opportunity to agree or not agree to participate. The children who agree to participate will be asked to complete confidential paper-and-pencil surveys. The surveys will ask questions about each child's own thoughts, feelings, and behaviors, and about their interactions with classmates, and their observations of classmates' behaviors. The entire procedure is expected to take a maximum of one hour to complete, depending on each child's reading speed. Children will be given breaks as needed.

Risks: The risks involved with participation in this study are minimal and most children are not expected to experience any negative effects. Some children may experience mild temporary emotional discomfort. Children who become uncomfortable will be referred to the school counselor.
Benefits: The benefits of this research include a greater understanding of bullying and victimization in school environments and the role that individual variation in empathy plays.

Data Collection & Storage: If you agree to allow your child to participate, your child's answers will be confidential and kept in a locked storage cabinet. Once data are collected, they will be entered into a computer file. Electronic data will be de-identifying so that it will not be linked to a particular child. Only the researchers of this study will see collected data, unless required by law.

Contact Information: For questions regarding your rights as a subject, the Office of Sponsored Research of Florida Atlantic University can be contacted at (561) 297-0777. For other questions about the study, you should call the principal investigator, Dr. Nancy Aaron Jones, Ph. D. at 561-799-8632 or Ms. Chantal Gagnon at 954-559-2936.

Consent Statement: I have read or had read to me the preceding information describing this study. All my questions have been answered to my satisfaction.

I am the legal guardian of:

_____ _____ **Child's Gender: M F** **Child's Age:** _____
Child's First Name **Child's Last Name**
and freely consent to the participation of my child. I understand that I am free to withdraw my child from the study at any time. I have received a copy of this consent form

Signature of Guardian: _____ Date: _____

Printed Name of Guardian: _____

Signature of Researcher: _____ Date: _____

Optional: I would be happy to be called or emailed at a later date for an additional portion of this study and give my phone number or email for that purpose:

_____

FAU Institutional Review Board

Approved on:	5/4/2011
Expires on:	5/3/2012

Appendix C

Child Assent

CHILD ASSENT

Empathy and Bullying

Researchers from Florida Atlantic University are trying to learn about how students in middle schools become involved in bullying situations. You have been asked to participate in helping the researchers understand more about bullying because you are a student in a school that is participating in the research project. If you decide to participate in this study, you will be asked to answer some questions on a survey about yourself and your feelings. Your answers will be private. You will be asked about questions about your feelings, your thoughts, and about the other children in your class. If some things may make you uncomfortable, you can tell the researcher or the teacher. Here are some examples of the types of questions you may be asked:

When I see someone being taken advantage of, I feel kind of protective towards them.

A person's family is the most important thing in life.

This study will take place in your school and should take about one hour of your time.

The researchers hope this study will help psychologists and teachers understand and prevent bullying in schools.

You do not have to be in this study if you don't want to and you can quit the study at any time. If you don't like a question, you don't have to answer it and, if you ask, your answers will not be used in the study. No one will get mad at you if you decide you don't want to participate.

If you have any questions, just ask Ms. Chantal, or ask the teacher.

This research study has been explained to me and I agree to be in this study.

_____ _____

First Name **Last Name**

_____ _____

Subject's Signature for Assent **Date**

Check which applies (to be completed by person conducting assent discussion):

- ☐ The subject is capable of reading and understanding the assent form and has signed above as documentation of assent to take part in this study.
- ☐ The subject is not capable of reading the assent form, however, the information was explained verbally to the subject who signed above to acknowledge the verbal explanation and his/her assent to take part in this study.

_____

Name of Person Obtaining Assent (Print)

_____ _____

Signature of Person Obtaining Assent **Date**

FAU

Approved on:	5/4/2011
Expires on:	5/3/2012

Institutional Review Board

APPENDIX D IRI

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you. Please CIRCLE your answer for each item. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can. Thank you.

	Does not describe me well → Describes me very well				
1. I daydream and fantasize, with some regularity, about things that might happen to me.	0	1	2	3	4
2. I often have tender, concerned feelings for people less fortunate than me.	0	1	2	3	4
3. I sometimes find it difficult to see things from the "other guy's" point of view.	0	1	2	3	4
4. Sometimes I don't feel very sorry for other people when they are having problems.	0	1	2	3	4
5. I really get involved with the feelings of the characters in a novel.	0	1	2	3	4
6. In emergency situations, I feel apprehensive and ill-at-ease.	0	1	2	3	4
7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.	0	1	2	3	4
8. I try to look at everybody's side of a disagreement before I make a decision.	0	1	2	3	4
9. When I see someone being taken advantage of, I feel kind of protective towards them.	0	1	2	3	4
10. I sometimes feel helpless when I am in the middle of a very emotional situation.	0	1	2	3	4
11. I sometimes try to understand my friends better by imagining how things look from their perspective.	0	1	2	3	4

12. Becoming extremely involved in a good book or movie is somewhat rare for me.	0	1	2	3	4
13. When I see someone get hurt, I tend to remain calm.	0	1	2	3	4
14. Other peoples' misfortunes do not usually disturb me a great deal.	0	1	2	3	4
15. If I'm sure I'm right about something, I don't waste much time listening to other peoples' arguments.	0	1	2	3	4
16. After seeing a play or movie, I have felt as though I were one of the characters.	0	1	2	3	4
17. Being in a tense emotional situation scares me.	0	1	2	3	4
18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.	0	1	2	3	4
19. I am usually pretty effective in dealing with emergencies.	0	1	2	3	4
20. I am often quite touched by things that I see happen.	0	1	2	3	4
21. I believe that there are two sides to every question and try to look at them both.	0	1	2	3	4
22. I would describe myself as a pretty softhearted person.	0	1	2	3	4
23. When I watch a good movie, I can very easily put myself in the place of a leading character.	0	1	2	3	4
24. I tend to loose control during emergencies.	0	1	2	3	4
25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.	0	1	2	3	4
26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.	0	1	2	3	4

27. When I see someone who badly needs help in an emergency, I go to pieces.	0	1	2	3	4
28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.	0	1	2	3	4

APPENDIX E BIS/BAS

BIS/BAS

Each item of this questionnaire is a statement that a person may either agree with or disagree with. For each item, indicate how much you agree or disagree with what the item says. Please respond to all the items; do not leave any blank. Choose only one response to each statement. Please be as accurate and honest as you can be. Respond to each item as if it were the only item. That is, don't worry about being "consistent" in your responses. Choose from the following four response options:

1 = very true for me
2 = somewhat true for me
3 = somewhat false for me
4 = very false for me

1. A person's family is the most important thing in life.
2. Even if something bad is about to happen to me, I rarely experience fear or nervousness.
3. I go out of my way to get things I want.
4. When I'm doing well at something I love to keep at it.
5. I'm always willing to try something new if I think it will be fun.
6. How I dress is important to me.
7. When I get something I want, I feel excited and energized.
8. Criticism or scolding hurts me quite a bit.
9. When I want something I usually go all-out to get it.
10. I will often do things for no other reason than that they might be fun.

11. It's hard for me to find the time to do things such as get a haircut.
12. If I see a chance to get something I want I move on it right away.
13. I feel pretty worried or upset when I think or know somebody is angry at me.
14. When I see an opportunity for something I like I get excited right away.
15. I often act on the spur of the moment.

16. If I think something unpleasant is going to happen I usually get pretty "worked up."
17. I often wonder why people act the way they do.
18. When good things happen to me, it affects me strongly.
19. I feel worried when I think I have done poorly at something important.
20. I crave excitement and new sensations.

21. When I go after something I use a "no holds barred" approach.
22. I have very few fears compared to my friends.
23. It would excite me to win a contest.
24. I worry about making mistakes.

APPENDIX F PNI EXAMPLE

About My Classmates (Meehan's Boys)

BOY'S FORM							
1. He likes to play sports.							
2. He argues a lot.							
3. He is afraid to do things.							
4. He tries to get along with everyone.							
5. He plays by himself most of the time.							
6. He stands up for himself when someone tries to push him around.							
7. He's always asking for help.							
8. He hits and pushes others around.							
9. He always plays with girls.							
10. He doesn't let bullies pick on weaker kids.							
11. He gets picked on by other kids.							
12. He helps other kids solve their problems.							
13. He sometimes takes things that belong to someone else.							
14. He says bad things about himself.							
15. He is brave.							
16. He makes fun of people.							

17. He is good to have in a group, because he shares things and gives other people a turn.							
18. He acts like a girl.							
19. He makes noise or bothers you in class.							
20. He doesn't talk much.							
21. He stands up for kids who get picked on by bullies.							
22. He gets hit and pushed by other kids.							
23. He is good at being a leader and taking charge of things.							
24. He can't do things by himself.							
25. Kids make fun of him.							
26. He'd rather play with girls than boys.							
27. When a kid is sad, he tries to make them feel better.							
28. When other kids are playing, he watches them but doesn't join in.							
29. He gives up easily.							
30. He's just plain mean.							
31. He tries hard to win games and contests.							
32. He seems unhappy and looks sad often.							
33. He always has to have his own way.							
34. He rescues kids who get picked on by bullies.							
35. He likes to do things that girls usually do.							
36. He doesn't follow rules.							

37. On the playground he just stands around.							
38. He tells lies.							
39. He puts himself down a lot.							
40. He is always friendly.							

APPENDIX G

TABLES FOR COVARIATES 1

OUTCOME VARIABLE: AGGRESSION	Overall			Predictor			Covariate			Age x predictor interaction		
Predictor, covariate(s)	R^2	sig		beta	sig		beta	sig		beta	sig	
IRI Total, Gender	.010	.322		-0.037	.597		-0.084	.227				
IRI Fantasy mean score, Gender	.010	.324		-0.035	.607		-0.087	.200				
IRI Perspective-Taking mean score, Gender	.010	.336		-0.030	.660		-0.091	.177				
IRI Empathic Concern mean score, Gender	.014	.202		-0.075	.271		-0.077	.261				
IRI Personal Distress mean score, Gender	.010	.327		0.034	.617		-0.102	.138				
BAS Total, Gender	.022	.088		0.118	.078		-0.100	.135				
BAS Drive mean score, Gender	.055	.002	**	0.217	.001	***	-0.088	.180				
BAS Fun Seeking mean score, Gender	.009	.356		0.038	.573		-0.094	.165				
BAS Reward Responsive mean score , Gender	.009	.371		-0.032	.630		-0.085	.203				
BIS Total, Gender	.032	.027	*	-0.159	.020	*	-0.053	.437				
BIS Total, SES	.029	.037	*	-0.171	.012	*	0.001	.990				
IRI Total, Number of students partici in class	.044	.007	**	-0.046	.480		-0.200	.003	**			
IRI Fantasy mean score, Number of students partici in class	.042	.009	**	-0.021	.746		-0.200	.003	**			
IRI Perspective-Taking mean score, Number of students partici in class	.042	.008	**	-0.023	.725		-0.202	.002	**			
IRI Empathic Concern mean score, Number of students partici in class	.047	.005	**	-0.076	.248		-0.197	.003	**			
IRI Personal Distress mean score, Number of students partici in class	.042	.009	**	-0.017	.801		-0.206	.002	**			
BAS Total, Number of students partici in class	.054	.002	**	0.120	.068		-0.205	.002	**			
BAS Drive mean score, Number of students partici in class	.090	.000	***	0.227	.000	***	-0.208	.001	**			
BAS Fun Seeking mean score, Number of students partici in class	.040	.011	*	0.028	.674		-0.198	.003	**			
BAS Reward Responsive mean score , Number of students partici in class	.040	.011	*	-0.024	.714		-0.196	.003	**			
BIS Total, Number of students partici in class	.059	.001	**	-0.142	.032	*	-0.175	.009	**			

Appendix G continued

OUTCOME VARIABLE: AGGRESSION	Overall			Predictor			Covariate			Age x predictor interaction		
Predictor, covariate(s)	R^2	sig		beta	sig		beta	sig		beta	sig	
IRI Total, Age	.004	.660		-0.062	.364		-0.005	.945				
IRI Perspective-Taking mean score, Age	.002	.781		-0.048	.484		-0.006	.926				
IRI Empathic Concern mean score, Age	.008	.415		-0.091	.185		0.003	.962				
IRI Personal Distress mean score, Age	.000	.971		0.016	.814		-0.004	.958				
BAS Total, Age	.013	.233		0.116	.088		-0.013	.850				
BAS Drive mean score, Age	.050	.004	**	0.223	.001	***	-0.006	.925				
BAS Fun Seeking mean score, Age	.001	.893		0.032	.638		-0.008	.913				
BAS Reward Responsive mean score , Age	.001	.851		-0.039	.573		-0.002	.976				
BIS Total, Age	.032	.031	*	-0.179	.008	**	-0.020	.770				
IRI Total, Age, Age x IRITota	.004	.841		-0.142	.868		-0.032	.914		0.084	.925	
IRI Fantasy mean score, Age, Age x IRI_Fantasy	.011	.514		-1.181	.186		1.141	.207		-0.228	.227	
IRI Perspective-Taking mean score, Age, Age x IRI_Perspective	.007	.677		0.849	.339		-0.915	.311		0.216	.347	
IRI Empathic Concern mean score, Age, Age x IRI_EmpathConcern	.010	.533		-0.645	.443		0.600	.508		-0.180	.528	
IRI Personal Distress mean score, Age, Age x IRI_PersDistress	.003	.903		0.641	.465		-0.636	.475		0.113	.523	
BAS Total, Age, Age x BASTotala	.015	.344		-0.475	.604		0.691	.518		-0.324	.505	
BAS Drive mean score, Age, Age x BAS_Drivea	.050	.011	*	0.491	.589		-0.280	.768		0.072	.792	
BAS Fun Seeking mean score, Age, Age x BAS_FunSeek	.007	.688		-1.014	.281		1.154	.264		-0.383	.265	
BAS Reward Responsive mean score , Age, Age x BAS_RewardResp	.005	.794		-0.872	.380		0.984	.400		-0.483	.402	
BIS Total, Age, Age x BIS_Score	.040	.033	*	-1.376	.126		1.241	.182		-0.459	.171	

APPENDIX H

TABLES FOR COVARIATES 2

OUTCOME VARIABLE: VICTIMIZED	Overall			Predictor			Covariate			Age x predictor interaction		
Predictor, covariate(s)	R^2	sig		beta	sig		beta	sig		beta	sig	
IRI Total, Gender	.010	.318		0.067	.336		-0.097	.165				
IRI Fantasy mean score, Gender	.033	.023	*	0.168	.013	*	-0.111	.099				
IRI Perspective-Taking mean score, Gender	.010	.335		-0.061	.366		-0.071	.290				
IRI Empathic Concern mean score, Gender	.018	.126		0.114	.096		-0.104	.128				
IRI Personal Distress mean score, Gender	.008	.406		-0.045	.509		-0.068	.323				
BAS Total, Gender	.018	.128		0.111	.096		-0.088	.187				
BAS Drive mean score, Gender	.017	.141		0.107	.108		-0.077	.248				
BAS Fun Seeking mean score, Gender	.007	.453		0.033	.622		-0.082	.225				
BAS Reward Responsive mean score , Gender	.020	.106		0.118	.077		-0.088	.187				
BIS Total, Gender	.014	.218		0.090	.191		-0.098	.155				
BIS Total, SES	.006	.519		0.060	.377		-0.037	.589				
IRI Total, Number of students partici in class	.009	.382		0.046	.494		-0.084	.211				
IRI Fantasy mean score, Number of students partici in class	.032	.026	*	0.162	.016	*	-0.106	.115				
IRI Perspective-Taking mean score, Number of students partici in class	.010	.311		-0.063	.350		-0.076	.260				
IRI Empathic Concern mean score, Number of students partici in class	.016	.166		0.098	.144		-0.089	.182				
IRI Personal Distress mean score, Number of students partici in class	.012	.268		-0.073	.278		-0.091	.179				
BAS Total, Number of students partici in class	.018	.126		0.108	.106		-0.089	.183				
BAS Drive mean score, Number of students partici in class	.019	.116		0.111	.096		-0.087	.189				
BAS Fun Seeking mean score, Number of students partici in class	.007	.438		0.023	.731		-0.083	.215				
BAS Reward Responsive mean score , Number of students partici in class	.021	.098		0.118	.077		-0.092	.167				

BIS Total, Number of students partici in class	.014	.217		0.083	.217		-0.096	.154				
IRI Total, Grade	.023	.074		0.044	.510		0.147	.028	*			
IRI Fantasy mean score, Grade	.043	.008	**	0.147	.026	*	0.144	.029	*			
IRI Perspective-Taking mean score, Grade	.025	.062		-0.059	.377		0.142	.034	*			
IRI Empathic Concern mean score, Grade	.028	.044	*	0.081	.226		0.140	.037	*			
IRI Personal Distress mean score, Grade	.024	.066		-0.053	.424		0.143	.032	*			
BAS Total, Grade	.029	.038	*	0.089	.182		0.135	.044	*			
BAS Drive mean score, Grade	.032	.027	*	0.105	.113		0.143	.032	*			
BAS Fun Seeking mean score, Grade	.021	.093		0.001	.991		0.145	.032	*			
BAS Reward Responsive mean score , Grade	.031	.029	*	0.101	.128		0.137	.039	*			
BIS Total, Grade	.034	.023	*	0.112	.093		0.157	.019	*			
	R^2	sig		beta	sig		beta	sig				
IRI Total, Age	.031	.034	*	0.046	.494		0.170	.012	*			
IRI Fantasy mean score, Age	.053	.003	**	0.157	.019	*	0.175	.009	**			
IRI Perspective-Taking mean score, Age	.033	.027	*	-0.065	.333		0.166	.014	*			
IRI Empathic Concern mean score, Age	.036	.020	*	0.084	.212		0.163	.016	*			
IRI Personal Distress mean score, Age	.032	.030	*	-0.057	.399		0.169	.013	*			
BAS Total, Age	.039	.015	*	0.098	.145		0.163	.016	*			
BAS Drive mean score, Age	.041	.012	*	0.108	.107		0.169	.012	*			
BAS Fun Seeking mean score, Age	.029	.042	*	0.014	.836		0.169	.013	*			
BAS Reward Responsive mean score , Age	.040	.013	*	0.104	.120		0.165	.014	*			
BIS Total, Age	.036	.021	*	0.081	.228		0.177	.009	**			
	R^2	sig		beta	sig		beta	sig		age x pred	sig	
IRI Total, Age, Age x IRITota	.031	.079		0.247	.768		0.239	.415		-0.212	.810	
IRI Fantasy mean score, Age, Age x IRI_Fantasy	.058	.005	**	-0.696	.424		0.866	.326		0.007	.971	
IRI Perspective-Taking mean score, Age, Age x IRI_Perspective	.049	.013	*	1.570	.072		-1.669	.060		0.573	.012	*
IRI Empathic Concern mean score, Age, Age x IRI_EmpathConcern	.036	.050		0.013	.987		0.077	.932		0.140	.620	
IRI Personal Distress mean score, Age, Age x IRI_PersDistress	.032	.070		0.192	.824		-0.253	.773		0.215	.219	
BAS Total, Age, Age x BASTotala	.040	.034	*	0.536	.554		-0.512	.628		0.393	.413	
BAS Drive mean score, Age, Age x BAS_Drivea	.043	.023	*	0.813	.373		-0.739	.438		0.376	.173	
BAS Fun Seeking mean score, Age, Age x BAS_FunSeek	.032	.075		0.704	.448		-0.761	.456		0.417	.220	
BAS Reward Responsive mean score , Age, Age x BAS_RewardResp	.041	.030	*	-0.350	.720		0.536	.640		-0.097	.864	
BIS Total, Age, Age x BIS_Score	.037	.044	*	-0.444	.621		0.544	.558		-0.015	.964	

APPENDIX I

TABLES FOR COVARIATES 3

OUTCOME VARIABLE: PROTECT	Overall			Predictor			Covariate			Age x predictor interaction		
Predictor, covariate(s)	R^2	sig		beta	sig		beta	sig		beta	sig	
IRI Total, Gender	.073	.000	***	-0.064	.343		0.281	.000	***			
IRI Fantasy mean score, Gender	.079	.000	***	-0.103	.118		0.283	.000	***			
IRI Perspective-Taking mean score, Gender	.072	.000	***	-0.050	.444		0.269	.000	***			
IRI Empathic Concern mean score, Gender	.073	.000	***	-0.063	.342		0.278	.000	***			
IRI Personal Distress mean score, Gender	.071	.000	***	0.047	.475		0.252	.000	***			
BAS Total, Gender	.073	.000	***	0.053	.411		0.259	.000	***			
BAS Drive mean score, Gender	.070	.000	***	-0.020	.752		0.264	.000	***			
BAS Fun Seeking mean score, Gender	.072	.000	***	0.048	.466		0.258	.000	***			
BAS Reward Responsive mean score , Gender	.084	.000	***	0.118	.068		0.254	.000	***			
BIS Total, Gender	.072	.000	***	-0.048	.473		0.275	.000	***			
BIS Total, SES	.001	.919		0.019	.781		0.024	.727				
IRI Total, Number of students partici in class	.054	.002	**	0.029	.652		-0.233	.000	***			
IRI Fantasy mean score, Number of students partici in class	.053	.002	**	-0.012	.853		-0.229	.001	***			
IRI Perspective-Taking mean score, Number of students partici in class	.053	.002	**	0.000	.999		-0.231	.001	***			
IRI Empathic Concern mean score, Number of students partici in class	.054	.002	**	0.021	.753		-0.232	.000	***			
IRI Personal Distress mean score, Number of students partici in class	.059	.001	**	0.075	.252		-0.220	.001	***			
BAS Total, Number of students partici in class	.056	.002	**	0.091	.163		-0.223	.001	***			
BAS Drive mean score, Number of students partici in class	.048	.004	**	-0.012	.852		-0.217	.001	**			
BAS Fun Seeking mean score, Number of students partici in class	.055	.002	**	0.087	.184		-0.219	.001	***			
BAS Reward Responsive mean score , Number of students partici in class	.073	.000	***	0.160	.014	*	-0.231	.000	***			

BIS Total, Number of students partici in class	.050	.003	**	0.052	.436		-0.226	.001	***			
IRI Total, Grade	.004	.649		0.019	.782		0.060	.374				
IRI Fantasy mean score, Grade	.005	.548		-0.043	.520		0.060	.371				
IRI Perspective-Taking mean score, Grade	.004	.659		-0.014	.830		0.058	.385				
IRI Empathic Concern mean score, Grade	.004	.675		0.000	.995		0.060	.377				
IRI Personal Distress mean score, Grade	.016	.175		0.110	.101		0.065	.331				
BAS Total, Grade	.010	.330		0.078	.249		0.054	.423				
BAS Drive mean score, Grade	.004	.612		-0.021	.759		0.064	.342				
BAS Fun Seeking mean score, Grade	.010	.314		0.081	.233		0.050	.458				
BAS Reward Responsive mean score , Grade	.024	.069		0.141	.035	*	0.052	.436				
BIS Total, Grade	.008	.406		0.064	.340		0.070	.298				

OUTCOME VARIABLE: PROTECT	Overall			Predictor			Covariate			Age x predictor interaction		
Predictor, covariate(s)	R^2	sig		beta	sig		beta	sig		beta	sig	
IRI Total, Age	.008	.421		0.040	.559		0.081	.236				
IRI Fantasy mean score, Age	.007	.463		-0.027	.694		0.079	.245				
IRI Perspective-Taking mean score, Age	.007	.492		0.012	.858		0.081	.236				
IRI Empathic Concern mean score, Age	.006	.496		0.008	.908		0.080	.245				
IRI Personal Distress mean score, Age	.020	.112		0.117	.084		0.082	.226				
BAS Total, Age	.009	.372		0.054	.428		0.075	.273				
BAS Drive mean score, Age	.007	.460		-0.031	.651		0.079	.244				
BAS Fun Seeking mean score, Age	.009	.381		0.052	.447		0.073	.285				
BAS Reward Responsive mean score , Age	.023	.086		0.128	.059		0.073	.281				
BIS Total, Age	.008	.426		0.041	.552		0.083	.227				
	R^2	sig		beta	sig		beta	sig		age x pred	sig	
IRI Total, Age, Age x IRITota	.009	.592		0.400	.637		0.204	.492		-0.380	.670	
IRI Fantasy mean score, Age, Age x IRI_Fantasy	.009	.589		0.520	.560		-0.556	.538		0.187	.321	
IRI Perspective-Taking mean score, Age, Age x IRI_Perspective	.007	.688		-0.199	.822		0.216	.811		0.028	.902	
IRI Empathic Concern mean score, Age, Age x IRI_EmpathConcern	.008	.649		0.426	.613		-0.452	.618		0.218	.446	
IRI Personal Distress mean score, Age, Age x IRI_PersDistress	.021	.216		0.362	.677		-0.249	.778		0.128	.468	
BAS Total, Age, Age x BASTotal	.012	.463		0.758	.409		-0.823	.442		0.446	.360	
BAS Drive mean score, Age, Age x BAS_Drivea	.016	.335		1.221	.187		-1.312	.175		0.447	.110	
BAS Fun Seeking mean score, Age, Age x BAS_FunSeek	.009	.580		0.235	.802		-0.202	.845		0.139	.686	
BAS Reward Responsive mean score , Age, Age x BAS_RewardResp	.023	.172		0.431	.661		-0.357	.758		0.248	.664	
BIS Total, Age, Age x BIS_Score	.013	.428		-0.898	.324		0.973	.301		-0.261	.441	

APPENDIX J

TABLES FOR COVARIATES 4

OUTCOME VARIABLE: PROTECT	Rsq	sig	Pred Beta	sig	Dummy Wh Beta	sig	Dum AfAm Beta	sig	Dumm Hait Beta	sig
IRI Total, DummyAfAm, DummyHaitianCarib, DummyWhite	.068	.004	0.008	.902	0.024	.785	0.268	.001	0.131	.123
IRI Fantasy mean score, DummyAfAm, DummyHaitianCarib, DummyWhite	.070	.003	-0.051	.437	0.024	.785	0.268	.001	0.134	.113
IRI Perspective-Taking mean score, DummyWhite, DummyAfAm, DummyHaitianCarib	.068	.004	-0.021	.747	0.024	.779	0.267	.001	0.135	.114
IRI Empathic Concern mean score, DummyAfAm, DummyHaitianCarib, DummyWhite	.068	.004	0.000	.997	0.024	.783	0.268	.001	0.132	.119
IRI Personal Distress mean score, DummyAfAm, DummyHaitianCarib, DummyWhite	.077	.001	0.097	.138	0.029	.743	0.269	.001	0.123	.148
BAS Total, DummyWhite, DummyAfAm, DummyHaitianCarib	.073	.002	0.054	.410	0.025	.769	0.268	.001	0.136	.108
BAS Drive mean score, DummyHaitianCarib, DummyAfAm, DummyWhite	.071	.003	-0.020	.762	0.029	.734	0.274	.000	0.142	.092
BAS Fun Seeking mean score, DummyWhite, DummyAfAm, DummyHaitianCarib	.073	.002	0.047	.474	0.022	.800	0.265	.001	0.133	.119
BAS Reward Responsive mean score , DummyHaitianCarib, DummyAfAm, DummyWhite	.085	.001	0.120	.066	0.042	.625	0.268	.000	0.146	.082
BIS Total, DummyWhite, DummyAfAm, DummyHaitianCarib	.073	.002	0.044	.503	0.030	.731	0.280	.000	0.140	.095

APPENDIX K

TABLES FOR COVARIATES 5

OUTCOME VARIABLE: BULLY/VICTIM	Overall			Predictor			Covariate			Age x predictor interaction		
Predictor, covariate(s)	R^2	sig		beta	sig		beta	sig		beta	sig	
IRI Total, Gender	.014	.215		0.020	.773		-0.121	.082				
IRI Fantasy mean score, Gender	.021	.095		0.089	.190		-0.133	.050				
IRI Perspective-Taking mean score, Gender	.017	.149		-0.060	.367		-0.109	.106				
IRI Empathic Concern mean score, Gender	.014	.209		0.025	.711		-0.121	.077				
IRI Personal Distress mean score, Gender	.013	.223		-0.007	.915		-0.114	.097				
BAS Total, Gender	.036	.017	*	0.154	.021	*	-0.126	.057				
BAS Drive mean score, Gender	.060	.001	**	0.218	.001	***	-0.110	.091				
BAS Fun Seeking mean score, Gender	.015	.194		0.048	.477		-0.118	.081				
BAS Reward Responsive mean score , Gender	.016	.173		0.057	.390		-0.116	.083				
BIS Total, Gender	.014	.197		-0.047	.492		-0.101	.142				
BIS Total, SES	.005	.546		-0.074	.276		-0.024	.724				
IRI Total, Number of students partici in class	.036	.016	*	-0.001	.993		-0.191	.004	**			
IRI Fantasy mean score, Number of students partici in class	.045	.006	**	0.094	.157		-0.205	.002	**			
IRI Perspective-Taking mean score, Number of students partici in class	.040	.011	*	-0.057	.384		-0.186	.005	**			
IRI Empathic Concern mean score, Number of students partici in class	.037	.016	*	0.014	.829		-0.192	.004	**			
IRI Personal Distress mean score, Number of students partici in class	.040	.011	*	-0.060	.366		-0.199	.003	**			
BAS Total, Number of students partici in class	.059	.001	**	0.153	.020	*	-0.197	.003	**			
BAS Drive mean score, Number of students partici in class	.087	.000	***	0.227	.000	***	-0.198	.002	**			
BAS Fun Seeking mean score, Number of students partici in class	.037	.016	*	0.034	.606		-0.189	.004	**			
BAS Reward Responsive mean score , Number of students partici in class	.039	.011	*	0.063	.343		-0.194	.004	**			

BIS Total, Number of students partici in class	.037	.015	*	-0.040	.552		-0.182	.007	**			
IRI Total, Age	.012	.260		-0.011	.874		0.111	.103				
IRI Fantasy mean score, Age	.017	.161		0.067	.322		0.113	.095				
IRI Perspective-Taking mean score, Age	.018	.141		-0.076	.264		0.107	.115				
IRI Empathic Concern mean score, Age	.012	.263		-0.005	.947		0.111	.103				
IRI Personal Distress mean score, Age	.013	.243		-0.027	.689		0.111	.104				
BAS Total, Age	.033	.027	*	0.144	.034	*	0.100	.138				
BAS Drive mean score, Age	.062	.001	**	0.223	.001	***	0.109	.100				
BAS Fun Seeking mean score, Age	.013	.236		0.031	.648		0.108	.115				
BAS Reward Responsive mean score , Age	.014	.212		0.044	.517		0.109	.108				
BIS Total, Age	.017	.163		-0.066	.332		0.106	.122				
	R^2	sig		beta	sig		beta	sig		age x pred	sig	
IRI Total, Age, Age x IRITota	.012	.441		0.070	.934		0.139	.639		-0.085	.923	
IRI Fantasy mean score, Age, Age x IRI_Fantasy	.027	.116		-1.258	.155		1.346	.133		-0.149	.426	
IRI Perspective-Taking mean score, Age, Age x IRI_Perspective	.035	.053		1.621	.065		-1.732	.053		0.529	.021	*
IRI Empathic Concern mean score, Age, Age x IRI_EmpathConcern	.014	.404		-0.424	.613		0.454	.616		-0.028	.923	
IRI Personal Distress mean score, Age, Age x IRI_PersDistress	.015	.351		0.559	.522		-0.596	.500		0.220	.212	
BAS Total, Age, Age x BASTotal	.033	.066		0.040	.965		0.122	.908		0.045	.925	
BAS Drive mean score, Age, Age x BAS_Drivea	.064	.003	**	0.875	.332		-0.683	.468		0.300	.270	
BAS Fun Seeking mean score, Age, Age x BAS_FunSeek	.014	.399		-0.210	.822		0.266	.796		0.021	.951	
BAS Reward Responsive mean score , Age, Age x BAS_RewardResp	.018	.276		-0.821	.406		1.020	.380		-0.389	.496	
BIS Total, Age, Age x BIS_Score	.024	.153		-1.222	.177		1.199	.200		-0.318	.346	

APPENDIX L

TABLES FOR COVARIATES 6

OUTCOME VARIABLE: PURE BULLY	Overall			Predictor			Covariate			Age x predictor interaction		
Predictor, covariate(s)	R^2	sig		beta	sig		beta	sig		beta	sig	
IRI Total, Gender	.006	.527		-0.078	.264		0.009	.896				
IRI Fantasy mean score, Gender	.022	.080		-0.152	.025	*	0.017	.796				
IRI Perspective-Taking mean score, Gender	.001	.926		0.023	.731		-0.015	.823				
IRI Empathic Concern mean score, Gender	.019	.114		-0.142	.038	*	0.020	.768				
IRI Personal Distress mean score, Gender	.004	.673		0.060	.385		-0.026	.705				
BAS Total, Gender	.000	.988		0.005	.935		-0.009	.892				
BAS Drive mean score, Gender	.007	.454		0.084	.212		-0.008	.901				
BAS Fun Seeking mean score, Gender	.000	.990		0.004	.957		-0.009	.892				
BAS Reward Responsive mean score , Gender	.013	.240		-0.113	.092		0.002	.982				
BIS Total, Gender	.033	.023	*	-0.187	.006	**	0.033	.622				
BIS Total, SES	.033	.024	*	-0.173	.010	*	0.028	.675				
IRI Total, Number of students partici in class	.013	.222		-0.069	.300		-0.088	.188				
IRI Fantasy mean score, Number of students partici in class	.027	.046	*	-0.138	.040	*	-0.072	.284				
IRI Perspective-Taking mean score, Number of students partici in class	.009	.346		0.029	.660		-0.095	.156				
IRI Empathic Concern mean score, Number of students partici in class	.025	.056		-0.130	.051		-0.081	.221				
IRI Personal Distress mean score, Number of students partici in class	.010	.313		0.042	.532		-0.087	.196				
BAS Total, Number of students partici in class	.008	.423		0.010	.887		-0.088	.191				
BAS Drive mean score, Number of students partici in class	.015	.181		0.087	.190		-0.091	.173				
BAS Fun Seeking mean score, Number of students partici in class	.008	.427		0.004	.957		-0.087	.192				
BAS Reward Responsive mean score , Number of students partici in class	.019	.120		-0.106	.111		-0.079	.239				

BIS Total, Number of students partici in class	.035	.018	*	-0.169	.012	*	-0.059	.375				
IRI Total, Age	.024	.078		-0.081	.230		-0.131	.053				
IRI Fantasy mean score, Age	.043	.009	**	-0.160	.017	*	-0.136	.043	*			
IRI Perspective-Taking mean score, Age	.017	.157		0.013	.849		-0.129	.057				
IRI Empathic Concern mean score, Age	.034	.024	*	-0.131	.053		-0.120	.076				
IRI Personal Distress mean score, Age	.020	.115		0.055	.420		-0.129	.057				
BAS Total, Age	.017	.156		0.014	.837		-0.131	.054				
BAS Drive mean score, Age	.025	.069		0.087	.198		-0.131	.053				
BAS Fun Seeking mean score, Age	.017	.156		0.014	.839		-0.132	.054				
BAS Reward Responsive mean score , Age	.028	.045	*	-0.107	.113		-0.125	.064				
BIS Total, Age	.055	.002	**	-0.196	.004	**	-0.148	.028	*			
	R^2	sig		beta	sig		beta	sig		age x pred	sig	
IRI Total, Age, Age x IRITotal	.024	.160		-0.291	.729		-0.203	.490		0.222	.802	
IRI Fantasy mean score, Age, Age x IRI_Fantasy	.043	.025	*	-0.366	.676		0.209	.814		-0.177	.341	
IRI Perspective-Taking mean score, Age, Age x IRI_Perspective	.019	.252		-0.538	.542		0.562	.531		-0.266	.245	
IRI Empathic Concern mean score, Age, Age x IRI_EmpathConcern	.035	.055		-0.495	.551		0.393	.660		-0.240	.395	
IRI Personal Distress mean score, Age, Age x IRI_PersDistress	.020	.220		0.338	.698		-0.288	.744		-0.076	.665	
BAS Total, Age, Age x BASTotal	.020	.218		-0.758	.407		0.902	.397		-0.538	.268	
BAS Drive mean score, Age, Age x BAS_Drive	.025	.142		-0.240	.794		0.342	.722		-0.227	.414	
BAS Fun Seeking mean score, Age, Age x BAS_FunSeek	.026	.128		-1.288	.167		1.436	.161		-0.600	.079	
BAS Reward Responsive mean score , Age, Age x BAS_RewardResp	.029	.100		-0.393	.689		0.338	.770		-0.290	.610	
BIS Total, Age, Age x BIS_Score	.056	.006	**	-0.702	.430		0.525	.568		-0.333	.316	

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