University of Alberta

"It is far safer to be feared than loved": Why do some individuals become bullies and others bully-victims?

by

Lindsey Susanne Leenaars

A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

in

Psychological Studies in Education

Department of Educational Psychology

Spring 2012
Edmonton, Alberta

Dedication

This dissertation is dedicated to my parents, Antoon and Susanne, who have given me not only love and guidance, but who have also provided me with invaluable feedback, encouragement, and support throughout my education. I also dedicate this dissertation to my sisters Heather and Kristen, and my best friend, Bethany who have supported me through their love, never-ending confidence and encouragement.

Abstract

Although a wide range of theories have been applied to the study of bullying and victimization, the Theory of Planned Behaviour (TPB; Ajzen, 1993, 2002), has not as of yet been applied to the study of bullying behaviour. The present study employed Structural Equation Modeling (SEM) to assess a model of traditional and cyberbullying and bully-victimization based on TPB. The preliminary objectives of the present study were to evaluate the frequency of traditional and cyberbullying and bully-victimization in the present sample, and to assess whether there were sex differences in the different roles and forms of bullying. It was found that overall, 11.08% of participants were classified as traditional bullies, 10.56% as cyberbullies, 13.21% as traditional bully-victims, and 10.56% as cyberbully-victims. Sex differences were found in traditional bullying and bully-victimization with boys reporting higher levels than girls, but not in cyberbullying or bully-victimization. The main goal of the present study was to evaluate a model of traditional and cyberbullying and bully-victimization based on TPB, which included the following factors: psychological adjustment, self-concept, attitude and beliefs, behavioural control, behavioural intention, and bullying behaviour. It was hypothesized that although the model would be similar for bullies and bully-victims, it would also differ for the two groups. The final models, which were different for the various bullying roles (i.e., bully versus bully-victim) and forms of bullying (traditional versus cyber), fit the data well. However, although the final model accounted for 40% of the variance in traditional bullying and 34% of the variance in traditional bully-victimization, it

only accounted for 0.05% of the variance in cyberbullying and 0.06% of the variance in cyberbully-victimization. The results were discussed in relation to TPB and previous findings. Limitations and directions for future research were also addressed.

Acknowledgement

I would like to thank my supervisory committee members, Dr. George Buck and Dr. Martin Mrazik for their guidance and invaluable feedback throughout this process. I would also like to thank my dissertation examiners, Dr. Patricia Boechler, Dr. José da Costa, and my external examiner Dr. Sandra Bosacki for their time and feedback. I would like to extend my gratitude to the University of Alberta, the Department of Educational Psychology, the Alberta Centre for Child, Family and Community Research (ACCFCR), and the Social Sciences and Humanities Research Council of Canada (SSHRC), all of which provided support for this research through funding.

Finally, I would like to thank my supervisor and mentor Dr. Christina Rinaldi. Dr. Rinaldi's unwavering support, insightful and invaluable feedback, and confidence throughout my graduate career have not only played the most significant role in my development as a researcher, but have also played a significant part in my development as a clinician and individual. It has been an honour working with her and I hope to continue to work with her in the future.

Table of Contents

List of Tables

List of Figures

I. Introduction

Overview

The use of aggression, or bullying, in order to achieve some goal is not a novel concept, and throughout history has often been touted as the method of choice to achieve goals and attain power. Not only do individual people today and throughout history employ aggression and/or bullying to get what they want, but so do groups such as governments and religious institutions who wield war and violence in order to achieve their goals. As Machiavelli (1532/1990) argued: "It is far safer to be feared than loved" (p. 56). Is it any wonder then that children and adolescents also continue to bully other children in order to achieve their goals and gain power?

Although bullying and aggression in childhood and adolescence has recently received much research and media attention and our knowledge and understanding of bullying has increased substantially, bullying continues to permeate schools and neighbourhoods. Children and adolescents continue to be subjected to intentionally cruel behaviour by their peers, including physical attacks, name calling, threats, verbal abuse, social exclusion, and rumour spreading both at school and in online environments. Specifically, approximately 25% (Seals & Young, 2003) to 55% (Jankauskiene, Kardelis, Sukys, & Kardeliene, 2008) of children and adolescents report being involved in some form of bullying each year, and 44% of Canadian principals report problems with bullying in their schools (Statistics Canada, 2006).

Bullying and victimization have severe, negative short- and long-term consequences that affect not only the specific individuals involved but also classmates, teachers, and the larger society. For example, international research has shown that relational bullying, as a form of low-level underlying violence, has a profound effect on the overall learning environment of schools and leads to higher rates of truancy and drop-out (Dupper & Meyer-Adams, 2002). Boulton (2008) found that children reported moderate levels of disruption in school and difficulty concentrating due specifically to being bullied. Further, Barboza, Schiamberg, Oehmke, Korzeniewski, Post, and Heraux (2009) found that children who lack teacher support, attend schools they feel are unpleasant, unfair, and unwelcoming and have teachers and parents who have low expectations of their school performance were more likely to bully others.

Students involved in bullying and/or victimization not only have more difficulty in school, poor academic achievement, and drop out of school, but they are also more likely to exhibit mental health problems, engage in crime, and be unemployed as adults (Olweus, 1989, 2011). Even those researchers who have more recently begun investigating the adaptive role of aggression agree that bullying can be highly detrimental on some levels: "For most of us, clearly excessive aggression is undesirable. Also, bullying – repeated aggression against a weaker target – seems morally and socially contemptible. Whatever benefits there may be to an individual persistent aggressor or bully, there are large social costs" (Smith, 2007, p. 79). Highly aggressive individuals can pose a threat to the safety and well being not only of themselves, but of others as well. Such long-

term negative effects come with an extremely high price to society: hospitalization, medication, and unemployment (Olweus, 1989, 2011) and later criminal offense (Bender & Lösel, 2011; Farrington & Ttofi, 2011; Hemphill et al., 2011; Jiang, Walsh, & Augimeri, 2011; Kim, Catalano, Haggerty, & Abbott, 2011; Olweus, 2011; Renda, Vassallo, & Edwards, 2011; Ttofi, Farrington, Lösel, & Loeber, 2011).

Most importantly, bullying can cost lives. Bullies, and especially bully-victims have been found to have higher rates of suicide and suicidal ideation than individuals not involved in bullying (Ivarsson, Broberg, Arvidsson, & Gillberg, 2005; Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2007; van der Wal, de Wit, & Hirasing, 2003). Furthermore, it is suspected that the two students who murdered 14 classmates and then killed themselves in the Columbine High School Massacre were repeatedly and relentlessly relationally and verbally bullied at school (Adams & Russakoff, 2000).

Given the high rates of bullying in adolescence, and as bullying continues to be a major problem despite ample research and the implementation of anti-bullying programs, it follows that there is still much that we do not understand regarding the nature of bullying. Why does bullying persist? Several theories have been put forth in an attempt to explain bullying. Theorists from a sociocultural perspective have explained bullying as resulting from the differential socialization of males and females (Crick, 1996; Lagerspetz, Bjorkqvist, & Peltonen, 1988), and other researchers have related bullying to the cognitive and social development of the individual (Bjorkqvist, Lagerspetz, &

Kaukiainen, 1991; Kaukiainen et al., 1999). From an evolutionary psychology perspective, Bjorklund and Pellegrini (2000) and Campbell (2004) have argued that aggression arises from the competition for mates, and men and women have developed differing strategies for aggressing, such that men tend to use physical means and women indirect or relational means of aggression. Similarly, Hawley and colleagues (e.g., Hawley, et al., 2007) have argued from an evolutionary metatheoretical perspective that aggression can in some contexts be seen as adaptive and has been naturally selected for over the course of human and non-human animal history.

Despite empirical support for the aforementioned theories, these theories taken separately or together cannot fully explain all of the variance in bullying behaviour. Like most psychosocial phenomena, bullying is a complex phenomenon and is influenced by many factors including social, cultural, and individual. This is consistent with the view of the World Health Organization (WHO) that argues for an ecological model for understanding violence, which takes into account individual, relationship, social, cultural, and environmental factors (WHO, 2002). Bullying is multi-determined, and it is likely that any single explanation will not allow us to understand a behaviour as complex as bullying. It cannot be reduced to one factor or explanation. Studying bullying from multiple theoretical perspectives, may allow us to better comprehend bullying. One theoretical framework that has not, as of yet, been applied to bullying behaviour is the *Theory of Planned Behavior* (TPB). From a social psychology perspective, Ajzen (1991, 2002) proposed TPB as an explanation of

volitional behaviour. Ajzen argued that behaviour can best be predicted by behavioural intention and perceived behavioural control, which in turn are predicted by attitudes and beliefs about the behaviour. Although Ajzen's original theory takes into account social, behavioural, and cognitive factors, others have argued that additional factors such as moral and personal beliefs and affective variables should also be considered when predicting behaviour (e.g., Aarts, Verplanken, & van Knippenberg, 1998; Hagger & Chatzisarantis, 2005). In a meta-analysis of 185 studies of TPB, Armitage and Conner (2001) found good support for the predictive value of TPB for a wide range of behaviours (e.g., health, travel and tourism, social identity and group membership). However, TPB has never been applied to the study of bullying behaviour, and this will be the aim of this study.

Given that bullying is defined as a form of aggressive behaviour that is repeated over time (Rigby, 2005), it follows that a theory like TPB may add to our understanding of bullying. As implied by the name, the emphasis in TPB is on volitional, planned behaviour. Bullying, for the most part, can be considered planned behaviour, especially when it occurs repeatedly over time. It follows that the application of TPB with the addition of antecedents, such as psychological adjustment and self-concept, to bullying behaviour may provide an alternative framework from which we can add to the explanation of bullying, and hopefully to the prediction and control of it.

Purpose of the Present Study

The main purpose of this study was to test an alternative framework for investigating bullying and bully-victimization in order to add to our current knowledge and understanding. Specifically, the main goal of the present study was to develop and test the proposed model based on TPB that describes the relationship between psychological adjustment, self-concept, attitude and beliefs about aggression, perceived control, intention, and bullying behaviour. A further goal of the study was to determine whether the model held for both bullies and bully-victims, and for traditional as well as cyberbullying. Finally, the goal was to run a multiple groups comparison for sex differences for all forms of bullying and bully-victimization.

II. Literature Review

Definitions and Forms of Bullying and Aggression

> The World Health Organization (WHO, 2002) defines *violence* as:
>
> The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation. The definition… associates intentionality with the committing of the act itself, irrespective of the outcome it produces. (WHO, 2002, p. 5)

Although the terms *bullying* and *aggression* are often used interchangeably in the literature and in everyday speech, the two are not synonymous. Aggression is "the act or practice of attacking without provocation" and is a "hostile or

destructive tendency or behaviour" (Bisset, 2000, p. 15). In contrast, but commensurate with the WHO definition of violence, bullying is comprised of three key characteristics: "(a) It is aggressive behavior or intentional 'harmdoing' (b) which is carried out 'repeatedly and over time' (c) in an interpersonal relationship characterized by an imbalance of power" (Olweus, 1994, p. 1173). Bullying, therefore, is a form of aggressive behaviour that is repeated over time, and involves a power imbalance between the bully and the victim (Rigby, 2005).

Differentiating forms of bullying. Aggression and bullying can take several different forms. In the literature, a distinction is drawn between *relational* aggression or bullying, and *overt* aggression or bullying. Relational aggression involves "harming others through purposeful manipulation and damage of their respective gender peer groups" and overt aggression is "harming others through physical aggression, verbal threats, instrumental intimidation" (Crick & Grotpeter, 1995, p. 710). Crick and Grotpeter argued that individuals choose the form of aggression when bullying others that is most advantageous to them: "when attempting to inflict harm on peers (i.e., aggressing), children do so in ways that best thwart or damage the goals that are valued by their respective gender peer groups" (p. 710).

Although there is little argument regarding what types of behaviour constitute overt aggression (e.g., pushing, kicking, hitting, property destruction), there has been some debate regarding the nature and best terminology to be used when discussing non-physical forms of aggression (e.g., social exclusion, rumour spreading). Archer and Coyne (2005) argued that distinctions should be made

between indirect, relational, and social aggression. Specifically, the emphasis when using the term *indirect* aggression is on the form the aggression takes (i.e., covert), whereas use of the term *relational* aggression emphasizes the intention or end point of the aggressor and can be overt or covert although it is typically covert. *Social* aggression is a broader term that encompasses both indirect and relational aggression, and in addition includes verbal aggression. To promote clarity and simplicity, the terms relational bullying and overt bullying will be used with the exception of discussion of previous research.

Although the definition of bullying has remained static, the means by which individuals are bullied or bully others has evolved with the increased accessibility and prevalence of electronic forms of communication, such as the Internet and cellular phones. *Cyberbullying*, like the more traditional forms of bullying, involves repeated negative behaviours aimed to harm, an inherent power imbalance between the bully and victim, and is most similar to relational forms of bullying (Hinduja & Patchin, 2008). What is different, is the medium by which individuals victimize others; for example, through text messaging, social networking sites, email, instant messaging, and taking and posting pictures online. In addition to the three traditional criteria of bullying (imbalance of power, intention, repetition), Nocentini, Calmaestra, Schultze-Krumbholz, Scheithauer, Ortega, and Menesini (2010) proposed that that there are two additional criteria including “publicity” or public cyberbullying and “anonymity” that may need to be considered when discussing what constitutes cyberbullying. Congruently, Shariff and Hoff (2007) argued that cyberbullying must be addressed in research

and practice as "[c]yber bullying is especially insidious because of its anonymous nature. Moreover, it allows participation by an infinite audience" (p. 77). Most importantly, the rate of growth of this type of bullying is on the rise as technology progresses (Ybarra & Mitchell, 2007).

Proactive and reactive aggression. In the aggression and bullying literature, a further distinction is made between proactive and reactive aggression. Instrumental or proactive aggression "is a relatively nonemotional display of injurious power… the behavior is controlled, almost ritualistic, and is characterized by its lack of emotion, its deliberateness, and its focus on goals… Hostile [reactive] aggression is a less controlled outburst of anger and frenzy that appears to be a defensive reaction to some goal blocking, provocation, or frustration" (Dodge & Coie, 1987, p. 1147). More succinctly, "reactive aggression is angry and retaliatory, and proactive aggression is dominant aggressive behavior deployed to achieve specific goals" (Underwood, 2005, p. 534).

Prevalence, Antecedents, and Consequences of Bullying

Overall prevalence rates. Although prevalence rates of bullying vary by study, it is evident that bullying is a major problem faced by children and adolescents. Variation in rates of bullying may be attributed to several factors including type of informant (self, other, observational), age and sex of the participants, and the type of bullying studied. Rates further differ depending on an individual's role in bullying, such as bully versus bully-victim. Individuals are typically categorized as a pure bully when their scores fall one standard deviation

above the mean on a measure of bullying, but their scores are low on measures of victimization (Crick, Grotpeter, & Bigbee, 2002; Leenaars & Rinaldi, 2010). On the other hand, *bully-victims* are individuals who are both bullies and victims, and score more than one standard deviation above the mean on measures of bullying and victimization (Marini, Dane, Bosacki, & YLC-CURA, 2006). Overall rates of participation in bullying including bullies, bully-victims, and victims vary from around 25.0% (Camodeca, Goossens, Terwogt, & Schiengel, 2002; Seals & Young, 2003) to 40.0% (Kim, Leventhal, Koh, Hubbard, & Boyce, 2006) to as high as 56.5% (Jankauskien et al., 2008) and 78.0% (Kim et al., 2011).

Bullies. There is a wide range in the frequency of bullying in the existing literature. Frequencies range from as low as 3.4% (Ma, Phelps, Lerner, & Lerner, 2009) to under 10.0% (Camodeca & Goossens, 2005; Leenaars & Rinaldi, 2010; Rodkin & Berger, 2008) to between 10-to-20% (Andreou, 2004; Carlyle & Steinman, 2007; Georgiou & Stavrinides, 2008; Gini, 2008; Holt & Espelage, 2007; Ivarsson et al., 2005; Jankauskiene, et al., 2008; Kim, et al., 2006; Thornberg & Knutsen, 2011) to as high as 30.1% (Menesini, Sanchez, Fonzi, Ortega, Costabile, & Lo Feudo, 2003), 31.1% (Li, 2007), and 49.5% (Baldry, 2004).

One explanation for the large variation in prevalence rates is the measurement of the frequency of bullying. For example, Ball, Arseneault, Taylor, Maughan, Caspi, and Moffitt (2008) found that although over 50% of individuals in their sample had bullied others in the past; only 13.3% had done so frequently. Klomek et al. (2007) likewise reported that 13.0% of adolescents reported

bullying others frequently. Similarly, in a sample of 2,678 students, 50% of elementary, 71% of middle, and 72% of high school students reported being involved in some form of bullying where far fewer students reported moderate to high frequency bullying (8%, 15%, and 12% respectively) (Guerra, Williams, & Sadek, 2011). Bradshaw, Sawyer, and O'Brennan (2007) found that overall, 30.8% of participants reported bullying others, but only 8.0% reported bullying others frequently. In a sample of 22,178 elementary (typically grades 1 to 6) and middle (typically grades 7 to 9) school students, 19.3% reported frequent bullying (Bradshaw, Sawyer, & O'Brennan, 2009), and only 4.9% of 7,946 participants were classified as chronic and frequent bullies (Barboza et al., 2009). Klomek et al. (2009) reported that 47.2% of male respondents and 23.2% of female respondents reported bullying others occasionally versus 9.0% (boys) and 0.9% (girls) who reported bullying others frequently. In contrast, with a sample of 24,345 students, O'Brennan, Bradshaw, and Sawyer (2009) found moderately high rates of frequent bullying in elementary school (34.5%), middle school (37.9%), and high school (36.7%) students. Finally, in a qualitative study of bullying, Burns, Maycock, Cross, & Brown (2008) found that 25.8% of boys and 15.0% of girls reported regularly bullying others compared to 67.8% of boys and 70.0% of girls who reported bullying others occasionally.

In addition to the frequency of bullying, sex and age of the respondent and the form of bullying plays a role in prevalence rates of bullying. For relational bullying, 17.4% of girls and 2.0% of boys reported bullying others (Crick & Grotpeter, 1995). On the other hand, other researchers have found no sex

differences for relational bullying (Marsee et al., 2005; Viding et al., 2009). This trend was reversed when looking at overt bullying where 15.6% of boys and 0.4% of girls reported overtly bullying others (Crick & Grotpeter, 1995). In a study of 2,923 junior high school students, Ando, Asakura, and Simons-Morton (2005) examined the frequency of different forms of bullying. For physical bullying, 17.4% reported starting fights, 30.3% reported hitting, kicking, or choking another student, and 14.2% reported property destruction. For verbal bullying, 26.9% reported direct name calling, and 14.2% verbally threatening another student. For indirect bullying, 40.7% reported repeatedly ignoring someone, and 30.9% reported socially excluding another student. Similarly, Herrenkohl, McMorris, Catalano, Abbott, Hemphill, and Toumbourou (2007) found higher rates of bullying others for relational bullying (11.9%) as opposed to physical bullying (6.0%). Across elementary, middle, and high school students, Bradshaw et al. (2007) found direct verbal bullying to be the most frequently reported form of bullying, followed by relational bullying, and direct physical bullying. Cyberbullying was the least reported form of bullying, but was most likely to be reported by middle and high school students as compared to elementary school students.

Although there is some consistency across countries, bullying and victimization rates also vary by country. For example, in a study of 28 countries in Europe and North America, Due et al. (2005) reported that Sweden had the lowest rates (5.1%) and Lithuania had the highest rates (38.2%) with all other countries falling within this range. Another factor that plays a role in frequency

rates of bullying is the type of informant: Eliot and Cornell (2009) found that although 17.3% of participants reported bullying others, peers nominated 24.5% of classmates as bullies.

Like rates for traditional forms of bullying, rates for cyberbullying also vary from 7.4% (Sourander et al., 2010) to between 10.0-to-30.0% (Huang & Chou, 2010; Li, 2007; Slonje & Smith, 2008; Wade & Beran, 2011; Ybarra & Mitchell, 2007) to as high as 35.7% (Aricak, et al., 2008) and 44.1% (Calvete, Orue, Estévez, Villardón, & Padilla, 2010). Similar to traditional bullying, rates of cyberbullying vary depending on the age of the participants. Cassidy, Jackson, and Brown (2009) found that the youngest children (11-year-olds) and the oldest (15-year-olds) both reported lower rates (17.0% and 19.0%, respectively) than the 12- to 14-year old children (25.0%). Congruently, Wade and Beran (2011) found that Grade 7 students were more likely than Grade 6 and 11 students to be a cyberbully. Dehue, Bolman, and Völlink (2008) also found that although 16.8% of the sample taken as a whole reported cyberbullying others, cyberbullying was higher in elementary school students (17.1%) than high school students (13.5%).

Bully-victims. In a study of 7,290 13- to 18-year olds, Marini et al. (2006) found that 33% of those participants involved in bullying could be classified as bully-victims. Consistently, Baldry (2004) reported that 63.4% of victims had also bullied others and 72.2% of bullies had also been victimized. On the other hand, in a sample of 115 9- to 10-year olds, Boulton, Smith, and Cowie (2010) found that the relationship between bullying and victimization was very low and non-significant. When rates of bully-victims are compared to the total sample

there is large variation, and the rates tend to be much lower. Rates range from as low as 1.89% (Solberg, Olweus, & Endersen, 2007) to under 10% (Carlyle & Steinman, 2007; Georgiou & Stavrinides, 2008; Ivarsson, et al., 2005; Kim, et al., 2006; Leenaars & Rinaldi, 2010; Rodkin & Berger, 2008) to between 10-to-20% (Andreou, 2004; Gini, 2008; Holt & Espelage, 2007; Thornberg & Knutsen, 2011) to 23.8% (Aricak et al., 2008). Consistent with traditional bully-victimization, cyberbullying and cybervictimization is also highly correlated; for example, Huang and Chou (2010) found a correlation of $r = 0.720$ between being a cyberbully and a cybervictim. Sourander et al. (2010) found that 5.4% of their sample could be classified as cyberbully-victims.

In line with rates of bullying, rates of being a bully-victim vary depending on the frequency with which individuals both bully others and are victims. In a sample of 661 twins, 4.1% (boys) and 1.1% (girls) were classified as frequent bully-victims. In another study, a comparably small percentage (9.4%) of students reported frequently being a bully-victim (Bradshaw et al., 2007).

Psychosocial correlates of bullying. A plethora of studies exist in which the relationship between bullying and psychosocial functioning has been investigated. Overall, it is evident that bullies, and especially bully-victims exhibit psychosocial maladjustment as compared to individuals uninvolved in bullying. For example, involvement in bullying was a significant predictor of suicidal ideation and suicide attempts (Ivarsson et al., 2005). Several studies have found that one of the best predictors of bullying is victimization, and vice versa (Ando et al., 2005; Kokkinos & Panayiotou, 2004; Leenaars & Lester, 2011;

Leenaars & Rinaldi, 2010). Although there are commonalities in the psychosocial functioning of bullies and bully-victims, in order to highlight the differences, bullies and bully-victims are presented in separate sections below.

Bullies. Olweus (1994) described four main characteristics of bullies including: (a) being aggressive towards peers, teachers, and parents; (b) having a more positive attitude towards bullying; (c) being more impulsive and having a need to dominate others; and (d) having little empathy towards victims. Further, contrary to the common conception of bullies as insecure, in several studies, Olweus found that bullies had very low levels of anxiety and insecurity, did not have low self-esteem, and did not experience as many social problems as victims.

Overall, bullying has been associated with peer rejection (Dijkstra, Lindenberg, & Veenstra, 2007; Dijkstra, Lindenberg, & Veenstra, 2008; Georgiou & Stavrinides, 2008; Rodkin & Berger, 2008). However, some studies have shown that this is not always the case. For example, Farmer et al. (2010) found that bullies were more likely to be both liked and disliked by peers (i.e., to have "controversial" status) than uninvolved children, victims, and bully-victims. Similarly, Peeters, Cillessen, and Scholte (2010) found that there are three clusters of bullies, which holds for girls and boys: (a) popular-socially intelligent; (b) popular moderate; (c) low-popular low-socially intelligent. This finding is in line with Hawley and colleagues (e.g., Hawley et al., 2007) as the authors argued that the "social function of bullying differs between bullies and is associated with status, skills, and position in the peer network. Different functions of bullying will demand different skills and levels of social influence" (p. 1048). Congruent

with this argument, the relationship between bullying and peer rejection was stronger when bullying by popular adolescents in the school was low (Dijkstra et al., 2008). In addition, although bullying was negatively related to peer acceptance, the relationship was weaker when popular adolescents in school bullied others. In other words, when there were more popular adolescents who bullied others, the negative relationship between bullying and peer acceptance was smaller. In line with this finding, male bullies who bullied other boys were popular among their peers, but male bullies who bullied girls were unpopular with their peers (Rodkin & Berger, 2008). de Bruyn, Cillessen, and Wissink (2010) found that peer acceptance moderated the relationship between popularity and bullying. The positive relationship between popularity and bullying was stronger for adolescents who were less accepted by their peers (i.e., adolescents who were popular but disliked bullied significantly more than adolescents who were popular but liked), and this was especially true for boys.

In a qualitative study of bullying, 12-year-old participants reported that they felt bullying enhanced their social status and popularity within their peer group (Kaloyirou & Lindsay, 2008). In line with this, Card et al. (2008) found that both direct and indirect bullying had low to moderate correlations with peer acceptance, but indirect and especially direct bullying were also associated with peer rejection. Different forms of bullying tend to have different relationships to social adjustment: Verbal aggression was positively related to rejection for boys, but not girls, and relational aggression was related to rejection for girls only (Lee, 2009). Further, aggressive behaviour was negatively related to social preference

for both girls and boys; however, there was a stronger relationship between both relational and physical aggression and positive social impact for boys (Zimmer-Gembeck, Geiger, & Crick, 2005). On the other hand, relationally aggressive children, especially girls, reported more social isolation, less peer acceptance, and being more disliked than their non-aggressive peers (Crick & Grotpeter, 1995).

From the existing research, it is clear that there is also a relationship between externalizing problems (e.g., conduct problems, inattention/hyperactivity and sensation seeking) and bullying behaviour. In a meta-analysis of 148 studies, indirect and direct bullying were related to delinquent behaviours (Card et al., 2008). Bullies experience more externalizing symptoms, delinquent symptoms, and aggressive symptoms than victims and uninvolved adolescents (Menesini, Modena, & Tani, 2009). Bullying has also been found to be significantly related to oppositional defiant disorder (ODD) and conduct disorder (CD) (Kokkinos & Panayiotou, 2004), delinquent behaviour (van der Wal et al., 2003), sensation seeking (Herrenkohl et al., 2007), lower self-reported grades, school engagement, and academic competence (Ma et al., 2009), and increased substance abuse (Carlyle & Steinman, 2007; Jankauskiene et al., 2008). Parental ratings of externalizing problems were a significant predictor of their child being a bully (Holmberg & Hjern, 2008), and both overt and relational aggression were found to be significantly related to increased self- and teacher-reported psychopathic traits (Marsee, Silverthorn, & Frick, 2005). Further, Viding, Simmonds, Petrides, & Frederickson (2009) fount that direct and indirect bullying were positively correlated with conduct problems and callous-unemotional (CU) traits, defined as

"characteristics such as lack of empathy and guilt, as well as shallow emotions" (p. 472). On the other hand, Muñoz, Qualter, and Padgett (2011) found that those children (11- to 12-years old) who were classified as high on total CU scored significantly higher on direct, but not indirect forms of bullying when compared to the low and moderately low CU groups. Further, high scores on uncaring traits (subscale of callous-unemotional) predicted both direct and indirect bullying over and above the effects of affective and cognitive empathy deficits.

In a study comparing 41 identified bullies with 41 controls, bullies experienced higher ratings on CD, ODD, Attention-Deficit-Hyperactivity Disorder (ADHD), and Depressive Disorder (Coolidge, DenBoer, & Segal, 2004). Utilizing a parent-report, standardized measure based on the *Diagnostic and Statistical Manual of Mental Disorders*, 4th Edition, Text Revision (DSM-IV-TR, American Psychiatric Association, 2000), bullies were clinically elevated (T score of 60 or greater) on the passive-aggressive, histrionic, paranoid, and dependent scales. Bullies were also significantly elevated on several neuropsychological scales including executive functioning deficits, general neuropsychological dysfunction, and mild cognitive impairment, and on additional measures of dangerousness, aggression, emotional liability, and disinhibition (Coolidge et al., 2004).

Several studies have specifically investigated the relationship between ADHD and bullying. ADHD is characterized by persistent inattention and/or hyperactivity-impulsivity (American Psychiatric Association, 2000). Bullies have been found to be at a higher risk for hyperactivity and impulsivity than

uninvolved students (Farrington & Ttofi, 2011; Gini, 2008; Herrenkohl et al., 2007; Kim et al., 2011; Leenaars & Rinaldi, 2010; Viding et al., 2009). Bacchini, Affuso, and Trotta (2008) found that ADHD was associated with bullying for male students, but with victimization for female students. On the other hand, Jolliffee and Farrington (2011) found impulsivity to be the most important predictor of bullying for boys and girls. Ando et al. (2005) found impulsiveness to be a significant predictor of physical, verbal, and indirect bullying. Similarly, ADHD symptoms were significantly related to both direct and indirect forms of bullying, but the association was stronger for direct bullying (Card et al., 2008). Controlling for sex and parent education, children with ADHD were 3.8 times more likely to bully others (Holmberg & Hjern, 2008). In contrast, Unnever and Cornell (2003) did not find a direct effect of ADHD on bullying others, but rather an indirect effect: ADHD was related to low self-control, which in turn was strongly related to bullying others.

To clarify the relationship between externalizing problems and bullying, Kim et al. (2006) gave students in 7th grade and then again in 8th grade measures of bullying and externalizing problems. Greater support was found for psychopathologic behaviour as a consequence as opposed to a cause of bullying. Specifically, being a bully at time one was associated with increased risk for aggression and the development of new externalizing problems at follow-up, but for girls only.

Though not covered here, there is much evidence regarding the relationship between internalizing (e.g., anxiety, depression, low self-esteem)

problems and victimization (see Leenaars, Dane, & Marini, 2008). Although the majority of poor psychosocial correlates of bullying tend to relate to externalizing problems, some evidence of issues regarding internalizing problems exist. One of the key factors in the relationship between bullying and internalizing problems is the form of bullying studied. For example, in their meta-analysis of 148 studies, Card et al. (2008) found a significant relationship between internalizing problems and indirect forms of bullying, but not direct forms of bullying. In a longitudinal study of relationally aggressive children, growth in relational aggression was significantly related to growth in internalizing problems for both boys and girls (Murray-Close, Ostrov, & Crick, 2007). Relationally aggressive female children were significantly lonelier than their non-aggressive peers, but overtly aggressive adolescents were not (Crick & Grotpeter, 1995). Both male and female relationally aggressive children also had higher levels of depression than their non-aggressive peers, and the relationship was stronger for boys. Indirect aggression was significantly related to anger discomfort, silencing the self, mania, depression, guilt, resentment, irritability, and suspicion (Leenaars & Lester, 2011). Finally, in a study of indirect aggression, all indirect aggressors reported at-risk ratings on internalizing problems (somatization and school maladjustment) and personal adjustment problems (Leenaars & Rinaldi, 2010).

Bullies have also been found to have significantly lower self-esteem (Jankauskiene et al., 2008; Kokkinos & Panayiotou, 2004) and a negative self-concept (Christie-Mizell, 2003). In line with these findings, increased involvement in bullying from Time 1 (Fall 2005) to Time 2 (Spring 2006) was

predicted by decreases in self-esteem from Time 1 to Time 2, and this pattern was further supported by qualitative focus group data (Guerra et al., 2011). In contrast, in a qualitative study of nine identified bullies, Kaloyirou and Lindsay (2008) found high feelings of global self-worth and a positive overall self-image. However, the five bullies who had experienced violence at home had a more negative self-image and lower self-esteem. Although nonsignificant, Rigby and Slee (1993) also found bullies to have slightly above-average scores on a measure of self-esteem, but they were also less happy and disliked school more.

Bullying has also been associated with suicide and suicidal ideation. For instance, frequent and infrequent bullying were related to increased risk for depression, suicidal ideation, and suicide attempts compared to uninvolved adolescents, but the association with infrequent bullying was especially high for female adolescents (Klomek et al., 2007). Van der Wal et al. (2003) also found both directly and indirectly aggressive bullies to not only score higher on measures of depression, but also on measures of suicidal ideation. Similarly, Hinduja and Patchin (2010) found bullies to score higher on the suicidal ideation scale than uninvolved students, and were 1.7 times more likely to have attempted suicide. On the other hand, in a longitudinal study, Klomek et al. (2009) found that male and female bullies at age eight were not more likely to be suicidal than uninvolved participants by age 25, but frequent male bullies were more likely to be suicidal than uninvolved participants when controlling for baseline depression.

In regards to long-term consequences, bullying has been found to be associated with negative outcomes such as increased participation in crime and

violent crime, and criminal offense/conviction. For example, in an 8-year longitudinal study from ages 16 to 24, individuals identified as bullies on average had four times more convictions than the average non-bully (Olweus, 2011). For total crime, bullies were 3.47 times more likely to be in the 0 – 2 convictions group than non-bullies, and 5.12 times more likely to be in the 3+ convictions group. For violent crime, bullies were 6.19 times more likely than non-bullies to have committed a violent crime (1+ convictions), and were 7.79 times more likely to be in the more serious violent crime group (2+ convictions). Similarly in a sample of 570 boys and 379 girls, Jiang et al. (2011) found that childhood bullying was predictive of future offending, especially for boys. Of those bullies identified in the sample, 9.2% had at least one criminal conviction (including assault, breaking and entering, theft, weapon, mischief and drug offences) before they were 18 years old versus 5.1% of non-bullies. After controlling for age, gender and other childhood risk factors, bullies were 1.9 times more likely than non-bullies to be convicted of a criminal offense. Given the smaller number of girls and small number of reported offenses for girls, there was no significant relationship between bullying and later risk for criminal offense for girls. For boys, on the other hand, bullies had a 2.2 times higher risk for later criminal offense than non-bullies.

Bender and Lösel (2011) investigated a group of 63 males at ages 15 and 25, and found that after controlling for Time 1 risk variables, bullying at school was a strong predictor of violent offending, delinquency, drug use, and psychopathology. Physical bullying was in general a stronger predictor of later

negative outcomes than verbal/indirect bullying. In a sample of 5,769 students in Australia, bullying at Year 7 was associated with carrying a weapon, theft, violent behaviour, marijuana use, and binge drinking in Year 11 (Hemphill et al., 2011). Renda et al. (2011) found that bullying at age 13-14 predicted anti-social behaviour, criminal violence, and contact with police or courts 6 and 10 years later. In a 10-year longitudinal study of 957 individuals, bullying at age 11 predicted violence, heavy drinking, and marijuana use at age 21 (Kim et al., 2011). In a 40 year longitudinal study of 411 men, Farrington and Ttofi (2011) found that bullying at age 14 predicted convictions, especially violent crime convictions between 15 and 20, self-reported violence between ages 15 and 18, self-reported drug use between ages 27 and 32, anti-social personality characteristics and low job status at age 18, employment problems at age 32, and relationship problems and a composite measure of an unsuccessful life at age 48. On the other hand, Bijeveld, van der Geest, and Hendriks (2011) found no association between bullying and re-offending among three high-risk groups of 716 juvenile offenders.

Bully-victims. As can be seen in the following recent research, of those individuals involved in bullying, bully-victims appear to have the poorest psychosocial outcomes. In terms of social functioning, bully-victims were the most rejected group among their peers and had the lowest popularity ratings (Farmer et al., 2010; Warden & Mackinnon, 2003), were more socially isolated than bullies, victims, and uninvolved children (Georgiou & Stavrinides, 2008; Shin, 2010), and experienced more relational problems than bullies or uninvolved

students (Marini et al., 2006). Further, being a bully-victim predicted later onset of new social problems at follow-up (Kim et al., 2006).

Bully-victims experience both increased externalizing and internalizing problems. Bully-victims exhibited more externalizing symptoms including drug and alcohol abuse (Ivarsson et al., 2005), delinquent symptoms, and aggressive symptoms than victims and uninvolved adolescents (Mensini et al., 2009). Moreover, being a bully-victim at baseline was associated with an increased risk for externalizing problems at follow-up (Kim et al., 2006). Bully-victims have been found to be more temperamental than bullies, victims, and uninvolved students (Georgiou & Stavrinides, 2008), to be at a higher risk for conduct problems, and hyperactivity and impulsivity (Gini, 2008; Leenaars & Rinaldi, 2010), and to have higher aggressive impulsivity (O'Brennan et al., 2009). Bully-victims also scored higher than bullies and uninvolved adolescents on CD and ODD, and significantly lower on measures of self-esteem (Kokkinos & Panayiotou, 2004). Further, bully-victims overwhelmingly reported the most problem behaviours, injury, weapon possession, drug use, and delinquent behaviours than bullies, victims, and uninvolved adolescents (Stein, Dukes, & Warren, 2007).

Approximately 47% of bully-victims in junior high school reported suicidal ideation versus 12% of bullies (Ivarsson et al., 2005). Moreover, male bully-victims at age eight had the highest percentage of later suicidal behaviour than bullies and uninvolved participants (Klomek et al., 2009). Similarly, bully-victims were found to be at a higher risk for depression and suicidal ideation

(Pranjic & Bajraktarevic, 2011). Bully-victims scored higher on measures of psychological distress than both bullies and victims (Cassidy & Taylor, 2005; Klomek et al., 2009; O'Brennan et al., 2009). Further, of the 22% of adolescents who scored above the cut-off on a measure of psychological distress, 57.1% were classified as bully-victims versus 13.3% who were classified as victims (Cassidy & Taylor, 2005). Bully-victims were also found to have more internalizing problems, to be more withdrawn, to have more somatic complaints, and more depressive symptoms than bullies and uninvolved adolescents (Menesini et al., 2009).

Indirect, but not direct bully-victims experienced higher levels of internalizing (anxiety, depression, self-esteem) problems (Marini et al., 2006). On the other hand, Holt and Espelage (2007) found that bully-victims overall (direct and indirect) reported significantly higher levels of anxiety and depression when compared to bullies and victims. Consistent with this, bully-victims scored higher than bullies, victims, and uninvolved students on measures of internalizing problems, and unusual symptom patterns including thought problems and self-destructive identity problems (Ivarsson et al., 2005), and reported significantly lower self-esteem (Pollastri, Cardemil, & O'Donnell, 2010). Finally, indirect bully-victims reported clinically significant ratings on internalizing problems (alcohol abuse, anxiety, and sense of inadequacy) and inattention/hyperactivity (Leenaars & Rinaldi, 2010).

In a longitudinal study, Sourander et al. (2009) found that 17% of boys classified as bully-victims at 8-years old had received psychiatric hospital

treatment by the age of 24 versus 9% of bullies, 10% of victims and 5% of the reference group. Similarly, 32% of boys classified as bully-victims at age eight had received psychopharmacological treatment including psychiatric medication, antidepressants, anxiolytics, and anti-psychotics compared with 18% of bullies, 15% of victims, and 12% of the reference group.

Cyberbullying. There is a strong relationship between being a traditional bully and being a cyberbully. Cyberbullying, like traditional bullying, involves repeated negative behaviours aimed to harm, an inherent power imbalance between the bully and victim, and is most similar to relational forms of bullying (Hinduja & Patchin, 2008). Adolescents who reported being a traditional bully were 2.5 times more likely to be a cyberbully (Hinduja & Patchin, 2008). Sourander et al. (2010) similarly found that traditional bullies were 6.7 times more likely to be a cyberbully and traditional bully-victims were 6.1 times more likely to be a cyberbully-victim. Li (2009) also found that traditional bullies and bully-victims as compared to non-bullies were more likely to also be cyberbullies or cyberbully-victims. When compared to traditional forms of bullying, adolescents reported feeling that cyberbullying through text messages and email had less of an impact on the victim than traditional forms of bullying, but picture/video bullying had more of an impact (Slonje & Smith, 2008; Smith et al., 2008). Similarly, 32% of adolescents considered cyberbullying to be acceptable, normal, and not hurtful (Cassidy et al., 2009).

Although adolescents seem to deemphasize the harm of cyberbullying, cyberbullying has been linked to poor psychosocial adjustment. In a recent study

of 1,963 Grade 6 to 8 students, cyberbullies were 1.5 times more likely than uninvolved students to attempt suicide (Hinduja & Patchin, 2010). As the frequency and severity of cyberbullying others increased, psychosocial and behavioural problems also increased (Ybarra & Mitchell, 2007). Moreover, adolescents who reported recent school problems, assaultive behaviour, and substance use were more likely to be a cyberbully (Hinduja & Patchin, 2008). In a study of 2,215 13- to 16-year olds, Sourander et al. (2010) found that conduct problems and hyperactivity independently predicted cyberbully and cyberbully-victim status. Cyberbullying was further predicted by prosocial problems, and cyberbully-victimization by emotional and peer problems.

Cross-cultural trends. As previously discussed, the rates of prevalence and experience of bullying does vary by country even within Europe and North America (Due et al., 2005). Up until more recently, the majority of studies on bullying have mainly been conducted in Western/Individualistic cultures such as those found in Western Europe and North America. There has been a paucity of research on prevalence rates and the nature of bullying in Eastern/Collectivistic cultures such as those found in Asia. However, several researchers have recently examined bullying in such cultures, and have generally found results very similar to those found in Western/Individualistic cultures. For example, using a cut-off of 0.5 SD above the mean, Shin (2010) found that 9.3% of a sample of Korean Grade 4 to 6 students could be categorized as bullies and 4.4% as bully-victims with boys more frequently identified as bullies and bully-victims than girls. Comparatively, in a sample of 545 Grade 7 to 9 students in Taiwan, 20.4% were

classified as cyberbullies with male students having the highest scores on all types of cyberbullying (Huang & Chou, 2010). Further, Huang and Chou found a high correlation ($r = 0.72$) between cyberbullying and cybervictimization. In a study of 463 Grade 4 and 5 students and 346 Grade 6 to 8 students in China, Ang et al. (2010) found similar results regarding the relationship between narcissism, approval-of-aggression and bullying as those studies conducted in Europe and North America as previously discussed. In a study of 486 12- and 17-year old male students in South Africa, Penning, Bhagwanjee, and Govender (2010) found that 49.0% reported bullying others and 34.0% reported being a bully-victim.

Penning et al. found similar relationships to those found in Western/Individualistic cultures between internalizing problems (including anxiety, depression, anger, PTSD symptoms, and dissociation) and being a bully or bully-victim in that being a bully and especially a bully-victim was associated with higher levels of internalizing problems. Further, in studies of bullying in Eastern European countries comparative results have been found. For example, Ucanok, Smith, and Karasoy (2011) investigated its definition of bullying including the different types in a sample of 124 Grade 4 and 8 students in Turkey and found that the students differentiated between non-aggressive, physically aggressive, verbally aggressive, and social exclusion scenarios. Moreover, they also differentiated between acts of aggression and acts of bullying where there is an imbalance of power with similar developmental trends to those found in Western/Individualistic cultures. Finally, the prevalence rate for bully-victims

(20.0%) in a study of 290 17-year olds in Bosnia is similar to rates found in Western/Individualistic cultures (Pranjic & Bajraktarevic, 2010).

Developmental trends. Although bullying is a major problem throughout childhood and adolescence that continues into adulthood for some, overall both overt and relational bullying decrease with time (Underwood, Beron, & Rosen, 2009). In a cross-national study of 28 European and North American countries, bullying was found to decrease with age in all countries with the exception of Scotland (Due et al., 2005). Despite these general trends, however, there is large individual variability in bullying behaviour; for example, Barboza et al. (2009) found that the likelihood of being a bully increased between the ages of 11 to 14, and older adolescents were more likely to be a cyberbully than were younger adolescents (Hinduja & Patchin, 2008; Ybarra & Mitchell, 2007). One trend that is consistent in the research is a peak in bullying in late childhood/early adolescence. For example, all forms of bullying (overt, relational, and cyber, which can be overt or relational) were highest in middle school students as compared to elementary and high school students (Bradshaw et al., 2007). Jankauskiene et al. (2008) found similar results with students in grades 6 and 8 reporting higher levels of bullying than students in grade 11. However, when compared to elementary school students (grades 6 to 8), high school students (grades 9 to 12), especially those in grade 9 reported higher levels of involvement in bullying (Pepler et al., 2006).

Researchers have found moderate to high levels of continuity and stability in bullying. In a seven year longitudinal study, Pepler et al. (2008) found four

trajectories of bullying including consistently high levels (9.9%), early moderate but desisting to almost no bullying at the end of high school (13.4%), consistently moderate (35.1%), and never bullying (41.6%). In a 40-year longitudinal study of individuals followed from age 8 to 48, Huesmann, Dubow, and Boxer (2009) found a moderate level of continuity in aggression that was more stable for men than for women. They found that this pattern was due not only to those individuals high on aggression remaining high, but also to those low on aggression remaining low. Several studies have also found a moderate to high degree of stability in bullying over one year, which was more stable than that for victims (Camodeca et al., 2002; Strohmeier, Wagner, Spiel, & von Eye, 2010). Over three years, Schulte et al. (2007) found relative stability in bullying with 46.0% of children who bullied at age 11 continuing to bully others at age 14. Interestingly, Rigby and Slee (1993) found strong levels of stability for bullies from fall to spring, but very low levels of stability for bully-victims who tended to become either a bully only (42.9%) or a victim only (28.6%) by spring. Similarly, the number of bully-victims decreased from grade 4 to grade 10, but the number of bullies increased (Solberg et al., 2007).

Sex differences in bullying. Overall, boys tend to report higher levels of bullying than girls (Holt & Espelage, 2007; Klomek et al., 2007; Ma, 2002; Ma et al., 2009; O'Brennan et al., 2009; Pepler et al., 2006; Pepler et al., 2008; Salmivalli & Nieminen, 2002; Schute et al., 2007; Solberg et al., 2007; Warden & Mackinnon, 2003). However, several studies have found no significant sex differences in bullying (Kokkinos & Panayiotou, 2004; Leenaars & Lester, 2011;

Leenaars & Rinaldi, 2010; Ma et al., 2009; Menesini et al., 2009; Murray-Close et al., 2007; Varjas, Meyers, Bellmoff, Lopp, Brickbichler, & Marshall, 2008).

Rates of bullying by sex depend on several factors including the form of bullying and the type of informant. In a meta-analysis of 148 studies, Card et al. (2008) found that boys were more directly aggressive than girls, especially for physical forms of aggression, and were also more indirectly aggressive though the difference was very small. Ando et al. (2005) reported significant sex differences in physical and verbal bullying, but not indirect bullying. In both cases, male students reported higher levels of bullying than female students. However, in another study, boys reported significantly higher levels of both overt and relational aggression than girls (Crick & Grotpeter, 1995). On the other hand, it has also been found that boys reported more overt bullying, but there were no sex differences for relational bullying (Jolliffee & Farrington, 2011; Marsee et al., 2005; Viding et al., 2009).

Sex differences in bullying also depend on the type of informant of bullying and the age of the bully. Although boys were rated as higher on overt bullying and girls on relational bullying by peers, boys self-reported higher levels of both overt and relational bullying than girls (Crick & Grotpeter, 1995). In grade 3, there were no sex differences in relational bullying, but by grade 6 female students reported significantly higher levels of relational aggression than boys (Zimmer-Gembeck et al., 2005). Interestingly, there were no significant sex differences in the finding that peers were less accepting of same-gendered bullies;

however, boys were more accepting of girls, and girls more accepting of boys the more they saw the opposite-gendered individual as a bully (Dijkstra et al., 2007).

Similar to the trend in traditional bullying, findings on sex differences in cyberbullying has been inconsistent. For example, in one study boys were found to cyberbully others more frequently than girls, but only through text messaging (Slonje & Smith, 2008). In another, male adolescents were more likely to be frequent cyberbullies, but female adolescents were more likely to be infrequent cyberbullies (Ybarra & Mitchell, 2007). Dehue et al. (2008) found that cyberbullying was higher in boys (18.6%) than in girls (13.4%), as did Calvete et al. (2010) who found that cyberbullying was higher for boys (47.8%) than for girls (40.3%), especially for those who cyberbullied often. Huang and Chou (2010) found that male students in Grades 7 to 9 scored significantly higher on all types of cyberbullying experiences than female students. However, in several studies, no sex differences in cyberbullying were found (Smith et al., 2008; Wade & Beran, 2010; Williams & Guerra, 2007).

Reactive and proactive aggression. Although there is some overlap between reactive and proactive aggression (Bailey & Ostrov, 2008), there has been wide support for a two-factor model of reactive and proactive aggression (Baker, Raine, Liu, & Jacobson, 2008; Fossati, et al., 2009; Raine et al., 2006; Salmivalli & Nieminen, 2002). The two-factor model consists of (a) reactive aggression and (b) proactive aggression as two separate and distinct factors (Baker et al., 2008). Roland and colleagues (Roland, 2002; Roland & Idsøe, 2001), however, have argued for a three-factor model: (a) reactive aggression, (b)

power-related proactive aggression, and (c) affiliation-related proactive aggression. In grade 5, proactive power was unrelated to bullying others, but proactive affiliation was significantly related to bullying others, especially for girls. For eighth grade students, reactive aggression was not a significant predictor of bullying, but proactive affiliation was a significant predictor of bullying for both boys and girls, and proactive power was a significant predictor for boys only. Roland (2002) found a weak correlation between depression and proactive power and proactive affiliation, and a significant interaction between prosocial power and depression for girls only. Specifically, the effect of depression on the prediction of bullying others depended on the level of proactive power, and vice versa. Although Roland and colleagues argue for a three-factor structure of reactive and proactive aggression, given the lack of previous research using the three-factor model and in line with the majority of research in this area, the two-factor model will be used in this study.

Research into the developmental aspects of reactive and proactive aggression is severely lacking, but two significant studies do exist. In a longitudinal, twin study of reactive and proactive aggression, Turblad, Raine, Zheng, and Baker (2009) found that reactive aggression decreased over time, whereas proactive aggression remained relatively stable across time. Baker et al. (2008) examined the relative contribution of genetic and environmental factors in a sample of 1,219 9- to 10-year old twins. They found a significant genetic influence on proactive (50%) and reactive (38%) aggression across three informants for boys only. On the other hand, for girls, environmental factors

including both shared and non-shared (i.e., unique) experiences accounted for almost all of the variability in proactive and reactive aggression. For both boys and girls, there was a high non-shared environmental influence, and a shared environmental influence with the exception of boys' self-report, on reactive and proactive aggression.

Both reactive and proactive aggression are correlated with bullying behaviour (Fossati, et al., 2009; Roland & Idsøe, 2001); however, in some cases proactive aggression tends to be a better predictor of bullying behaviour (Camodeca, et al., 2002; Camodeca & Goossens, 2005). Both bullies and bully-victims in this sample were overrepresented in the proactive-reactive group, which had high levels of both proactive and reactive aggression. On the other hand, although bully-victims scored higher than bullies on reactive and proactive aggression and both bullies and bully-victims were overrepresented in the reactive-proactive group, only bullies were overrepresented in the reactive- and proactive-only groups (Salmivalli & Nieminen, 2002). Unnever (2005) similarly found that bully-victims scored higher than bullies on proactive but not reactive aggression. In line with these findings, Calvete et al. (2010) found proactive but not reactive aggression to be significantly related to cyberbullying.

Differences in the relationship between reactive aggression, proactive aggression, and bullying also vary by sex. Sijtsema, Veenstra, Lindenberg, and Salmivalli (2009) found that male bullies scored higher than victims on measures of proactive aggression, but female bullies scored higher than victims on measures of reactive aggression. In contrast, several studies have found that boys

score higher than girls on both reactive and proactive aggression (Bailey & Ostrov, 2008; Baker et al., 2008; Roland & Idsøe, 2001; Salmivalli & Nieminen, 2002).

Researchers have also examined the relationship between reactive and proactive aggression, and psychosocial adjustment. Seah and Ang (2008) found when controlling for sex, age, and reactive aggression that proactive aggression was positively related to narcissism, anxiety, and schizotypal personality traits, and there was a trend, albeit nonsignificant, towards a negative relationship with positive interpersonal relations. Similarly, after controlling for sex, age, and proactive aggression, reactive aggression was also related to narcissism, anxiety, and schizotypal traits, and negatively related to interpersonal relations. In line with these findings, Raine et al. (2006) found proactive and reactive aggression to be associated with schizotypal traits, as well as with psychopathy, impulsivity, and sensation seeking. However, only reactive aggression was associated with anxiety, and proactive aggression with hyperactivity/impulsivity/attention problems and poor peer relationships. In contrast, Bailey and Ostrov (2008) found that both reactive and proactive aggression were related to impulsivity although impulsivity was not a significant predictor of either type of aggression. In relation to the Big Five personality traits, both reactive and proactive aggression were negatively related to agreeableness and conscientiousness, but only reactive aggression was positively related to narcissism (Fossati et al., 2009). In line with these findings, individuals in a high reactive-high proactive group demonstrated the highest level of CU traits, thrill seeking behaviour, and

impulsivity than the low aggressive and reactive aggressive groups when examining both physical and relational aggression (Crapanzano, Frick, & Terranova, 2010). In regards to cognitive factors, reactive aggression was uniquely related to hostile attributions, anger, and aggressive response generation, but proactive aggression was uniquely related to approval of aggressive responses only (De Castro, Merk, Koops, Veerman, & Bosch, 2005).

Finally, in a longitudinal study of 1,245 children, Vitaro, Brendgen, and Tremblay (2002) found that reactive-only and proactive-reactive individuals were rated as less attentive, more active, withdrawn, and reactive than non-aggressive children. Proactive-only children were more withdrawn, less reactive, and more attentive than the proactive-reactive group. On the other hand, reactive-only children were more anxious and emotionally reactive, and less attentive than the proactive-reactive group. Withdrawal at age 6 increased the probability of children belonging to any of the three groups at age 13 as compared with control children. Further, low attention and high emotional reactivity at age 6 increased the probability of belonging to the proactive-reactive group when compared to control children.

Attitudes and Beliefs about Aggression

Normative beliefs about aggression. Along with psychosocial variables, cognitive factors such as an individual's attitudes and beliefs about aggression and bullying play a role in bullying behaviour. A normative belief is "an individual's own cognition about the acceptability or unacceptability of a behavior. Normative beliefs serve to regulate corresponding actions by

prescribing the range of allowable and prohibited behaviors" (Huesmann & Guerra, 1997, p. 409). Further, "normative beliefs may or may not be consistent with the prevailing social norms, although there should be considerable overlap" (p. 409). Huesmann and Guerra argued that aggressive behaviour and normative beliefs about aggression develop in a reciprocal pattern. In other words, being more approving of aggression leads to a higher level of aggression, and a higher level of aggression leads individuals to be more approving of aggression. This reciprocity is most characteristic of very young children who are just beginning to form normative beliefs about aggression than older children. In their first study, Huesmann and Guerra found that all beliefs including overall approval of aggression, general approval of aggression, and approval of retaliation were significantly correlated with peer and teacher ratings of aggressive behaviour. In the second, longitudinal study, there was little stability in normative beliefs for the youngest children, and initial beliefs were not a good predictor of subsequent aggression, but children's early aggression was a significant predictor of later approval of aggression. As children grew older, beliefs became more stable and were not predictable from earlier levels of aggression, but were a significant predictor of later aggression. Further, beliefs supporting aggressive behaviour predicted later aggressive behaviour above and beyond previous aggressive behaviour.

In general, beliefs supporting aggression are related to increased levels of aggression and bullying (Andreou, Vlachou, & Didaskalou, 2005; Boulton, Trueman, & Flemington, 2002; Burns et al., 2008; Chaux, Molano, & Podlesky,

2009; Duffy & Nesdale, 2009; Eliot & Cornell, 2009; Guerra et al., 2011). However, in an experimental study, Nesdale, Milliner, Duffy, and Griffiths (2009) found that at all ages, children in the direct and indirect norm conditions did not display more direct or indirect aggressive intentions than the control group. On the other hand, normative beliefs legitimizing aggression and antisocial behaviour differentiated adolescents involved in direct and indirect bullying from uninvolved adolescents (Marini et al., 2006). Likewise, Ang, Ong, Lim, and Lim (2010) found that approval of aggression beliefs mediated the relationship between narcissistic exploitativeness and bullying behaviour.

There appears to be a hierarchy of acceptability of aggression depending on the form of aggression and sex of the bully and victim (Nelson, Springer, & Bean, 2008). Most acceptable was male-to-male verbal and direct bullying, next was male-to-female verbal bullying, followed by female-to-female indirect relational and verbal bullying, and finally female-to-male verbal, direct and indirect relational bullying. When controlling for relational aggression, physical aggression was uniquely associated with more positive normative beliefs (general and retaliatory) about physical aggression, and when controlling for physical aggression, relational aggression was uniquely associated with more positive beliefs about relational aggression (Werner & Nixon, 2005).

Bailey and Ostrov (2008) found that proactive and reactive aggression, and physical and relational aggression were all associated with higher normative beliefs, indicating that individuals who scored highly on these types of aggression were more accepting of aggressive behaviour. Higher peer nominated bullying

was significantly related to a higher level of acceptance of provoked aggression, lower levels of acceptance of weakness, and higher self-efficacy for aggression (Gottheil & Dubow, 2001). Similarly, Archer (2004) found that viewing aggression as powerful predicted physical aggression, but more positive beliefs about aggression and viewing aggression as less powerful predicted verbal aggression.

Bellmore, Witkow, Graham, and Juvonen (2005) found that the path between normative beliefs and aggression was moderated by hostility. Specifically, higher normative beliefs predicted greater hostile response selection, which in turn predicted greater aggression. Further, although beliefs were positively related to aggression, verbal reasoning ability moderated the relationship between normative beliefs about aggression and indirect aggression (Kikas, Peets, Tropp, & Hinn, 2009). When verbal reasoning was above average, beliefs were strongly linked to indirect aggression, the relationship was still significant but weaker when verbal reasoning was average, but nonsignificant when verbal reasoning was below average. Although there was a significant relationship between physical aggression, anger, and beliefs legitimizing aggression for both high school students and juvenile offenders, there was an interaction between these variables for high school students (Sukhodolsky & Ruchkin, 2004). For high school students, higher levels of anger along with higher levels of beliefs legitimizing aggression led to greater frequency of aggression.

Beliefs about aggression may depend on situational factors. Peña, Andreu, and Graña (2008) found that reactive situations elicited higher levels of justification of moderate use of aggression than instrumental (planned, goal-oriented) situations, regardless of age. The relationship between beliefs about aggression and bullying also depends on the role of respondents in bullying; for example, bully-victims had higher scores on measures of acceptance of bullying than bullies, victims, and uninvolved students (Andreou, 2004; Andreou et al., 2005).

Moral reasoning about aggression. "Morality involves one's capacity to distinguish behaviors that are right and wrong (Quinn, Houts, & Graesser, 1994) and moral reasoning entails the thinking processes employed when deciding whether a behavior is morally acceptable (Shaffer, 2000)" (Murray-Close, Crick, & Galotti, 2006, p. 346). Murray-Close et al. (2006) argued that there are four ways to evaluate a behaviour if there is no existing rule against it: (a) social convention, "*it is ok because there is no rule against it"*; (b) personal, "*it is ok because it is up to you"*; (c) prudential*, "it is wrong because there might be retaliation"*; and (d) moral, "*it is wrong because it would be harmful"*. They found that physical aggression was more often judged as a prudential issue, but relational aggression was more often judged as a moral issue. Girls were more likely to use moral judgments and boys were more likely to use social conventional and personal judgments for both physical and relational aggression. Overall, children's moral judgments of aggression were significantly associated

with their level of aggressive behaviour, such that those who viewed aggression as morally wrong were less likely to engage in aggression.

Although moral beliefs supporting bullying are associated with increased verbal, physical, and cyberbullying (Williams & Guerra, 2007), moral reasoning differs depending on the role one plays in bullying. For instance, Gasser and Keller (2009) investigated the relationship between moral competence, defined as moral knowledge and moral motivation, and bullying. They found that bully-victims were significantly lower on moral competence than prosocial children and victims, but bullies were lower on moral competence than prosocial children only. Older bully-victims were lower on moral knowledge than all other groups, and bullies and bully-victims were lower on moral motivation than prosocial children. In a sample of kindergarten, and grade 1 and 2 students, younger aggressive children were more likely than younger prosocial children to give reasons related to external punishment when evaluating immoral behaviour as wrong (Malti, Gasser, & Buchmann, 2009).

Several recent studies (e.g., Gini, 2006; Gini, Pozzoli, & Hauser, 2011; Obermann, 2011) studied the relationship between different bullying roles, justification of aggressive behaviour, and *moral disengagement*, which acts as a "mediator between an individual's moral principles and their actual behaviour" (Gini, 2006, p. 530). All aggressive participants, and especially bullies were more likely to use moral disengagement, and were more likely to justify the use of aggressive behaviour. Congruent with this finding, Menesini et al. (2003) found that bullies were more likely than victims and uninvolved children to report moral

disengagement, *egocentric responsibility*, which involved taking into account mainly external consequences and trying to avoid those consequences, and *egocentric disengagement*, which entails attributing indifference or pride to bullying. One factor of moral disengagement is *euphemistic thinking*: An euphemism is "a mild or vague expression substituted for one thought to be too harsh or direct" (Bissett, 2000, p. 326). Ando et al. (2005) found that higher euphemistic thinking was a predictor of physical, verbal, and indirect aggression.

Manning and Bear (2002) broke down moral reasoning into two categories with two subcategories each: (a) hedonistic moral reasoning, which could either be imminent (belief that reward or punishment are inevitable responses to behaviour) or probable; and (b) needs-oriented, which relates to one's concern for a specific type of consequence as either physical or psychological. Psychological reasoning was a significant predictor of overt aggression, and probable reasoning also predicted overt aggression, but only for those children who scored at or below the median on a verbal reasoning task. Boys rated as aggressive were more likely to use more imminent and less psychological reasoning than nonaggressive boys, but there were no differences for girls.

In contrast to the previous research, greater moral reasoning has also been related to increased aggression and bullying in some cases. For example, relational aggression was associated with more mature moral responses, indicating that some children could be both aggressive and aware of moral norms regarding aggression (Hawley, 2003, 2007).

Attitudes about aggression. Attitudes regarding victimization and bullying also predict bullying behaviour. Rigby and Slee (1991) designed a scale to measure children's attitudes towards the victims of bullying. Three factors described children's attitudes. Factor one was the "*tendency to reject kids who are bullied by others because of their supposed weakness*"; Factor 2 was a "*readiness to justify bullying, even to enjoy the spectacle of children being bullied, and to support the bully*"; and Factor 3 was the "*desire to support victims of bullying*" (p. 623). Although the majority of respondents tended to support the victim, a large minority, especially boys, had little or no sympathy for the victim. Using the same scale, Rigby (2005) found that negative scores, indicating less support for victims, predicted bullying others. Interestingly, the majority of students did not think that their friends, teachers, and parents expected them to support the bully, but they also did not think that friends, teachers, and parents expected them to support the victim.

Aggressive attitudes were significantly correlated with aggression measured by self-, teacher-, and peer-reports, and school discipline records, 7 months later (McConville & Cornell, 2003). Both bullies and bully-victims held more favourable attitudes towards antisocial behaviour than victims and uninvolved students (Herrenkohl et al., 2007), and were more likely to support retaliatory aggressive attitudes (O'Brennan et al., 2009). There was a positive association between blaming the victim of bullying and bullying others, but respondents tended to blame the victim of direct bullying more than the victim of indirect bullying (Gini, 2008). However, in a sample of young imprisoned men,

there was no relationship between provictim attitudes and bullying behaviour (Palmer & Begum, 2006). van Goethem, Scholte, and Wiers (2010) found that explicit bullying attitudes, but not implicit bullying attitudes predicted bullying; however, implicit attitudes interacted with explicit attitudes so that implicit bullying attitudes were only significant in the prediction of bullying for those children with high positive explicit attitudes toward bullying.

There are also developmental trends in attitudes towards bullying; for example, indifference towards victims increased four-fold from grade 5 (9%) to grade 8 (36%) (Jeffrey, Miller, & Linn, 2001). Consistent with this, defense of the victim decreased with age, and reinforcement of the bully (for boys only) increased with age (Salmivalli & Voeten, 2004). Swearer and Cary (2003) also found in a three-year longitudinal study that favourable attitudes towards bullying increased with age. Moreover, persistent bullies had higher pro-aggressive attitudes than did desistent bullies and controls, but there was no difference in pro-aggressive attitudes between desistent bullies and controls (Calrson & Cornell, 2008).

Sex differences in beliefs and attitudes. Some studies have found no sex differences in normative beliefs or attitudes about aggression (Andreou et al., 2005; Archer, 2004; De Castro et al., 2005; Werner & Nixon, 2005). Others have found that boys are more accepting of aggressive behaviour (Bailey & Ostrove, 2008; Bellmore et al., 2005; McConville & Cornell, 2003; Peña et al., 2008), and retaliation (Bradshaw et al., 2009; Haff, Floyd, & Shinn, 2006; Huesmann & Guerra, 1997). Further, boys have been found to blame the victim more than girls

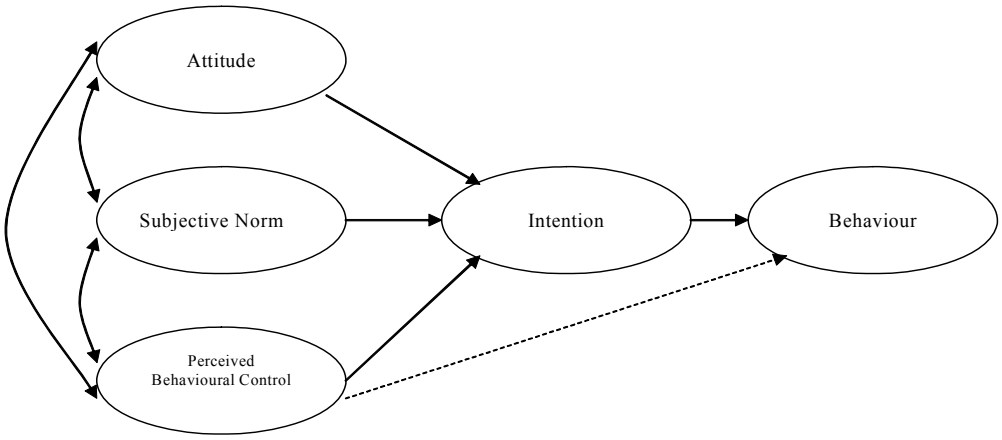
(Gini, 2008; Jeffrey et al., 2001), and to be less supportive of victims than girls (Rigby, 2005).

Theoretical Framework

Many theories have been proposed to explain aggression and bullying in childhood and adolescence. For instance, theorists have examined aggression and bullying from a sociocultural and developmental perspective (e.g., Crick, 1996; Kaukiainen et al., 1999; Lagerspetz et al., 1988) and from an evolutionary psychology perspective (e.g., Bjorklund & Pellegrini, 2000; Campbell, 2004). However, one alternative to date not studied is the *theory of planned behaviour* (TPB).

TPB was designed by Ajzen (1991) to "predict and explain human behavior in specific contexts" (p. 181), as an extension of Fishbein and Ajzen's (1975) *theory of reasoned action*. Ajzen (1991, 2002) postulated that human behaviour is determined by three factors: (a) *attitudes* toward the behaviour, (b) *subjective norm* or normative beliefs about the behaviour, and (c) *perceived behavioural control* (see Figure 1). Together attitudes, subjective norms, and perceived behavioural control lead to *intention* to carry out the behaviour, which in turn leads to behaviour, such as bullying.

Figure 1. Theory of planned behaviour. Adapted from "The theory of planned behavior," by I. Ajzen, 1991, *Organizational Behavior and Human Decision Processes*, *50*, p. 182. Copyright 1991 by Academic Press, Inc.



Intentions and perceived behavioural control are the central elements in TPB. Intentions "are assumed to capture the motivational factors that influence behavior; they are an indication of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior" (Ajzen, 1991, p. 181). Perceived behavioural control refers to an individual's perception of how easy it is for him or her to perform a specific behaviour. Ajzen (1991, 2002) argued that perceived behavioural control is similar to Bandura's (1977) concept of self-efficacy, which is one's confidence in one's ability to perform a given task, in that "people's behavior is strongly influenced by their confidence in their ability to perform it (i.e., by perceived behavioural control)" (Ajzen, 1991, p. 184). Self-efficacy, however, is in general more related to internal factors of control, whereas perceived behavioural control is related to

more general, external factors (Armitage & Conner, 2001). Perceived behavioural control also differs from locus of control, which is the extent to which individuals see behaviour and consequences as caused by external factors or internal factors (Rotter, 1966). The former tends to vary across situations and actions, but the latter remains fairly stable: "perceived ease or difficulty of performing a behavior reflects beliefs about the presence of internal as well as external factors that may further impede performance of a behavior" (Ajzen, 2002, p. 676).

The relative importance of intention and perceived behavioural control varies as a function of different situational and behavioural factors (Ajzen, 1991). When behaviour is completely volitional, meaning that the individual has complete control over his or her behaviour, then intention alone is sufficient to predict behaviour. Alternatively, as the individual has less control over behaviour, perceived behavioural control becomes a more significant predictor of behaviour.

Attitude, beliefs, and perceived behavioural control are conceptually distinct factors that predict intention (Ajzen, 1991). Attitude toward the behaviour "refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question", and subjective norm "refers to the perceived social pressure to perform or not to perform the behavior" (p. 188). These factors contribute differently to the prediction of intention and therefore behaviour, depending on the behaviour and situation under investigation. Ajzen postulated that beliefs underlie attitudes, subjective norm,

and perceived control. Behavioural beliefs are beliefs about consequences and other characteristics of the behaviour, and lead to attitude toward the behaviour. Beliefs about the social expectations of others, called normative beliefs, lead to subjective norm. Finally, control beliefs regarding factors that may increase or decrease the likelihood of behaviour lead to perceived behavioural control, and can be based on past experience or information regarding the behaviour. Though not part of the main conceptualization of TPB, Ajzen (1991) argued that in addition to social beliefs regarding behaviour, personal or moral beliefs may also predict intention and behaviour, and should be taken into consideration when trying to predict and explain behaviour.

In a meta-analysis of 185 independent studies of TPB, Armitage and Conner (2001) found good support for the application of TPB to a wide range of behaviours. Across studies, together intention and perceived behavioural control accounted for 27% of the variance in behaviour, and perceived behavioural control accounted for 2% of the variance in behaviour over and above intention. Taken together, attitude, subjective norm, and perceived behavioural control accounted for 39% of the variance in intention. All relationships had medium to large effect sizes. Notani (1998) similarly found support for TPB, and especially for the construct of perceived behavioural control in a meta-analysis of 36 studies. Across the studies, there were moderate correlations between all TPB constructs with the highest between attitude and intention ($r = 0.51$), and the lowest between subjective norm and behaviour ($r = 0.15$). Further, using structural equation modeling, all direct and indirect paths between the constructs were significant.

Hagger and Chatzisarantis (2005) also found support for a hierarchical model of TPB, which took into account antecedents of the constructs of TPB, such as social approval of norms, and affective factors. Results of the analyses supported the distinction between attitudes, subjective norm, and perceived behavioural control; however, there was no support for a direct path from perceived behavioural control to behaviour as Ajzen (1991) posited. Further, the addition of antecedents to the model significantly improved the overall fit of the model. Aarts et al. (1998) similarly argued for the inclusion of antecedents, such as moral beliefs, self-concept, and affective variables. They further argued that although TPB may be a good explanation of novel and rare behaviours, it might be less applicable to behaviours that are habitual and repetitive in nature.

The Present Study

Although bullying has been studied from a wide range of theoretical perspectives, the theory of planned behaviour has not been applied to bullying. No one theoretical framework has been able to fully explain all the variance in bullying behaviour. In line with the WHO (2002) "World Report on Violence and Health", we need to examine a phenomenon as complex as bullying from multiple theoretical perspectives. Given the empirical support for TPB with a variety of behaviours, it follows that examining bullying from a TPB perspective may aid in the explanation of bullying in adolescence. Further, given the established relationships between psychological adjustment, self-concept, and bullying, and between attitudes and beliefs and bullying as previously discussed, there is reason

to expect that TPB may add to our understanding of bullying behaviour in adolescence.

The proposed model (see Figure 2), based on Ajzen's (1991, 2002) model of TPB expands Ajzen's original model by including antecedents of attitudes and beliefs and perceived control. Ajzen (1991) postulated that additional variables such as moral beliefs should be taken into account when studying specific behaviour. Hagger and Chatzisaranti (2005) also argued for the addition of antecedents that when added to the original TPB model provided a better model fit. Similarly, Aarts et al. (1998) specifically argued that moral beliefs, self-concept, and affective variables should be considered when applying TPB to the explanation of behaviour.

Objectives. The preliminary objective was to determine the frequency of traditional (overt and relational) and cyberbullying in a junior high school sample. The main objective was to develop and test the proposed model (see Figure 2) based on TPB that will describe the relationship between psychological adjustment, self-concept, attitude and beliefs about aggression, perceived control, intention, and bullying behaviour. The model was first tested for overall bullying, traditional bullying, and cyberbullying. The model was then tested for traditional and cyberbully-victimization. The final goal was to run a multiple groups comparison for sex differences for all forms of bullying and bully-victimization.

Hypotheses. For both bullying and bully-victimization, it was predicted that psychological adjustment (sensation seeking, depression, mania, anxiety, and hyperactivity) and self-concept (self-esteem, self-reliance, sense of inadequacy,

and ego strength) influence attitudes and beliefs (attitude toward victim, normative beliefs, moral reasoning) and perceived control (anger control and locus of control), which in turn influence intention (reactive and proactive), which leads to bullying behaviour.

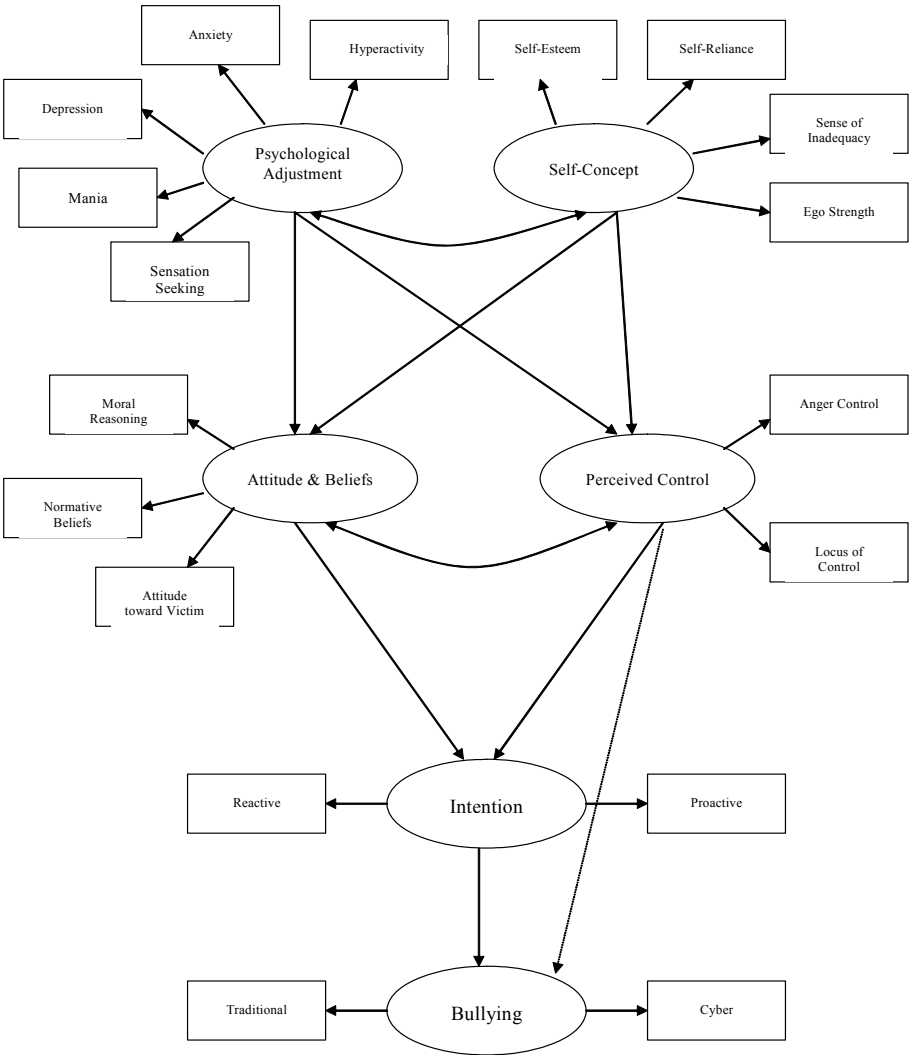
Following from the recent work of Hawley and colleagues (Hawley, Little, & Rodkin, 2007) who argued that aggression can, at times, be adaptive and not indicative of deviance or delinquency, it is hypothesized that there are two similar yet distinct pathways to bullying behaviour (see Figure 2). Individuals low to moderate on psychological adjustment (low levels of depression, mania, and anxiety, low to moderate hyperactivity, sensation seeking), high on self-concept (high self-esteem, self-reliance, and ego strength, and low sense of inadequacy), with positive attitudes and beliefs about bullying (low provictim, low to moderate moral reasoning, and high approval of bullying), and high perceived control (high anger control and internal locus of control), and high proactive intention (low reactive) will lead to high bullying behaviour. This pathway was expected to be more typical of bullies than bully-victims. Differences or similarities in traditional and cyberbullying were also examined for this pathway.

On the other hand, in line with Vaughn and Santos (2007) who argued that victims who are also aggressors (or bully-victims) are likely different from pure aggressors, it was hypothesized that there is a similar yet divergent pathway for bully-victims. The second hypothesized pathway to bullying involves individuals moderate to high on psychological adjustment (moderate to high levels of any of the indicators), low on self-concept (low self-esteem, self-reliance, and ego

strength, and high sense of inadequacy), with negative or more neutral attitudes and beliefs about bullying (moderate to high provictim, low moral reasoning, and low to moderate approval of bullying), with low perceived control (low anger control and external locus of control), and high reactive intention (low proactive) will lead to higher bullying behaviour. This pathway was expected to be more typical of bully-victims. Differences and similarities in traditional and cyberbullying were also examined for this pathway.

Finally, given the inconsistency in previous research regarding sex differences in bullying and attitudes and beliefs about bullying, there were no specific hypotheses regarding similarities and differences in the proposed model based on sex. Sex differences in the proposed model for the different forms of bullying and for bullies versus bully-victims were carried out in an exploratory manner.

Figure 2. Proposed structural equation model applying TPB to bullying behaviour.



III. Methodology

Participants

Three hundred and forty-two (207 girls and 135 boys) junior high school students participated in this study. Participants were drawn from seven schools in the Elk Island and Edmonton Public School Districts within the greater Edmonton area, Alberta, Canada. One hundred and ninety-three junior high school students were in Grade 7 and 149 were in Grade 8 with a mean age of 12.72 years. Information regarding socioeconomic status and ethnicity was collected from 225 parents of the participating students as part of the larger study. According to this data, the sample was predominantly middle class with 86.7% Caucasian, 8.4% Asian-Canadian, 3.1% East Indian-Canadian, and 1.8% Latino-Canadian.

Measures

Psychological adjustment. The validity response indices for all BASC-2 scales were examined, and overall fell within acceptable limits. To measure psychological adjustment, participants were asked to complete the clinical scales of Sensation Seeking, Mania, Depression, Anxiety, and Hyperactivity scales from the *Behavior Assessment Scale for Children -2*, Self-Report of Personality - Adolescent (BASC-2 SRP-A; Reynolds & Kamphaus, 2004). The BASC-2 SRP-A is an omnibus inventory including 176 items, and was designed for use with individuals aged 12 to 21. Participants respond to items 1 through 69 using a true-false scale, and items 70 to 176 using a four-point Likert-type scale (*Never*, *Sometimes*, *Often*, and *Almost Always*). There are 16 clinical scales, four adaptive scales, four content scales, and six composite scales. For each scale, individuals'

scores are compared with the normative sample and T scores ($M = 50$) are produced. The individual scales (clinical, adaptive, and content) of the BASC-2 SRP-A have been shown to have good internal consistency and reliability, with Cronbach's alphas ranging from 0.67 to 0.88. Test-retest reliability has also been shown to be acceptable ranging from 0.61 to 0.84. Through factor analysis and comparison with other established measures of behaviour and the DSM (APA, 2000), the BASC-2 SRP-A has also been shown to possess good convergent and construct validity.

The sensation seeking clinical scale measures the respondent's risk-taking behaviour and proclivity for engaging in exciting albeit potentially dangerous activities (Reynolds & Kamphaus, 2004). High scores indicate a higher level of sensation seeking ($\alpha = 0.69$). The mania content scale assesses an individual's "tendency toward extended periods of heightened arousal, excessive activity… and rapid idea generation in the absence of normal fatigue" (Reynolds & Kamphaus, 2004, p. 89). High scores indicate a higher level of mania ($\alpha = 0.74$). The depression clinical scale measures feelings of loneliness, hopelessness, pessimism, and sadness, and the anxiety clinical scale assesses generalized fears, worries, and nervousness. High scores indicate a higher level of depression ($\alpha = 0.88$) and anxiety ($\alpha = 0.86$). The hyperactivity clinical scale, which focuses on the hyperactivity component of ADHD, measures respondent's behaviours such as an inability to sit still, talking over others, and being disruptive. High scores indicate a higher level of hyperactivity ($\alpha = 0.76$).

Self-concept. Participants were asked to complete the Self-Esteem, Self-Reliance, Ego Strength, and Sense of Inadequacy scales from the BASC-2 SRP-A (Reynolds & Kamphaus, 2004) as a measure of self-concept. The self-esteem adaptive scale measures the respondent's feelings of self-satisfaction with respect to physical and global characteristics. High scores indicate positive self-esteem ($\alpha = 0.83$). The self-reliance adaptive scale is a measure of an individual's ability to make decisions on his or her own and is a strong measure of positive personal adjustment. High scores indicate high levels of self-reliance, lack of fear of one's emotions and good internal psychological regulation ($\alpha = 0.68$). The ego strength content scale is a measure of feelings of a strong sense of self-identity, self-awareness, self-acceptance, and positive social support. High scores indicate a strong ego ($\alpha = 0.87$). Unlike these three previous scales, which are measures of positive adaptation, the sense of inadequacy clinical scale measures low expectations of self based on expectations set by self or others, and feelings of low personal success and low perseverance. Higher scores reflect a higher sense of inadequacy ($\alpha = 0.80$).

Attitude and beliefs. To measure students' moral reasoning about aggression, participants completed the 18-item Moral Reasoning about Aggression (MRA) questionnaire (Murray-Close & Crick, 2006). The MRA was designed as a measure of respondents' moral reasoning about aggression and its relationship to aggressive behaviour. Respondents were presented with three scenarios of physical aggression and three scenarios of relational aggression, and asked to rate the wrongfulness and harmfulness of each scenario. Participants

responded to the wrongfulness questions using a 5-point Likert scale from 1 (*not wrong at all*) to 5 (*extremely wrong*). High scores indicate that the respondent viewed the behaviour as very wrong. Cronbach's alphas for the physical and relational aggression scenarios are 0.81 and 0.77, respectively. Participants were asked to rate the harmfulness of the aggressive scenario for the victim using a 5-point Likert scale from 1 (*never*) to 5 (*always*). High scores indicate that the respondent viewed the behaviour as being very harmful all the time. Cronbach's alphas for the physical and relational aggression scenarios are 0.77 and 0.75, respectively (Murray-Close & Crick, 2006). The wrongfulness and harmfulness subscales for both physical and relational aggression were combined to create one overall variable reflecting moral reasoning about aggression ($\alpha = 0.84$). Higher scores indicate viewing aggression as immoral and possessing better moral reasoning abilities.

Participants completed the 20-item Normative Beliefs about Aggression (NOBAGS) questionnaire (Huesmann & Guerra, 1997). Following Fishbein and Ajzen (1975), the NOBAGS contains six subscales designed to address action, target, context, and time of the behaviour. The general approval of aggression subscale (items 13-20) assesses respondents' general normative beliefs about aggressive behaviour ($\alpha = 0.86$). Items 1 to 12 assess overall approval of retaliatory aggressive behaviour ($\alpha = 0.82$), which is further broken down into approval of retaliation with weak provocation ($\alpha = 0.75$), approval of retaliation with strong provocation ($\alpha = 0.70$), approval of retaliation against a male ($\alpha = 0.70$), and approval of retaliation against a female ($\alpha = 0.69$). Taken together,

items 1 to 20 comprise the total approval of aggression scale (α = 0.86; α = 0.90 in the present study). Respondents rated each item using a 4-point Likert-type scale: *It's perfectly OK*, *It's sort of OK*, *It's sort of wrong*, *It's really wrong*. Higher scores are indicative of disapproval of bullying.

To measure participants' attitudes about bullying, participants completed the 20-item Provictim Scale (Rigby & Slee, 1991). Half of the items are positively worded (e.g., "*weak kids need help*"), and half are negatively worded (e.g., "*nobody likes a wimp*"). Participants responded to the items using a 3-point Likert-type scale: *agree*, *unsure*, *disagree*. Higher scores are indicative of more support for the victim or a negative attitude toward bullying (α = 0.52). The measure has been shown to have adequate reliability (α = 0.78) and validity (Rigby & Slee, 1991).

Perceived behavioural control. To assess perceived behavioural control, participants will be asked to complete the Anger Control and Locus of Control scales from the BASC-2 SRP-A (Reynolds & Kamphaus, 2004). The anger control content scale is a measure of respondents' tendency toward quick and impulsive irritation, and poor self-regulation and self-control (α = 0.87). Scores were reversed so that high scores are reflective of having high anger control (i.e., being able to control one's anger). The locus of control clinical scale "assesses an individual's perception of his or her level of control over external events" (Reynolds & Kamphaus, 2004, p. 76). Scores were reversed so that high scores indicate an internal locus of control whereas low scores indicate an external locus of control (α = 0.81).

Behavioural intention. To assess behavioural intention, participants completed the Reactive-Proactive Aggression Questionnaire (RPQ; Raine et al., 2006). Items reflect both reactive (11 items) and proactive (12) physical and verbal aggression, as well as motivational and situational context factors (e.g., "had fights with others to show who was on top"). Participants responded to the items using a 3-point Likert-type scale of 0 (*never*), 1 (*sometimes*), and 2 (*often*). Higher scores reflect either higher reactive ($\alpha = 0.79$) or proactive ($\alpha = 0.69$) aggression. The RPQ has been shown to have acceptable construct, convergent, and discriminant validity, and reliability with Cronbach's alphas ranging from 0.84 (reactive) and 0.86 (proactive) to 0.90 (total).

Bullying behavior. Two separate measures of bullying were used to measure physical, relational, and cyberbully and bully-victim behaviour. The Peer Relations Questionnaire (PRQ; Rigby & Slee, 1993) is a 20-item measure of bullying and victimization and includes items reflecting physical, verbal, and relational bullying. Six items measure the tendency to bully others ($\alpha = 0.75 – 0.78$), and six items measure the tendency to be victimized by others ($\alpha = 0.78 – 0.86$) with the remaining eight items being either filler items or a measure of prosocial behaviour. Using a 4-point Likert scale, participants rated each item from 1 (*never*) to 4 (*often*) with higher scores reflecting a greater frequency of being a bully ($\alpha = 0.68$) or victim ($\alpha = 0.80$).

A shortened version of the Cyberbullying Questionnaire (Mishna et al., 2006) was used to assess students' experiences of cyberbullying and victimization. Participants responded to questions regarding the frequency of

cyberbullying and victimization using a 6-point Likert type scale ranging from *never* to *everyday*. Higher scores indicated higher levels of cyberbullying (α = 0.89) or cybervictimization (α = 0.90). Previous information on the reliability of this measure was not available for this recently developed scale; however, in this study, the cyberbullying (α = 0.904) and cyberbully-victimization (α = 0.893) items showed high internal consistency reliability.

Procedure

Data were collected as part of a larger study, which was given ethics and Cooperative Activities Program (CAP) approval. Information packages including a description of the study and a parent consent form were sent home with students for their parents. Only those students who had written parental consent and assent to participate in the study were included in data collection. It took students approximately 90 minutes (or two class periods) to complete the questionnaire package. Students not participating in the study were given material on bullying to read while their peers completed the study package. Participants were also given this material upon completion of the study. Further, if any concerns from participation in the study were raised, students were given a list of approved resources and contacts.

IV. Results

Preliminary Analysis

Before conducting the preliminary or main analyses, the sample data were examined for accuracy of data entry, missing values, and univariate and multivariate normality. Missing data were deleted pairwise for the preliminary

analyses and listwise for the main analyses. Following the procedure outlined in Tabachnick and Fidell (2007), there was no evidence of multicollinearity. In order to check for univariate normality and the presence of univariate outliers, each variable was screened for problems in skewness and kurtosis, linearity, and homoscedasticity. Based on Kline (2005), all variables were within acceptable limits (not greater than an absolute value of 3.0) in relation to univariate skewness. When evaluating univariate kurtosis, a value over 3.0 indicates positive kurtosis (leptokurtic), under 3.0 indicates negative kurtosis (platykurtic), and absolute values from 8.0 to over 20.0 indicate extreme kurtosis (Kline, 2005). The majority of variables were within acceptable limits for univariate kurtosis with the exceptions of Traditional Bullying (3.713), Proactive Intention (6.882), Moral Reasoning about Aggression (8.475), and Attitude toward Victim (33.078). An examination of the *z* scores revealed 10 cases with extremely high *z* scores ($z > 4.0$) on one or more of the variables. An examination of multivariate kurtosis with the full data sample ($n = 342$) and all variables entered revealed that Mardia's coefficient (93.06) was well above the established guidelines for acceptable levels (<5.00 considered good, 5.00 – 10.00 considered moderately multivariate non-normal, >10.00 considered extremely multivariate non-normal). Seven additional cases were identified through Mahalanobis distance as multivariate outliers with $p < 0.001$ (Tabachnick & Fidell, 2007).

In order to correct for univariate and multivariate non-normality, following the procedures outlined by Kline (2005) and Tabachnik and Fidell (2007), several transformations of the data were attempted so as to minimize loss

of statistical power. Initially the more common log10 and square root transformations were attempted. Both transformations resulted in lowered multivariate kurtosis, however, Mardia's coefficient for the log10 (57.54) and square root (42.00) transformations were still well above acceptable limits. Next, a sine transformation was attempted, and although this greatly reduced Mardia's coefficient (-13.31), the model became unidentified due to negative eigenvalues and a non-singular matrix.

The removal of univariate and multivariate outliers was addressed next. Tabachnick and Fidell (2007) argued that when it is likely that extreme cases are not drawn from the same sample as the remaining cases or when a case is a multivariate outlier, and the deletion of such cases leads to a decrease in non-normality then it is best to delete the cases. The 17 identified univariate/multivariate outliers were then deleted, leaving 288 cases with complete data for the main SEM analyses. Once the outliers were removed assumptions of univariate normality were met. In relation to univariate kurtosis, all variables including Traditional Bullying (2.030), Proactive Intention (2.374), Moral Reasoning about Aggression (-0.179), and Attitude toward Victim (2.112) were within acceptable limits.

Despite the deletion of the outliers, multivariate kurtosis continued to be an issue, especially for the original proposed model (Mardia's coefficient = 27.68). As will be discussed later, multivariate kurtosis was further reduced when testing the revised models (e.g., 14.26 for final traditional bullying model). It should be noted, however, that Gao, Mokhtarian, and Johnston (2008) have

argued that even if multivariate kurtosis in the 20s, when all univariate skewness and kurtosis are within acceptable limits and sample size is reasonable, then the biases for the estimates of parameters and standard errors of the parameter estimates are minimal (e.g., no more than 5%). Muthén and Kaplan (1985) also found that even with moderately multivariate kurtotic data when the sample size is less than 400 and univariate skewness/kurtosis is within acceptable limits, Maximum Likelihood (ML) estimation is preferable to alternative methods of estimation such as Generalized Least Squares (GLS) or Asymptotically Distribution Free (ADF), which makes no assumptions about normality. Another alternative used to correct for non-normal data, is to evaluate model fit utilizing the Bollen-Stine *p*-value associated with the bootstrap procedure as opposed to the Chi-Square (X^2) test of significance (see Bollen & Stine, 1992; Hancock & Nevitt, 1999; Nevitt & Hancock, 2001). It follows that ML estimation was employed for all of the models tested and both the X^2 and Bollen-Stine *p*-values for model fit are presented. Means and standard deviations for the study variables are presented in Table 1.

Table 1

Descriptive Statistics for all Study Variables

Variable	*N*	*M*	Range	*SD*
Psychological Adjustment				
Sensation Seeking	314	50.31	26 – 76	9.69
Mania	306	47.84	32 – 88	10.94
Depression	313	52.67	40 – 86	8.68
Anxiety	309	48.64	33 – 83	10.36
Hyperactivity	311	48.98	33 – 86	10.23
Self-Concept				

Self-Esteem	315	51.00	16 – 63	8.88
Self-Reliance	314	52.22	15 – 71	9.62
Sense of Inadequacy	312	51.04	36 – 83	10.58
Ego Strength	304	50.42	21 – 63	9.39
Attitude & Beliefs				
Moral Reasoning about Aggression	324	47.76	31 – 62	8.21
Normative Beliefs	324	47.76	18 – 60	8.21
Attitude toward Victim	321	27.22	18 – 30	2.26
Perceived Control				
Anger Control	304	50.76	34 – 82	10.13
Locus of Control	315	51.36	36 – 80	10.07
Intention				
Reactive	324	6.41	0 – 19	3.64
Proactive	324	1.56	0 – 10	1.96
Bully				
Traditional	325	7.27	2 – 14	1.72
Cyber	325	3.23	0 – 10	2.78
Bully-Victim				
Traditional	318	17.62	12 – 30	3.57
Cyber	323	7.87	0 – 27	6.34

One of the preliminary objectives was to determine the number of traditional and cyber bullies and bully-victims. In line with previous research, individuals were identified if they scored higher than one standard deviation above the mean (Crick, Grotpeter, & Bigbee, 2002; Leenaars & Rinaldi, 2010). As individuals scoring highly on the measures of bullying were of interest, Table 2 presents the frequencies and percentages of bullies and victims including those outliers deleted for all subsequent analyses.

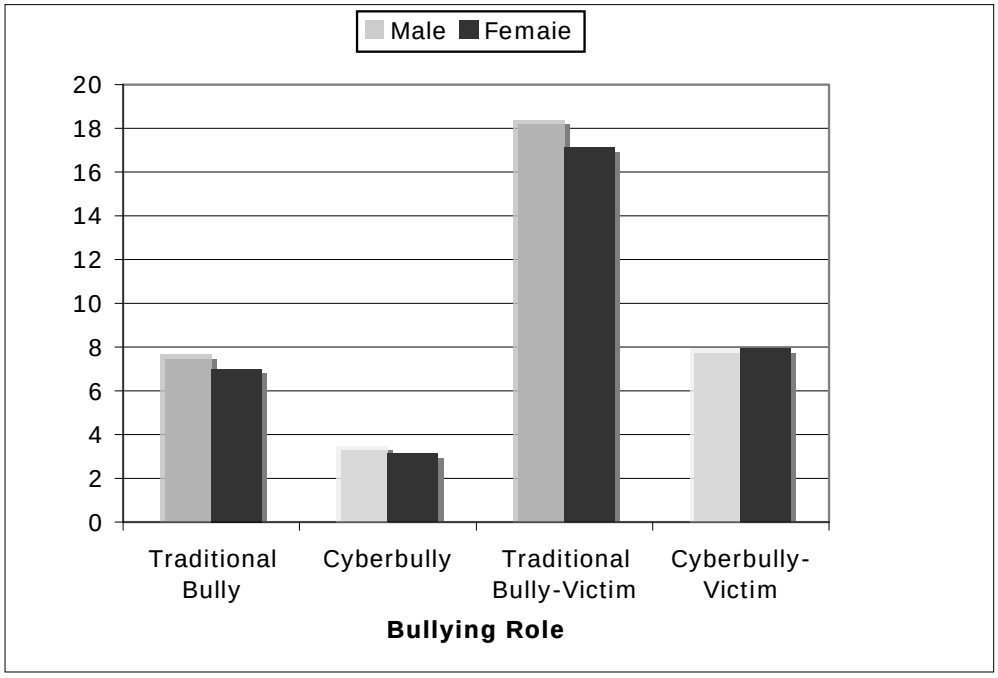
Table 2

Frequencies and Percentages of Traditional and Cyber Bullies and Bully-Victims

Classification	*n*			Frequency			Percentage		
	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls
Bully									
Traditional	325	126	198	36	22	13	11.08	17.46	6.56
Cyber	322	124	195	34	14	20	10.56	11.29	10.26
Bully-Victim									
Traditional	318	121	196	42	21	20	13.21	17.36	10.20
Cyber	322	125	195	34	10	34	10.56	8.00	17.44

To investigate whether there were sex differences in any of the bullying roles, independent samples *t*-tests were run using the Bonferroni correction procedure on traditional and cyber bullying and bully-victimization. Given the lack of consensus regarding sex differences in the previous literature, no specific hypotheses were made. The assumptions of independence, normality, and homogeneity of variance were satisfied for all *t*-tests conducted with the exception of traditional bully and cyberbully-victim, for which Levene's tests were significant ($F = 18.75$, $p < 0.001$; $F = 4.68$, $p = 0.031$, respectively). In those cases, the results of the *t*-tests are presented for equal variances not assumed. There were no sex differences in cyberbullying (t (317) = -1.08, p = 0.28) or cyberbully-victimization (t (288.81) = 0.008, p = 0.99). However, there were significant sex differences in traditional bullying (t (206.40) = -3.24, p = 0.001) and traditional bully-victimization (t (315) = -3.09, p = 0.002). As can be seen from Figure 3, boys scored higher than girls on both traditional bullying and traditional bully-victimization.

Figure 3. Mean values of bullying role by sex.



Inter-correlations among the study variables are presented in Table 3. As can be seen, within the construct of Psychological Adjustment, all correlations among the variables were positive and significant indicating that for all variables, higher scores on any given variable was related to higher scores on any other given variable. For example, higher ratings on Mania were strongly associated with higher ratings on Hyperactivity. All measures of Psychological Adjustment were, in general, significantly negatively related to measures of Self-Concept, Beliefs and Attitudes, and Perceived Control, but positively related to Intention and Traditional Bullying and Bully-Victimization. These findings indicate that as scores on measures of psychological adjustment problems increased, measures of self-concept, beliefs and attitudes, and perceived control decreased, proactive and reactive intention increased, as did traditional bullying and bully-victimization.

Measures of attitude and beliefs were significantly, positively related to measures of control and negatively to traditional bullying and bully-victimization, and measures of control were also significantly, negatively correlated to traditional bullying and bully-victimization. Almost all correlations between measures of Psychological Adjustment, Self-Concept, Control, and Intention and Cyberbullying and Cyberbully-Victimization were non-significant. Further, the correlations between traditional bullying/bully-victimization and Cyberbullying/bully-victimization were also non-significant; however, there was a significant weak, positive relationship between traditional bully-victimization and cyberbullying/bully-victimization

Table 3. Inter-Correlations among Study Variables.

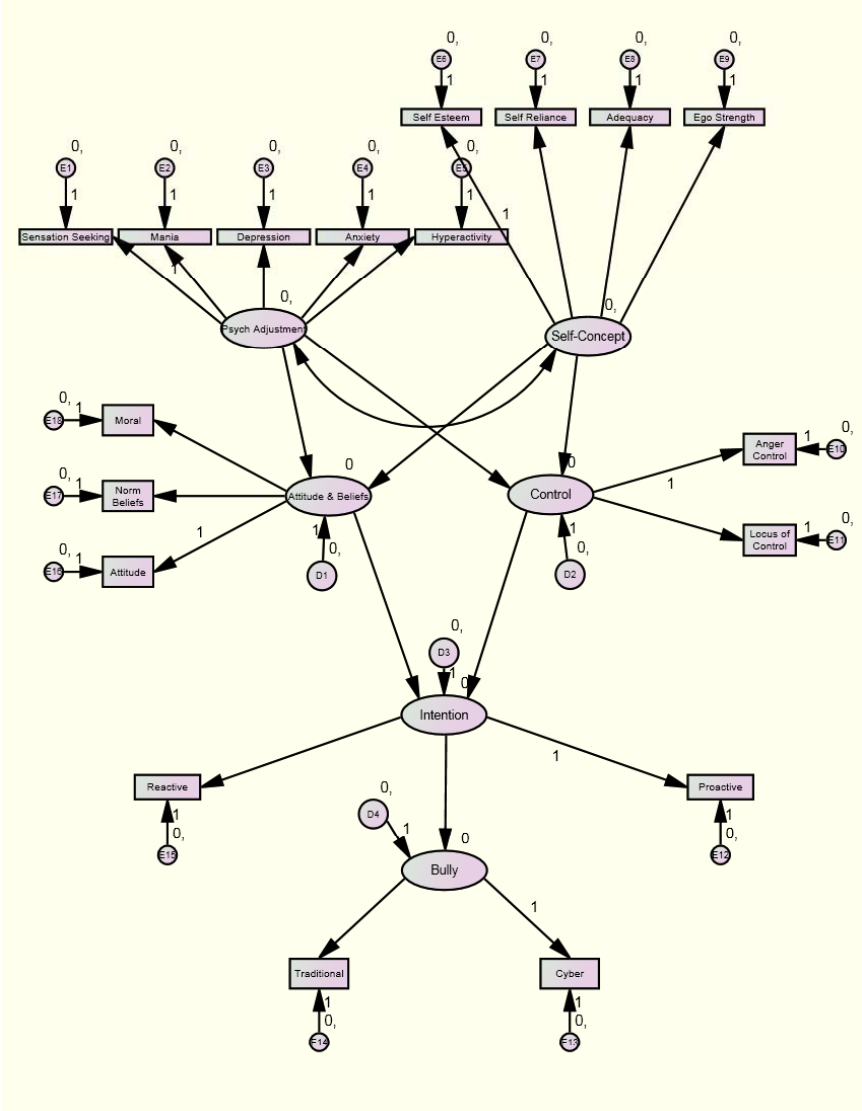
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Sensation Seeking	-	.36**	.15*	.14*	.44**	-.09	.12*	.26**	-.12*	-.22**	-.32**	-.19*	-.30**	-.26**	.20**	.34**	.27**	.17*	-.01	-.01
2. Mania		-	.57**	.66**	.74**	-.38**	-.13*	.60**.	-.48**	-.13*	-.15*	-.07	-.67**	-.54**	.37**	.24**	.22**	.32**	.01	.07
3. Depression			-	.61**	.35**	-.62**	-.27**	.66**	-.79**	-.16*	-.16*	-.03	-.80**	-.73**	.34**	.23**	.18*	.42**	.06	.14*
4. Anxiety				-	.37**	-.48**	-.16*	.62**	-.54**	-.14*	-.05	-.01	-.70**	-.61**	.33**	.17*	.12*	.32**	.01	.10
5. Hyperactivity					-	-.27**	-.16*	.46**	-.34**	-.20**	-.23**	-.17*	-.50**	-.40**	.39**	.34**	.31**	.28**	-.02	.01
6. Self-Esteem						-	.25**	-.51**	.82**	.14*	.12*	.08	.58**	.54**	-.30**	-.22**	-.13*	-.31**	-.08	-.17*
7. Self-Reliance							-	-.33**	.55**	.18*	.12*	.17*	.31**	.21**	-.22**	-.15*	-.24**	-.32**	-.04	-.04
8. Sense of Inadequacy								-	-.66**	-.20*	-.22**	-.13*	-.74**	-.67**	.36**	.26**	.20**	.32**	.02	.10
9. Ego Strength									-	.24**	.18*	.12*	.74**	.67**	-.36**	-.28**	-.25**	-.47**	-.08	-.16*
10. Moral Reasoning										-	.35**	.29**	.22**	.17*	-.11*	-.20**	-.30**	-.27**	-.07	-.04
11. Normative Beliefs											-	.34**	.22**	.20**	-.35**	-.36**	-.39**	-.21**	-.10	-.11
12. Attitude												-	.11	.13*	-.10	-.22	-.36**	-.17*	.08	.12*
13. Anger Control													-	.80**	-.49**	-.36**	-.26**	-.55**	-.07	-.16
14. Locus of Control														-	-.36**	-.28**	-.21**	-.40**	-.08	-.15*
15. Reactive Intention															-	.46**	.38**	.47**	.06	.12*
16. Proactive Intention																-	.48**	.40**	.11	.10
17. Traditional Bully																	-	.65**	.11	.10
18. Traditional Bully-Victim																		-	.17*	.24**
19. Cyberbully																			-	.95**
20. Cyberbully-Victim																				-

Note. $^{*}p < 0.05$, $^{**}p < 0.001$

Main Analysis

The main objective was to develop and test the proposed model (see Figure 4) based on TPB that would describe the relationship between psychological adjustment, self-concept, attitude and beliefs about aggression, perceived control, intention, and bullying behaviour. For both bullying and bully-victimization, it was predicted that psychological adjustment (sensation seeking, depression, mania, anxiety, and hyperactivity) and self-concept (self-esteem, self-reliance, sense of inadequacy, and ego strength) influence attitudes and beliefs (attitude toward victim, normative beliefs, moral reasoning) and perceived control (anger control and locus of control), which in turn influence intention (reactive and proactive), which leads to bullying behaviour. The model was first tested for overall bullying (see Figure 4).

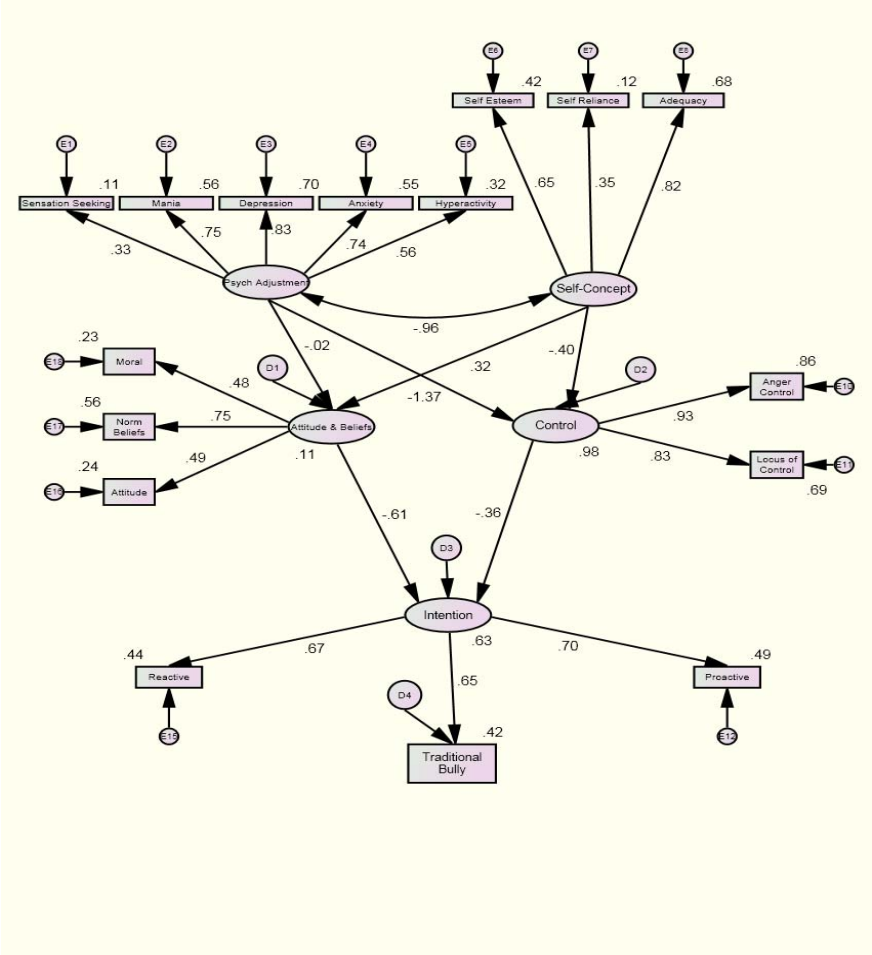
Figure 4. Original fully latent structural regression model for bullying.



There are three steps in structural equation modeling (SEM) including specification, identification, and estimation (Kline, 2005). Following the two-step rule for identification of a structural regression model (see Kline, 2005), the model was respecified as a confirmatory factor analysis (CFA) or measurement model with all possible unanalyzed associations among factors. The respecified measurement model was unidentified due to a negative eigenvalue. Further, due to the lack of significant correlation ($r = 0.11$) between traditional bullying and

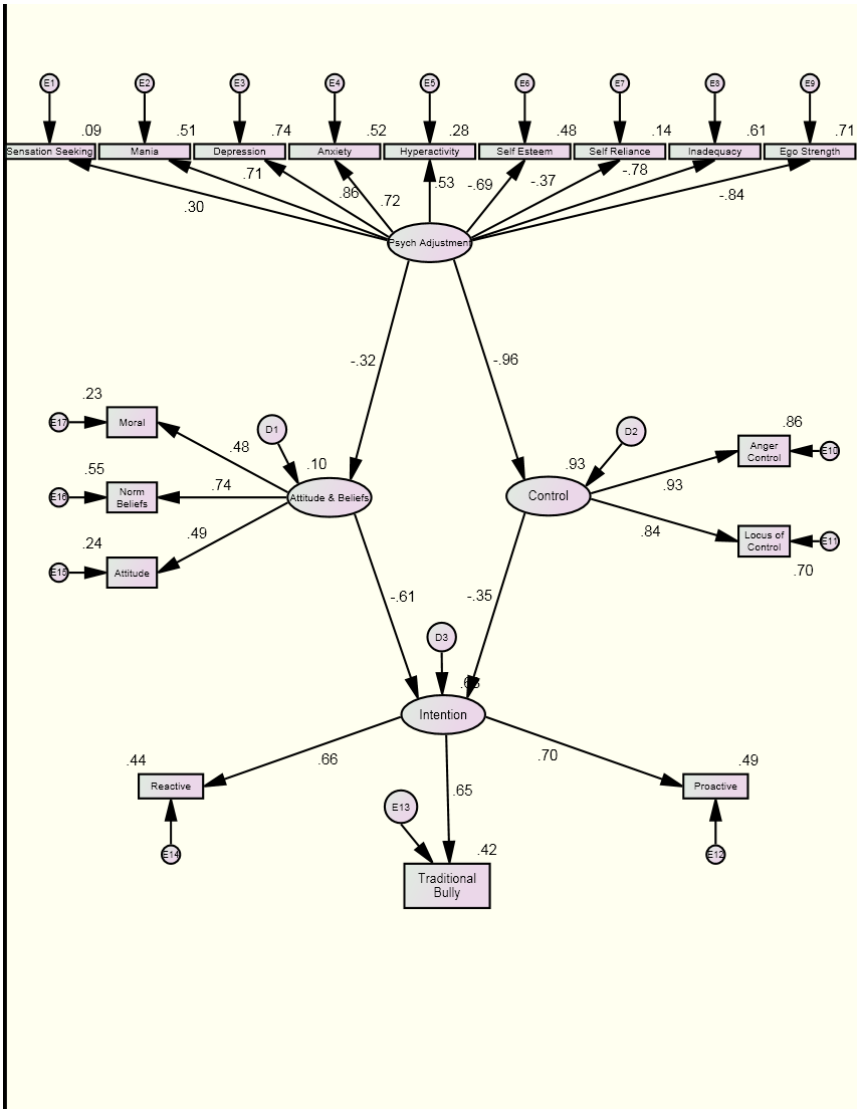
cyberbullying, a principal components analysis (PCA) was performed on the bullying measures with varimax rotation following the procedures outlined in Tabachnik and Fidell (2007). All assumptions were met. Two factors were extracted with traditional bullying (factor loading = 0.902) and traditional bully-victimization (0.885) loading on Factor 1 and cyberbullying (0.983) and cyberbully-victimization (0.982) loading on Factor 2. Given that a comparison of the model between bullies and bully-victims was of interest, the factor loadings, and that a model with a measurement component requires at minimum two indicators per latent variable to be identified (Kline, 2005), the model was respecified as a partially latent structural regression model. However, this model was also unidentified due to a not positive definite matrix and negative error variance for Ego Strength. Post-hoc model modifications were performed in an attempt to develop a better fitting and more parsimonious model. As depicted in Figure 5, the model was respecified and Ego Strength was removed, which led to the model being identified but having a very poor fit to the data ($X^2 = 447.224$, $df = 97$, $p = .000$; Bollen-Stine $p = .000$).

Figure 5. Respecified partially latent model for traditional bullying depicting standardized parameters.



Due to the very strong correlation (r = -0.96) between Psychological Adjustment and Self-Concept, the model was respecified by merging the two constructs into one and adding Ego Strength back into the model (see Figure 6). Although this model was identified, it still had very poor fit to the data (X^2 = 812.525, df = 115, p = .000; Bollen-Stine p = .000).

Figure 6. Respecified partially latent model for traditional bullying with psychological adjustment as one latent construct.



In order to clarify the relationships among all of the Psychological Adjustment variables, a PCA with varimax rotation was run, and all assumptions were met. As can be seen in Table 4, two factors were extracted with Anxiety, Depression, Ego Strength, Self Esteem, Self Reliance, and Inadequacy loading highly on Factor 1 (Internalizing Behaviour), and Sensation Seeking, Hyperactivity, and Mania loading highly on Factor 2 (Externalizing Behaviour).

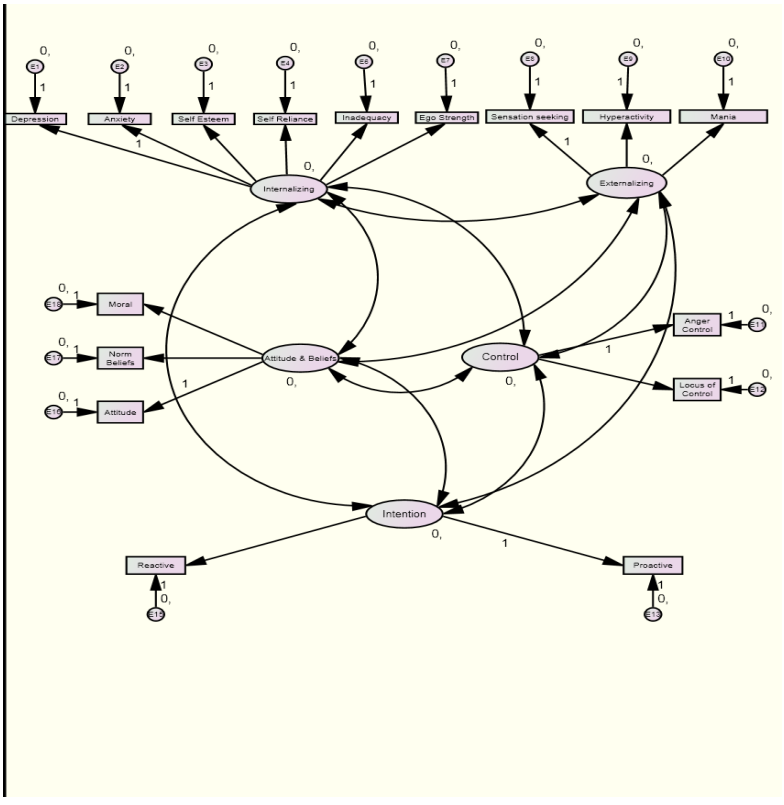
Table 4.

Factor Loadings for Psychological Adjustment Variables with Varimax Rotation

Psychological Adjustment Variable	Factor 1 (Internalizing)	Factor 2 (Externalizing)
Ego Strength	**-.914**	-.182
Depression	**.786**	.337
Self-Esteem	**-.782**	-.158
Self-Reliance	**-.644**	.207
Sense of Inadequacy	**.682**	.466
Anxiety	**.606**	.458
Hyperactivity	.220	**.797**
Mania	.420	**.775**
Sensation Seeking	-.105	**.767**

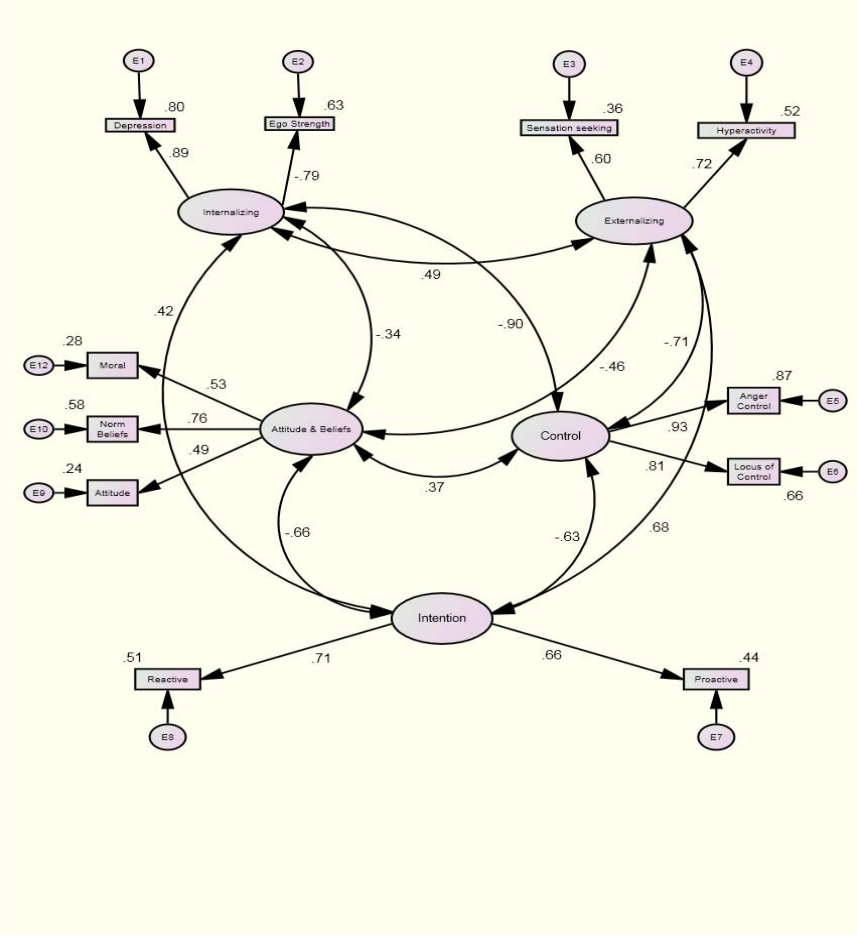
Following the two-step rule for identification, the model was first respecified as a measurement model (see Figure 7) based on the results of the PCA.

Figure 7. New measurement model based on PCA.



Although this model was identified, it had poor fit ($X^2 = 558.82$, $df = 94$, $p = .000$; Bollen-Stine $p = .004$; CMIN/DF = 5.945; CFI = .810; RMSEA = .131 (90% Confidence Interval = .121 - .142; SRMR = .0757). The Goodness of Fit indices presented here and below are based on those recommended by Kline (2005) and are evaluated as follows: for CMIN/DF a value greater than 2.0 is considered good fit, for CFI a value greater than or equal to 0.95 is considered well fitting, for RMSEA the ideal is less than or equal to .05 and reasonable between .05 to .08, and a SRMR value less than .08 is considered a good fit. In order to improve model fit and parsimony, post-hoc modifications were carried out. The lack of good model fit, may have in part been due to running an overly complex model containing too many indicator variables with a relatively small sample size (Kline, 2005). Therefore, the model was respecified by removing the indicators of the Internalizing and Externalizing constructs one-by-one based on their factor loadings and conducting the X^2 difference test to assess improvement in goodness of model fit (Kline, 2005). Anxiety was removed first ($X_{Diff}^2 = 117.015$, $df_{Diff} = 14$) which led to the rejection of the null hypothesis at $p < 0.05$ and the conclusion that the model without Anxiety better fits the data. This process was continued and led to improved model fit with the removal of Self Reliance, Inadequacy, Self Esteem, and Mania (see Figure 8). However, although the model fit was much improved for this model, it still did not fit the data well ($X^2 = 76.139$, $df = 34$, $p = .000$, Bollen-Stine $p = .004$).

Figure 8. Respecified measurement model.



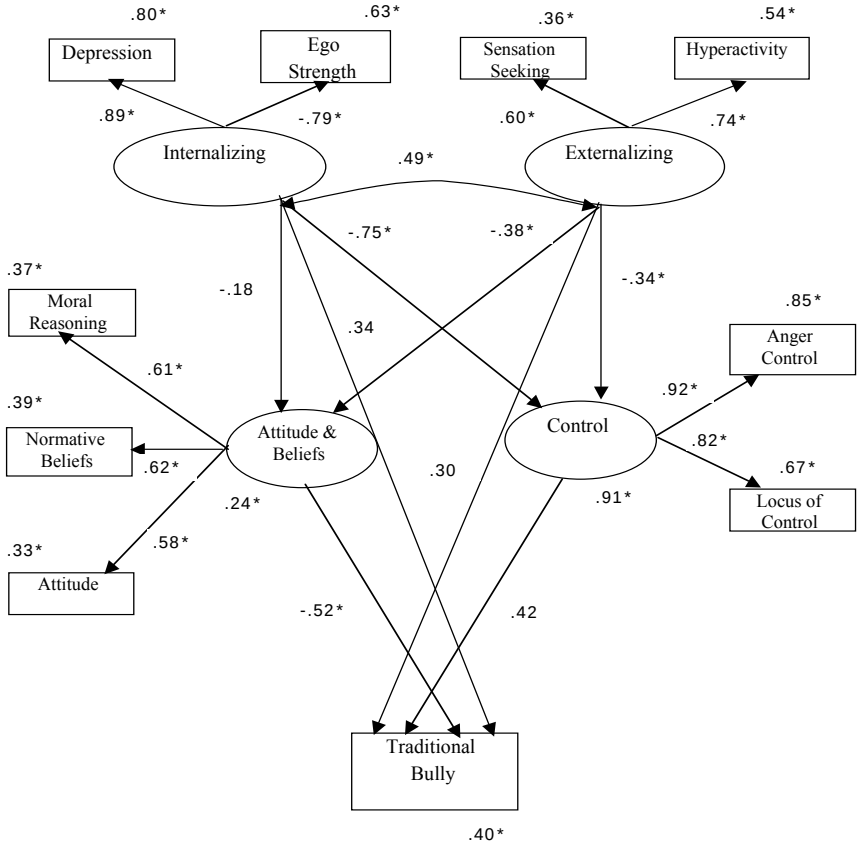
Several alternative models were explored including the removal of the Attitude indicator in Attitude and Beliefs, which had the lowest factor loading (0.49); however, this led to worse model fit as did the removal of the Control variable. The removal of the Intention latent variable and its indicators, on the other hand, led to the non-rejection of the null hypothesis and the conclusion that the model fit the data well ($X^2 = 30.867$, $df = 21$, $p = .076$; Bollen-Stine $p = .112$; CMIN/DF = 1.470, CFI = .990; RMSEA = .040 (.000 - .069); SRMR = .0356).

Testing the model for bullying behaviour. Following from the recent work of Hawley and colleagues (Hawley, Little, & Rodkin, 2007) who argued

that aggression can, at times, be adaptive and not indicative of deviance or delinquency, it was hypothesized that there are two similar yet distinct pathways to bullying behaviour (see Figure 2). Individuals low to moderate on psychological adjustment (low levels of depression, mania, and anxiety, low to moderate hyperactivity, sensation seeking), high on self-concept (high self-esteem, self-reliance, and ego strength, and low sense of inadequacy), with positive attitudes and beliefs about bullying (low provictim, low to moderate moral reasoning, and high approval of bullying), and high perceived control (high anger control and internal locus of control), and high proactive intention (low reactive) will lead to high bullying behaviour.

Final traditional bully model. The aforementioned well fitting measurement model (see Figure 8) was respecified as a partially latent structural regression model testing traditional bullying with direct paths from the new Externalizing and Internalizing variables added (see Figure 9). Figure 9 (error terms and disturbances removed) presents the standardized parameters with their associated significance level based on the bootstrap method whereas Table 5 presents the unstandardized parameters. This model fit the data well (X^2 = 36.006, df = 27, p = .115; Bollen-Stine p = .159; CMIN/DF = 1.334; CFI = .992; RMSEA = .034 (.000 - .061); SRMR = .0343) with Mardia's coefficient at 14.263. Removing the direct paths from Internalizing and Externalizing behaviour to Traditional Bullying, respecified the model, however, it was not significantly improved (X_{Diff}^2 = 3.138, df_{Diff} = 2) and so these paths were retained in the final model.

Figure 9. Final measurement model respecified as partially latent model for traditional bully.



Note: $^{*}p < 0.05$

Table 5

Unstandardized Parameter Estimates for Traditional Bully Model

	Estimate	Standard Error	Critical Ratio	*p*-value
Internalizing → Depression	1.000			
Internalizing → Ego Strength	-1.119	.071	-15.875	<.001
Internalizing → Attitude & Beliefs	-.041	.023	-1.803	.071
Internalizing → Control	-1.089	.088	-12.429	<.001
Internalizing → Traditional Bully	.102	.100	1.026	.305
Internalizing ⇔ Externalizing	14.057	2.793	5.033	<.001
Externalizing → Sensation	1.000			

Seeking				
Externalizing → Hyperactivity	1.288	.173	7.443	<.001
Externalizing → Attitude & Beliefs	-.083	.026	-3.182	.001
Externalizing → Control	-1.089	.088	-12.429	<.001
Externalizing → Traditional Bully	.087	.056	1.561	.119
Attitude & Beliefs → Attitude	1.000			
Attitude & Beliefs → Norm Beliefs	4.056	.600	6.759	<.001
Attitude & Beliefs → Moral Reasoning	3.399	.509	6.680	<.001
Attitude & Beliefs → Traditional Bully	-.682	.131	-5.219	<.001
Control → Anger Control	1.000			
Control → Locus of Control	.938	.051	18.263	<.001
Control → Traditional Bully	.087	.088	.995	.320

Table 6 presents the standardized direct and indirect effects employing the Bias-Corrected (BC) percentile method of bootstrapping for Confidence Intervals (CI) and *p*-values.

Table 6

Standardized Direct and Indirect Effects for Traditional Bully Model with Bias-Correct Confidence Intervals (CI) and p-values.

	Internalizing	*p*	Externalizing	*p*	Attitude & Beliefs	*p*	Control	*p*
Direct Effects								
Attitude & Beliefs	-.178 (-.346 to .028)	.080	-.377 (-.583 to -.166)	.001	---	---	---	---
Control	-.745 (-.835 to -.641)	.001	-.338 (-.453 to -.216)	.001	---	---	---	---
Traditional Bully	.339 (-.285 to 2.816)	.237	.301 (-.041 to 1.561)	.078	-.521 (-.688 to -.335)	.002	.424 (-.355 to 3.789)	.259
Indirect Effects								
Traditional Bully	-.223 (-2.664 to .374)	.437	.053 (-1.432 to .337)	.885	---	---	---	---

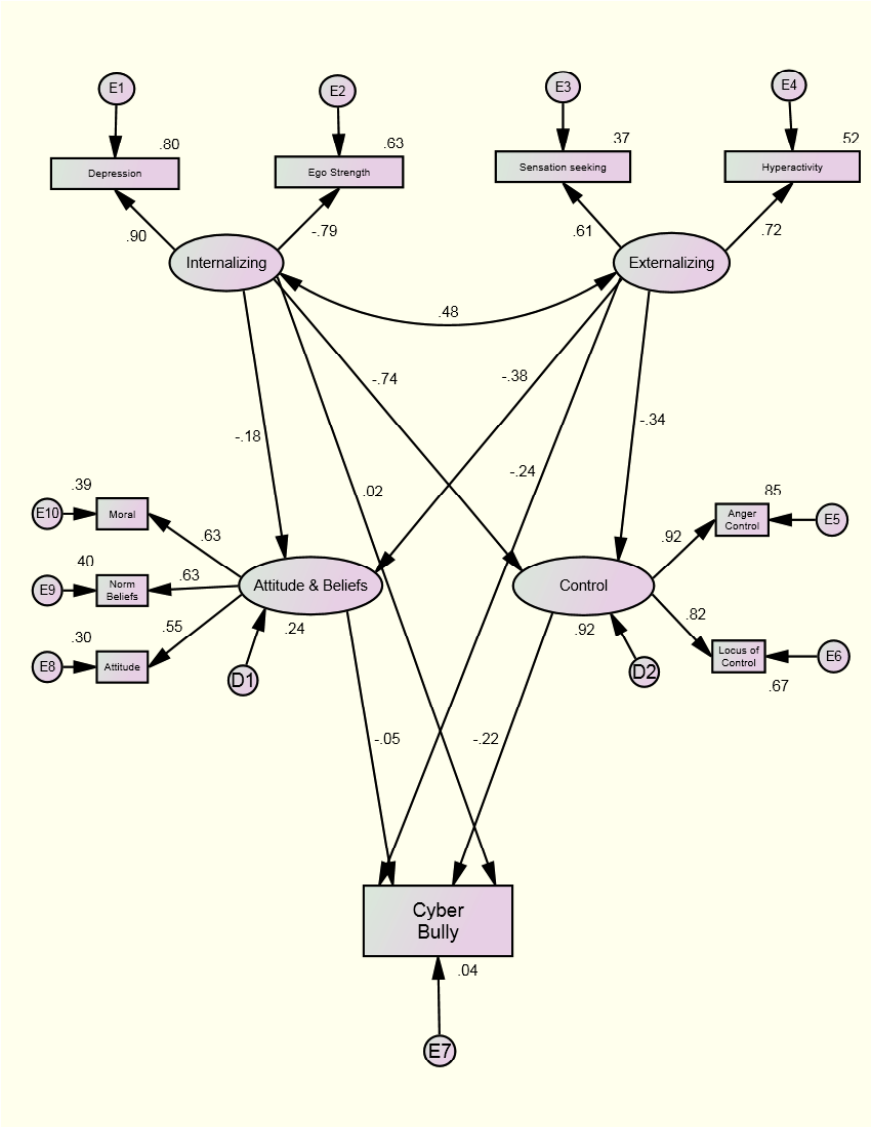
Overall, the model accounted for 40% of the variance in traditional bullying. As can be seen, Externalizing but not Internalizing behaviours had a significant direct effect on Attitude and Beliefs indicating that for each one unit increase in Externalizing behaviour, which was associated with increases in Sensation Seeking and Hyperactivity, Attitudes and Beliefs decreased by 0.38. For each one unit increase in Attitudes and Beliefs, Traditional Bullying decreased by 0.52. Therefore, the hypotheses of this study were partially supported in that traditional bullying was predicted by less support for the victim, normative beliefs supporting aggression/bullying, and less well developed moral reasoning about aggression, which was in turn predicted by higher levels of Sensation Seeking and Hyperactivity. There was also a significant direct effect of Internalizing behaviour on Control indicating that for each one unit increase in

Internalizing behaviour (increase in Depression and decrease in Ego Strength), participants' ability to control their behaviour (poorer ability to control their anger and a more external locus of control) decreased by 0.75. Similarly, as participants' ratings of Sensation Seeking and Hyperactivity increased, Control decreased. However, there were no significant direct effects of Internalizing behaviour or Control on Traditional Bullying, and no significant indirect effects of Internalizing or Externalizing behaviour on Traditional Bullying.

Kline (2005) argued that in order to increase confidence in model fit, the proposed model should be tested against two to three alternative models. If the model fit is essentially equal then the best model should be chosen based on theory and previous research. In the first alternative model tested, the direct pathway from Attitude and Beliefs to Traditional Bullying was reversed (X^2 = 35.294, *df* = 27, *p* = .132). The second alternative involved adding a feedback loop between Attitude and Beliefs and Traditional Bullying, which rendered the model nonrecursive but still identified (X^2 = 35.047, *df* = 26, *p* = .111). For the third alternative model, a pathway from Control to Attitude and Beliefs was added (X^2 = 35.047, *df* = 26, *p* = .111). Although all models fit the data well, the original model fits well with theory and previous research. Finally, although it was an objective of this study to conduct multiple groups comparison for sex differences in this and the other three models discussed below, this was not possible given the requirements of a larger sample size of at least double that for the one group analysis, and equal numbers across groups (see Kline, 2005), which the present study lacked.

Final cyberbully model. The final model for traditional bullying was run on cyberbullying (see Figure 10). However, this model did not fit the data well ($X^2 = 43.045$, $df = 27$, $p = .026$; Bollen-Stine $p = .064$) with Mardia's coefficient at 8.027.

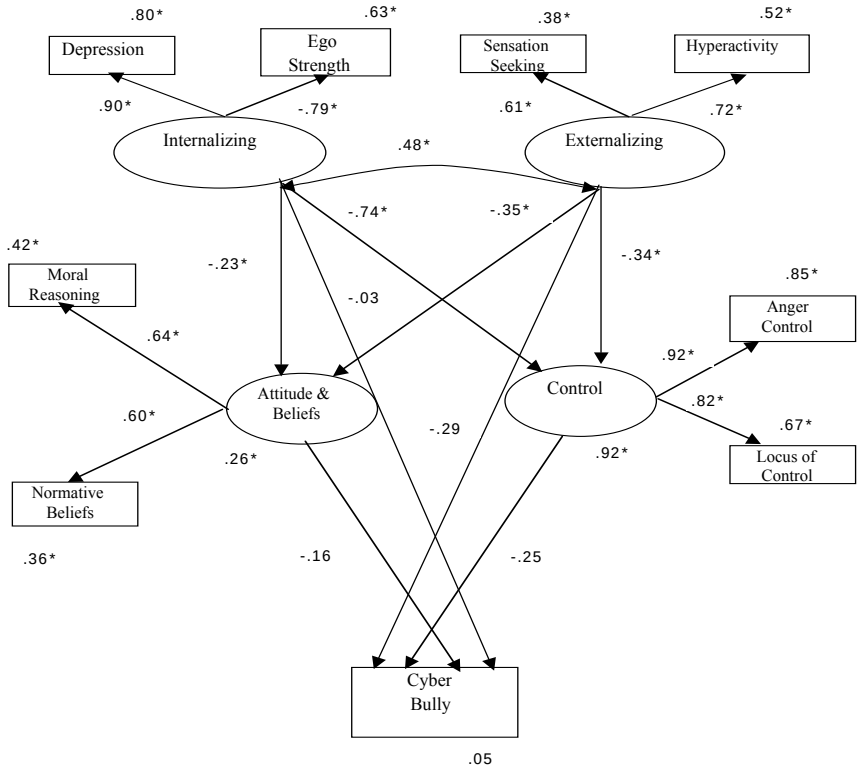
Figure 10. Traditional bully model run on cyberbullying data.



Post-hoc modifications were made to the model in an attempt to improve model fit and parsimony. Intention was added back into the model; however, this did not fit the data well and so it was excluded from further analyses ($X^2 =$

105.369, *df* = 46, *p* = .000; Bollen-Stine *p* = .004). Next the data for cyberbullying were run using the final model for traditional bully-victimization (discussed below). This was also not a good fit (X^2 = 37.826, *df* = 20, *p* = .009; Bollen-Stine *p* = .020). Next, the model was respecified by removing single indicators and paths one at a time. The final model for cyberbullying depicted in Figure 11 with standardized estimates involved the removal of the Attitude indicator, which produced good model fit (X^2 = 25.644, *df* = 19, *p* = .140; Bollen-Stine *p* = .167; CMIN/DF = 1.350; CFI = .993; RMSEA = .035 (.000 - .066); SRMR = .0320) with Mardia's coefficient at 5.958 (see Table 7 for unstandardized estimates).

Figure 11. Final partially latent model for cyberbullying.



Note: $^{*}p$ <0.05

Table 7

Unstandardized Parameter Estimates for Cyberbully Model

	Estimate	Standard Error	Critical Ratio	*p*-value
Internalizing → Depression	1.000			
Internalizing → Ego Strength	-1.116	.070	-15.868	<.001
Internalizing → Attitude & Beliefs	-.206	.096	-2.155	.031
Internalizing → Control	-1.082	.087	-12.414	<.001
Internalizing → Cyberbully	-.016	.177	-.092	.926
Internalizing ⇔ Externalizing	14.315	2.844	5.034	<.001
Externalizing → Sensation Seeking	1.000			
Externalizing → Hyperactivity	1.231	.168	7.342	<.001
Externalizing → Attitude & Beliefs	-.296	.106	-2.782	.005
Externalizing → Control	-.474	.092	-5.171	<.001
Externalizing → Cyberbully	-.139	.100	-1.388	.165
Attitude & Beliefs → Norm Beliefs	1.000			
Attitude & Beliefs → Moral Reasoning	.927	.205	4.522	<.001
Attitude & Beliefs → Cyberbully	-.090	.060	-1.515	.130
Control → Anger Control	1.000			
Control → Locus of Control	.937	.051	18.267	<.001
Control → Cyberbully	-.088	.157	-.562	.574

Table 8 presents the standardized direct and indirect effects employing the Bias-Corrected (BC) percentile method of bootstrapping for Confidence Intervals (CI) and *p*-values.

Table 8

Standardized Direct and Indirect Effects for Cyberbully Model with Bias-Correct Confidence Intervals (CI) and p-values.

	Internalizing	*p*	Externalizing	*p*	Attitude & Beliefs	*p*	Control	*p*
Direct Effects								
Attitude & Beliefs	-.231 (-.425 to -.004)	.045	-.352 (-.585 to -.084)	.009	---	---	---	---
Control	-.741 (-.833 to -.638)	.001	-.345 (-.463 to -.226)	.001	---	---	---	---
Cyberbully	-.032 (-1.420 to 1.058)	.937	-.289 (-1.019 to .301	.229	-.157 (-.387 to .051)	.160	-.251 (-2.152 to 1.117)	.602
Indirect Effects								
Cyberbully	.222 (-.851 to 1.614)	.532	.142 (-.353 to .829)	.446	---	---	---	---

Although there was good model fit to the data, overall the model only accounted for 0.05% of the variance in cyberbullying. As can be seen, Internalizing and Externalizing behaviours had a direct effect on Attitude and Beliefs and Anger Control. For each one unit increase in Internalizing behaviour (increase in Depression, decrease in Ego Strength), Attitude and Beliefs decreased by 0.23, and Anger Control by 0.74. For each one unit increase in Externalizing behaviour (increase Sensation Seeking and Hyperactivity), Attitude and Beliefs decreased by 0.35 and Anger Control by 0.34. However, there were no significant direct or indirect effects on Cyberbullying. Therefore, the hypotheses of this study were not supported when examining cyberbullying.

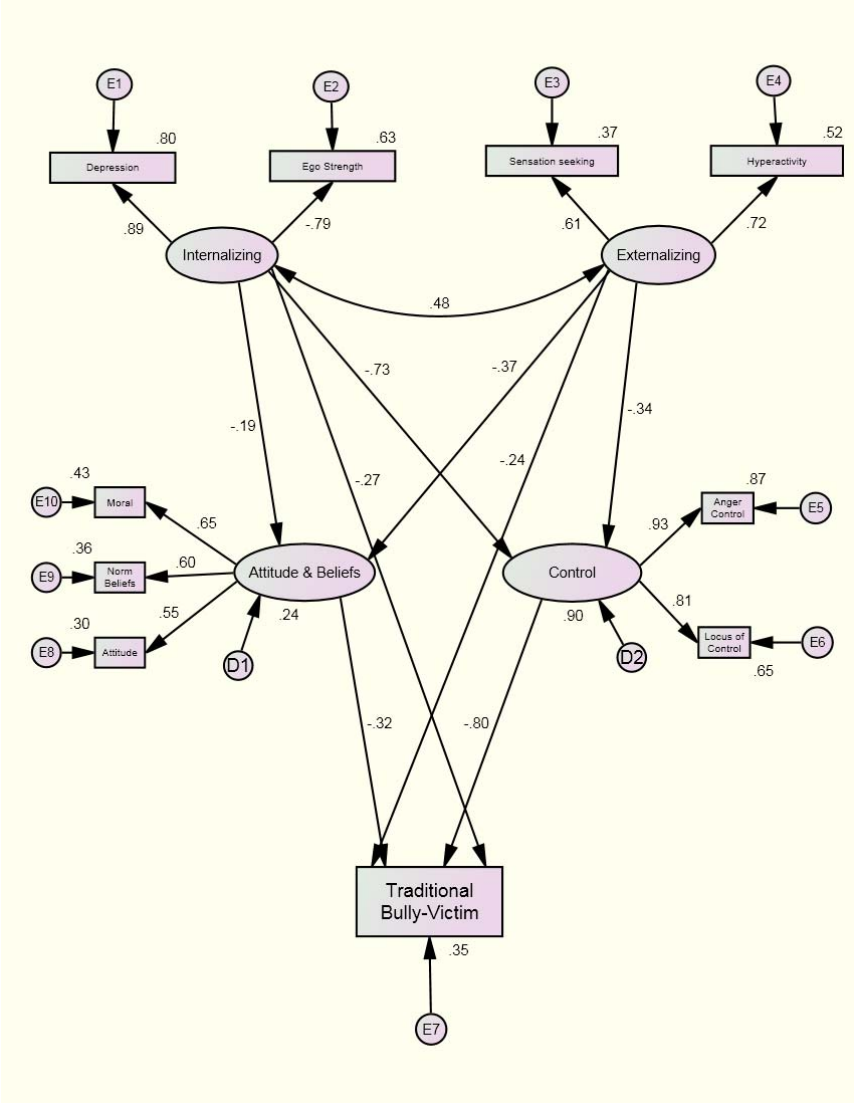
In the first alternative model tested, the direct pathway from Attitudes and Beliefs to Cyberbullying was reversed ($X^2 = 25.742$, $df = 19$, $p = .138$). The

second alternative involved adding a pathway from Control to Attitude and Beliefs ($X^2 = 24.531$, $df = 18$, $p = .138$). For the final alternative model, the pathways from Internalizing and Externalizing behaviour to Cyberbullying were reversed ($X^2 = 59.976$, $df = 19$, $p = .000$). Although the first two alternative models fit the data well, the original model fits well with theory and previous research.

Testing the model for bully-victimization behaviour. In line with Vaughn and Santos (2007) who argued that victims who are also aggressors (or bully-victims) are likely different from pure aggressors, it was hypothesized that there is a similar yet divergent pathway for bully-victims. The second hypothesized pathway to bullying involves individuals high on psychological adjustment (moderate to high levels of any of the indicators), low on self-concept (low self-esteem, self-reliance, and ego strength, and high sense of inadequacy), with negative or more neutral attitudes and beliefs about bullying (moderate to high provictim, low moral reasoning, and low to moderate approval of bullying), with low perceived control (low anger control and external locus of control), and high reactive intention (low proactive) will lead to higher bullying behaviour.

Final traditional bully-victim model. The final model for traditional bullying was run on traditional bully-victimization (see Figure 12). However, this model did not fit the data well ($X^2 = 48.183$, $df = 27$, $p = .007$; Bollen-Stine $p = .028$) with Mardia's coefficient at 12.960.

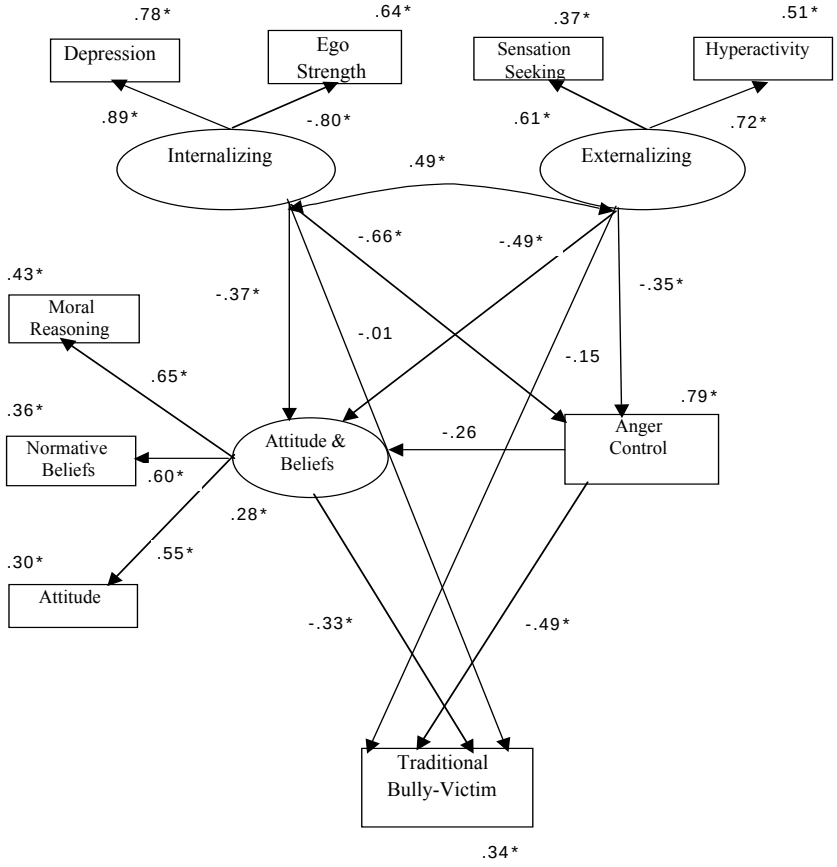
Figure 12. Final model for traditional bullying run on traditional bully-victim.



In an attempt to improve model fit and parsimony, the model was respecified by removing indicators or paths one at a time. The removal of Sensation Seeking, Anger Control, Ego Strength, Attitude, Norm Beliefs, and Moral Reasoning did not significantly improve the model fit, and removal of Hyperactivity and Depression led to negative eigenvalues and the model being unidentified. Further, the re-introduction of Intention to the model also did not improve model fit. However, the removal of Locus of Control and the

respecification of Anger Control as an observed variable with an added path to Attitude and Beliefs did fit the data well ($X^2 = 30.084$, $df = 19$, $p = .051$; Bollen-Stine $p = .088$; CMIN/DF = 1.583; CFI = .987; RMSEA = .045(.000 - .074); SRMR = .0361) with Mardia's coefficient at 9.532. The model was respecified with the path from Anger Control to Attitudes and Beliefs removed but this model did not significantly fit the data better ($X_{Diff}^2 = 1.45$, $df_{Diff} = 1$); therefore, the path was retained (see Figure 13 for standardized estimates and Table 9 for unstandardized estimates).

Figure 13. Final partially latent model for traditional bully-victimization.



Note: *p <0.05

Table 9

Unstandardized Parameter Estimates for Traditional Bully-Victim Model

	Estimate	Standard Error	Critical Ratio	*p*-value
Internalizing → Depression	1.000			
Internalizing → Ego Strength	-1.141	.073	-15.548	<.001
Internalizing → Attitude & Beliefs	-.082	.040	-2.064	.039
Internalizing → Anger Control	-1.063	.092	-11.573	<.001
Internalizing → Traditional Bully-Victim	-.008	.082	-.098	.922
Internalizing ⇔ Externalizing	14.067	2.803	5.018	<.001
Externalizing → Sensation Seeking	1.000			
Externalizing → Hyperactivity	1.236	.166	7.437	<.001
Externalizing → Attitude & Beliefs				
Externalizing → Anger Control	-1.063	.092	-11.573	<.001
Externalizing → Traditional Bully-Victim	-.088	.074	-1.193	.233
Attitude & Beliefs → Attitude	1.000			
Attitude & Beliefs → Norm Beliefs	4.095	.668	6.126	<.001
Attitude & Beliefs → Moral Reasoning	3.829	.614	6.238	<.001
Attitude & Beliefs → Traditional Bully-Victim	-.947	.273	-3.466	<.001
Anger Control → Traditional Bully-Victim	-.193	.061	-3.159	.002

Table 10 presents the standardized direct and indirect effects employing the Bias-Corrected (BC) percentile method of bootstrapping for Confidence Intervals (CI) and *p*-values.

Table 10

Standardized Direct and Indirect Effects for Traditional Bully-Victim Model with Bias-Correct Confidence Intervals (CI) and p-values.

	Internalizing	*p*	Externalizing	*p*	Attitude & Beliefs	*p*	Anger Control	*p*
Direct Effects								
Attitude & Beliefs	-.662 (-.805 to -.013)	.030	-.353 (-.927 to -.201)	.006	---	---	---	---
Anger Control	-.195 (-.732 to -.541)	.026	-.489 (-.480 to -.246)	.004	---	---	---	---
Traditional Bully-Victim	-.013 (-.258 to .306)	.921	-.149 (-.445 to .079)	.189	-.332 (-.490 to -.150)	.014	-.489 (-.806 to -.175)	.015
Indirect Effects								
Traditional Bully-Victim	.389 (.158 to .671)	.009	.304 (.151 to .588)	.009	---	---	---	---

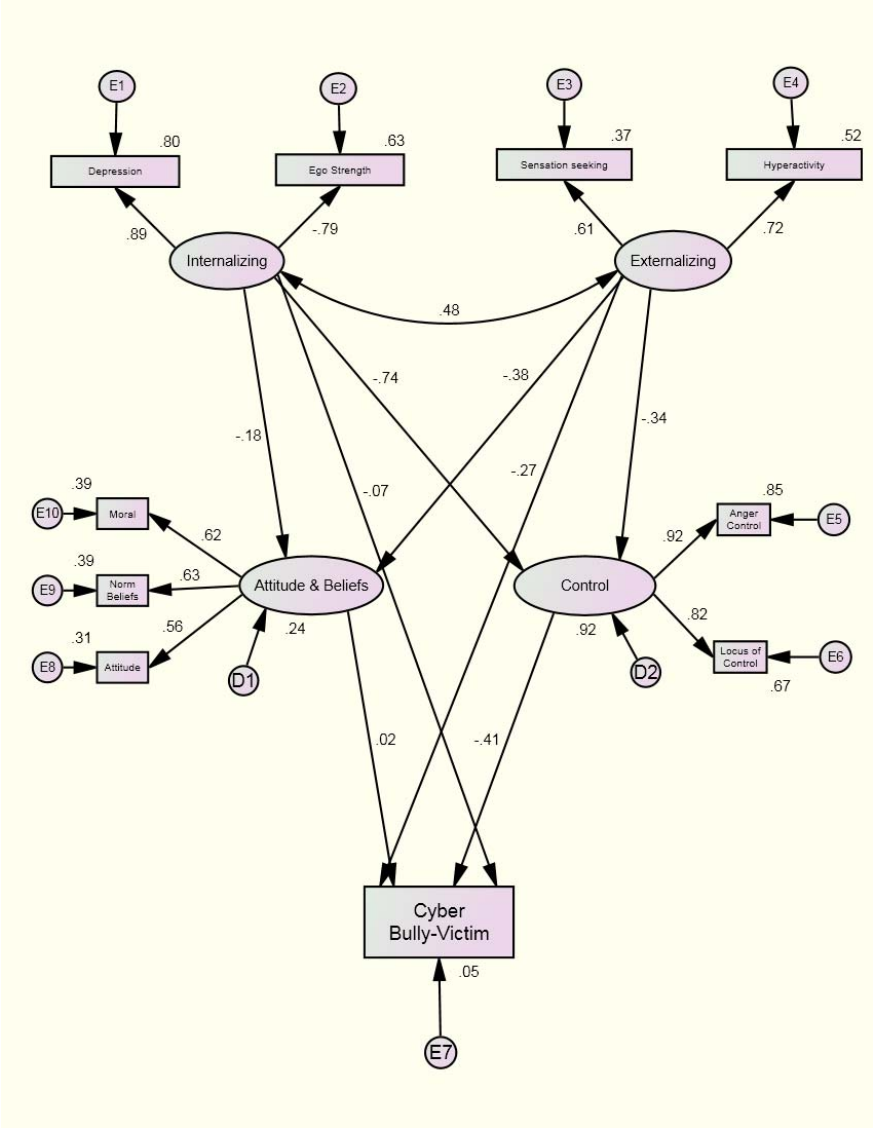
Overall, the model accounted for 34% of the variance in Traditional Bully-Victimization. As can be seen, Internalizing and Externalizing behaviours had a direct effect on Attitude and Beliefs and Anger Control, both of which in turn had a significant direct effect on Traditional Bully-Victimization. For each one unit increase in Internalizing behaviour (increase in Depression, decrease in Ego Strength), Attitude and Beliefs decreased by 0.37, and Anger Control by 0.66. For each one unit increase in Externalizing behaviour (increase Sensation Seeking and Hyperactivity), Attitude and Beliefs decreased by 0.49 and Anger Control by 0.35. Each one unit increase in Attitude and Beliefs or Anger Control led to a 0.33 or 0.49 unit decrease in Traditional Bully-Victimization, respectively. The hypotheses of this study were therefore partially supported in that traditional

bully-victimization was predicted by less support for the victim, normative beliefs supporting aggression/bullying, and less well developed moral reasoning about aggression and poor anger control, which in turn were predicted by higher levels of Sensation Seeking, Hyperactivity, and Depression, and lower Ego Strength. Unlike the model for Traditional Bullying, there were significant indirect effects of both Internalizing and Externalizing behaviour indicating that Attitude and Beliefs and Anger Control mediated (see Baron & Kenny, 1986) the relationships between Internalizing/Externalizing Behaviour and Traditional Bully-Victimization.

In the first alternative model tested, the direct pathway from Attitude and Beliefs to Traditional Bully-Victimization was reversed ($X^2 = 33.582$, $df = 20$, $p = .029$). The second alternative involved adding paths from Anger Control to Internalizing and Externalizing behaviour ($X^2 = 33.645$, $df = 21$, $p = .040$). For the third alternative model, the pathway from Anger Control to Attitude and Beliefs was removed ($X^2 = 31.534$, $df = 20$, $p = .049$). All three models were significant and therefore did not fit the data well.

Final cyberbully-victim model. The final model for traditional bullying was run on cyberbully-victimization (see Figure 14). However, this model did not fit the data well ($X^2 = 45.409$, $df = 27$, $p = .015$; Bollen-Stine $p = .032$) with Mardia's coefficient at 8.244.

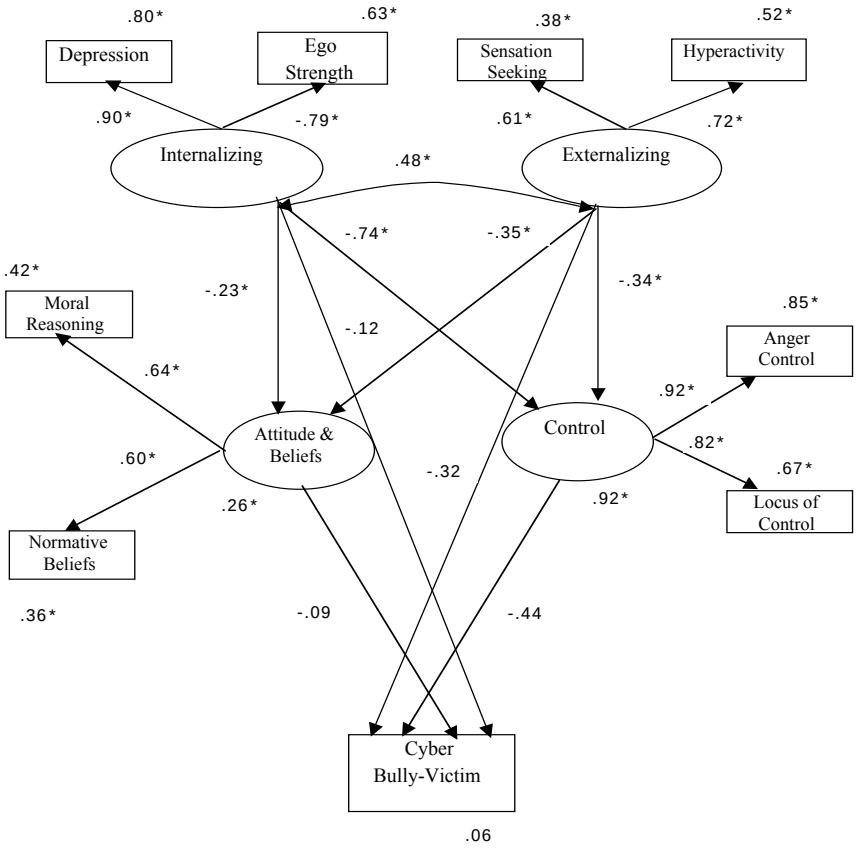
Figure 14. Traditional bully model run on cyberbully-victimization data.



Post-hoc modifications were made to the model in an attempt to improve model fit and parsimony. First, the final model for traditional bully-victimization was run; however, this also did not fit the data well ($X^2 = 37.326$, $df = 20$, $p = .009$; Bollen-Stine $p = .020$). Next the data for cyberbully-victimization were run using the final model for cyberbullying. This fit the data well ($X^2 = 26.482$, $df = 19$, $p = .117$; Bollen-Stine $p = .135$; CMIN/DF = 1.394; CFI = .992; RMSEA =

.037 (.000 - .068); SRMR = .0326) with Mardia's coefficient at 6.494 (see Figure 15 for standardized estimates and Table 11 for the unstandardized estimates).

Figure 15. Final partially latent model for cyberbully-victimization.



Note: *p <0.05

Table 11

Unstandardized Parameter Estimates for Cyberbully-Victim Model

	Estimate	Standard Error	Critical Ratio	p-value
Internalizing → Depression	1.000			
Internalizing → Ego Strength	-1.117	.070	-15.874	<.001
Internalizing → Attitude & Beliefs	-.206	.096	-2.151	.031
Internalizing → Control	-1.083	.087	-12.420	<.001
Internalizing → Cyberbully-Victim	-.141	.417	-.338	.736
Internalizing ⇔	14.317	2.843	5.035	<.001

Externalizing				
Externalizing → Sensation Seeking	1.000			
Externalizing → Hyperactivity	1.229	.167	7.350	<.001
Externalizing → Attitude & Beliefs	-.297	.107	-2.779	.005
Externalizing → Control	-.474	.092	-5.171	<.001
Externalizing → Cyberbully-Victim	-.351	.235	-1.498	.134
Attitude & Beliefs → Norm Beliefs	1.000			
Attitude & Beliefs → Moral Reasoning	.924	.208	4.445	<.001
Attitude & Beliefs → Cyberbully-Victim	-.118	.131	-.898	.369
Control → Anger Control	1.000			
Control → Locus of Control	.937	.051	18.285	<.001
Control → Cyberbully-Victim	-.348	.371	-.940	.347

Table 12 presents the standardized direct and indirect effects employing the Bias-Corrected (BC) percentile method of bootstrapping for Confidence Intervals (CI) and *p*-values.

Table 12

Standardized Direct and Indirect Effects for Cyberbully-Victim Model with Bias-Correct Confidence Intervals (CI) and p-values.

	Internalizing	*p*	Externalizing	*p*	Attitude & Beliefs	*p*	Control	*p*
Direct Effects								
Attitude & Beliefs	-.230 (-.430 to -.011)	.043	-.353 (-.583 to -.076)	.011	---	---	---	---
Control	-.742 (-.833 to -.639)	.001	-.345 (-.463 to -.227)	.001	---	---	---	---
Cyberbully-Victim	-.121 (-1.908 to 1.014)	.773	-.323 (-1.233 to .213)	.170	-.091 (-.328 to .112)	.381	-.439 (-2.908 to .980)	.376
Indirect Effects								
Cyberbully-Victim	.346 (-.761 to 2.127)	.366	.184 (-.289 to 1.108)	.337	---	---	---	---

Although there was good model fit to the data, overall the model only accounted for 0.06% of the variance in cyberbullying. As can be seen, Internalizing and Externalizing behaviours had a direct effect on Attitude and Beliefs and Anger Control. For each one unit increase in Internalizing behaviour (increase in Depression, decrease in Ego Strength), Attitude and Beliefs decreased by 0.23, and Anger Control by 0.74. For each one unit increase in Externalizing behaviour (increase Sensation Seeking and Hyperactivity), Attitude and Beliefs decreased by 0.35 and Anger Control by 0.34. However, there were no significant direct or indirect effects on Cyberbully-Victimization. Therefore, the hypotheses of this study were not supported when examining cyberbully-victimization.

In the first alternative model tested, the direct pathway from Attitude and Beliefs to Cyberbully-Victimization was reversed ($X^2 = 26.586$, $df = 19$, $p = .115$). The second alternative involved adding a pathway from Control to Attitude and Beliefs ($X^2 = 25.351$, $df = 18$, $p = .116$). For the final alternative model, the pathways from Internalizing and Externalizing behaviour to Cyberbully-Victimization were reversed ($X^2 = 63.562$, $df = 20$, $p = .000$). Although the first two alternative models fit the data well, the original model fits well with theory and previous research.

V. Discussion

Interpretation of Results and Implications

Frequency of traditional and cyber bullying and bully-victimization.

One of the preliminary objectives of this study was to determine the number of traditional and cyber bullies and bully-victims. Similar to the findings of previous research (e.g., Andreou, 2004; Carlyle & Steinman, 2007; Georgiou & Stavrinides, 2008; Gini, 2008; Holt & Espelage, 2007; Ivarsson et al., 2005; Jankauskiene, et al., 2008; Kim, et al., 2006; Thornberg & Knutsen, 2011), the prevalence of traditional bullying for the overall sample was 11.08% based on scores greater than one standard deviation above the mean. Further in line with previous research (e.g., Burns et al., 2008; Crick & Grotpeter, 1995; Klomek et al., 2009), the prevalence of traditional bullying varied by sex with 17.46% of boys and 6.56% of girls identified as traditional bullies. Consistent with previous studies (Huang & Chou, 2010; Li, 2007; Slonje & Smith, 2008; Wade & Beran, 2011; Ybarra & Mitchell, 2007), 10.56% of the total sample was classified as a

cyberbully with similar rates for boys (11.29%) and girls (10.26%). The prevalence of traditional bully-victimization (13.21%) was also comparable to previously established rates (e.g., Andreou, 2004; Gini, 2008; Holt & Espelage, 2007; Thornberg & Knutsen, 2011). In this study, a higher percentage of boys (17.36%) were classified as traditional bully-victims than were girls (10.20%). To date, there have been very few studies examining the prevalence of cyberbully-victimization; however, Sourander et al. (2010) found that 5.4% of their sample could be classified as cyberbully-victims. In this study, 10.56% of the total sample was classified as a cyberbully-victim with more girls (17.44%) than boys (8.00%) classified as cyberbully-victims. These higher rates of traditional and cyber bullying and bully-victimization may in part be due to the age of the current sample (M = 12.27) as it has previously been found that bullying/aggression peaks in mid-adolescence (Barboza et al., 2009; Bradshaw et al., 2007; Jankauskiene et al., 2008).

Sex differences. A further preliminary objective of this study was to explore whether there were sex differences in traditional and cyber bullying and bully-victimization. Given the lack of consistency in previous research no specific hypotheses were made. Significant sex differences were found for traditional bullying and traditional bully-victimization with boys scoring higher on both measures than girls. This finding is in line with a plethora of previous research (Holt & Espelage, 2007; Klomek et al., 2007; Ma, 2002; Ma et al., 2009; O'Brennan et al., 2009; Pepler et al., 2006; Pepler et al., 2008; Salmivalli & Nieminen, 2002; Schute et al., 2007; Solberg et al., 2007; Warden & Mackinnon,

2003). The inconsistency in sex differences in previous research has been attributed to factors such as the form of aggression and type of informant. For example, boys have typically been found to have higher rates of bullying than girls when examining direct/overt/physical aggression/bullying rather than indirect/overt/relational aggression/bullying (e.g., Ando et al., 2005; Jolliffee & Farrington, 2011; Marsee et al., 2005; Viding et al., 2009). However, this is not always the case as several studies have found boys to be higher on all forms of bullying/aggression (Card et al., 2008; Crick & Grotpeter, 1995). In the current study, overt and relational items were combined into an overall traditional bullying composite given the small number of items reflecting each type of bullying and in order to improve reliability of the measure. As such, it was not possible to examine whether the sex differences found varied by type of bullying. Crick and Grotpeter (1995) also found that bullying rates varied by sex depending on the type of informant. Although boys were rated as higher on overt bullying and girls on relational bullying toward peers, boys self-reported higher levels of both overt and relational bullying than girls. It is therefore possible that the lack of consistency in sex differences between some previous research and this study may in part be related to the type of informant as traditional bullying and bully-victimization were self-reported.

Congruent with the findings of some previous research (e.g., Smith et al., 2008; Wade & Beran, 2010; Williams & Guerra, 2007), there were no sex differences in cyberbullying or cyberbully-victimization. This finding for cyberbully-victimization is intriguing given that 17.44% of girls versus 8.00% of

boys were classified as cyberbully-victims. However, when the means were examined (see Figure 3), they were almost identical for boys and girls. This difference is in line with previous research that has found that rates and sex differences may be affected by the frequency of bullying or bully-victimization (e.g., Ball et al., 2008; Bradshaw et al., 2007; Klomek et al., 2009). It would appear then that although a greater percentage of girls in this sample were classified as frequent cyberbully-victims, overall the girls' ratings of cyberbully-victimization did not differ from that of the boys' ratings.

The inter-correlations among the study variables, were in general, in line with previous research in that measures of psychological adjustment were significantly, negatively related to measures of self-concept, attitudes and beliefs, and control, and positively related to measures of intention and traditional bullying and bully-victimization. Measures of attitude and beliefs were significantly, positively related to measures of control and negatively to traditional bullying and bully-victimization, and measures of control were also significantly, negatively correlated to traditional bullying and bully-victimization.

Contrary to previous research (e.g., Hinduja & Patchin, 2010; Ybarra & Mitchell, 2007; Sourander et al., 2010), almost all correlations between measures of psychological adjustment, self-concept, control, and intention and cyberbullying and cyberbully-victimization were non-significant. Further, the correlations between traditional bullying and cyberbullying and cyber bully-victimization were also non-significant; however, there was a significant weak, positive relationship between traditional bully-victimization and cyberbullying

and cyberbully-victimization. This finding is somewhat incongruent with previous research, which has found traditional bullying to be significantly related to cyberbullying (Hinduja & Patchin, 2008; Li, 2009; Sourander et al., 2010). These findings are discussed in more detail below.

TPB applied to bullying behaviour. Although bullying has been studied from a wide range of theoretical perspectives, the theory of planned behaviour (TPB) has not been applied to bullying. Given the empirical support for TPB with a variety of behaviours, it followed that examining bullying from a TPB perspective may aid in the explanation of bullying in adolescence. Further, given the established relationships between psychological adjustment, self-concept, and bullying, and between attitude and beliefs and bullying, there was reason to expect that TPB would add to our understanding of bullying behaviour. The proposed model expanded on Ajzen's (1991, 2002) original model of TPB by including antecedents (psychological adjustment and self-concept) of attitude and beliefs and perceived control.

For both bullying and bully-victimization, it was predicted that psychological adjustment (sensation seeking, depression, mania, anxiety, and hyperactivity) and self-concept (self-esteem, self-reliance, sense of inadequacy, and ego strength) influence attitudes and beliefs (attitude toward victim, normative beliefs, moral reasoning about aggression) and perceived control (anger control and locus of control), which in turn influence intention (reactive and proactive), which leads to bullying behaviour.

Before the model could be tested for bullying behaviour, it had to first be respecified as a measurement model based on the two-step rule for identification (Kline, 2005). When the original model was respecified as a measurement model, it did not fit the data well. Post-hoc modifications were made to improve model fit and parsimony. The final measurement model involved the re-organization of psychological adjustment and self-concept into two alternative latent variables renamed internalizing and externalizing behaviour. Removing several indicators of the newly constructed internalizing and externalizing variables further pared the model down and improved overall fit. The final model included depression and ego strength as indicators of internalizing behaviour and sensation seeking and hyperactivity as indicators of externalizing behaviour. However, the model still did not fit the data well. After several further post-hoc modifications, the latent variable intention with its indicators (proactive and reactive) was removed and this new model fit the data well.

There are several possible explanations regarding the lack of fit of intention into the current model. First, it is possible that TPB with its emphasis on behavioural intention does not apply to bullying behaviour or at least not in the present sample of Grade 7 and 8 students. It is also possible that the measures of intention in this study, reactive and proactive aggression, although conceptually related to intention were not completely valid measurements of the construct as proposed by Ajzen (1991). According to Ajzen (1991), intentions "are assumed to capture the motivational factors that influence behavior; they are an indication of how hard people are willing to try, of how much of an effort they are planning

to exert, in order to perform the behavior" (p. 181). Although reactive and proactive aggression may have captured parts of this definition, they may not have addressed the notion of a very specific intention to perform a specific behaviour at a specific time. Further, it may also be possible that the focus of the measures of reactive and proactive aggression on aggression and not bullying may have played a role in intention not being included in the final model. As previously discussed, although aggression and bullying have often been used interchangeably in the existing literature, they are conceptually and practically distinct phenomena. Therefore an aggressive intention may only predict an aggressive act, and not the repeated act of bullying with its inherent power imbalance.

Traditional bullying. Following from the recent work of Hawley and colleagues (Hawley et al., 2007) who argued that aggression can, at times, be adaptive and not indicative of deviance or delinquency, it was hypothesized that there are two similar yet distinct pathways to bullying behaviour (see Figure 2). Individuals low to moderate on psychological adjustment (low levels of depression, mania, and anxiety, low to moderate hyperactivity, sensation seeking), high on self-concept (high self-esteem, self-reliance, and ego strength, and low sense of inadequacy), with positive attitudes and beliefs about bullying (low provictim, low to moderate moral reasoning, and high approval of bullying), and high perceived control (high anger control and internal locus of control), and high proactive intention (low reactive) will lead to high bullying behaviour.

The model was tested on traditional bullying behaviour and was found to fit the data well, explaining 40% of the variability in traditional bullying. A look at the indicators and latent variables revealed internalizing behaviour to be associated with higher depression ratings and lower ego strength, and externalizing behaviour with higher sensation seeking and hyperactivity ratings. The role of these indicators as opposed to the other originally proposed indicators may to some degree be a product of the small sample size, and the need to make the model more parsimonious than the original in order to fit the data. Although the inclusion of depression, ego strength, sensation seeking and hyperactivity in the model was based on their higher factor loadings, their relevance to the prediction of bullying has previously been established. Previous research has found bullying to be related to increased depression (e.g., Crick & Grotpeter, 1995; Leenaars & Lester, 2011; Leenaars & Rinaldi, 2010; Van der Wal et al., 2003), sensation seeking (Herrenkohl et al., 2007), and hyperactivity (e.g., Coolidge et al., 2004; Farrington & Ttofi, 2011; Gini, 2008; Kim et al., 2011; Leenaars & Rinaldi, 2010). Further, a number of studies have found bullying to be related to lower self-esteem (Jankauskiene et al., 2008; Kokkinos & Panayiotou) and negative self-concept (Christie-Mizell, 2003). Ego strength in this study was a measure of feelings of a strong sense of self-identity, self-awareness, self-acceptance, and positive social support. Therefore, it is not surprising given the previous research that ego strength would have a significant role to play in the prediction of traditional bullying behaviour.

Internalizing and externalizing behaviour were moderately, positively related to each other. Internalizing and externalizing behaviour explained 24% of the variance in the latent construct of attitude and beliefs, and 91% of the variance in the latent variable of perceived behavioural control. Internalizing behaviour significantly, negatively predicted control, but did not significantly predict attitude and beliefs, whereas externalizing behaviour significantly, negatively predicted attitude and beliefs and control. Attitude and beliefs, however, was the only significant predictor of traditional bullying. These findings partially support the hypotheses of this study as holding a positive attitude about bullying, seeing it as morally and socially acceptable, and not supporting the victim, were predictive of increases in traditional bullying. This relationship between attitude and beliefs and bullying is in line with previous research (Andreou et al., 2005; Boulton et al., 2002; Guerra et al., 2011; Rigby, 2005; Williams & Guerra, 2007). Contrary to predictions, neither internalizing nor externalizing behaviours had a direct or indirect effect on traditional bullying, nor did control. Further, intention was not included in the final model as its inclusion did not fit the data well. Given these results, the original proposed model based on the theory of TPB (Ajzen, 1991) did not adequately explain traditional bullying behaviour. Possible explanations for these results are discussed further after a review of the results for cyberbullying and traditional and cyber bully-victimization.

Based on the results for traditional bullying, it is not possible to assess whether the results are in line with the recent work of Hawley and colleagues (e.g., Hawley et al., 2007) who argued that aggression can, at times, be adaptive

and not indicative of deviance or delinquency. In this sample, measures of internalizing and externalizing behaviour which may have addressed this theory were unrelated to traditional bullying behaviour. Further, given that the present sample did not meet the requirements for multiple groups comparison for this or any of the other bullying models, it was not possible to assess whether there were differences in the model based on sex. Given the consistency of, and interest in comparing the results between traditional bullying and traditional bully-victimization, the results for traditional bully-victimization will be reviewed next followed by those for cyberbullying and cyberbully-victimization.

Traditional bully-victimization. In line with Vaughn and Santos (2007) who argued that victims who are also aggressors (or bully-victims) are likely different from pure aggressors, it was hypothesized that there is a similar yet divergent pathway from bullies for bully-victims. The second hypothesized pathway to bullying involves individuals moderate to high on psychological adjustment (moderate to high levels of any of the indicators), low on self-concept (low self-esteem, self-reliance, and ego strength, and high sense of inadequacy), with negative or more neutral attitudes and beliefs about bullying (moderate to high provictim, low moral reasoning, and low to moderate approval of bullying), with low perceived control (low anger control and external locus of control), and high reactive intention (low proactive) will lead to higher bullying behaviour.

The final model for traditional bully-victimization was identical to that of traditional bullying with the exception of the removal of the latent variable control and the respecification of anger control as an observed variable. Similar to the

results for traditional bullying, internalizing behaviour was strongly positively associated with increased depression and decreased ego strength, and externalizing behaviour was moderately to strongly associated with sensation seeking and hyperactivity. Internalizing and externalizing behaviour were moderately, positively related to each other. Also similar to the model for traditional bullying, internalizing and externalizing behaviour explained 28% of the variance in attitude and beliefs. All three indicators of attitude and beliefs were significantly, moderately associated with the construct of attitude and beliefs. Also consistent with the results for traditional bullying and as hypothesized, attitude and beliefs was a significant predictor of traditional bullying behaviour such that viewing bullying as acceptable, morally and socially acceptable, and not supporting the victim was predictive of an increase in traditional bully-victimization.

Unlike traditional bullying, however, there were several other significant pathways to traditional bully-victimization. As hypothesized, anger control also significantly predicted traditional bully-victimization such that as one's tendency toward quick and impulsive irritation and poor self-regulation increased and self-control decreased, traditional bully-victimization also increased. Although internalizing and externalizing behaviours did not directly affect traditional bully-victimization, there were significant indirect effects of both internalizing and externalizing behaviour on traditional bully-victimization. As predicted, attitude and beliefs mediated the relationship between internalizing and externalizing behaviour and traditional bully-victimization (i.e., higher internalizing and

externalizing problems predicted greater support and acceptance of bullying, which in turn predicted increased traditional bully-victimization). Also as predicted, anger control mediated the relationship between internalizing and externalizing behaviours and traditional bully-victimization (i.e., higher internalizing and externalizing problems predicted poorer anger control, which in turn predicted higher traditional bully-victimization).

Although these results did not fully support the application of TPB to traditional bully-victimization due to the removal of intention, they do lend support to the role of attitude and beliefs and control in the prediction of traditional bully-victimization. These results are also consistent with previous research, which has suggested that of those individuals involved in bullying, bully-victims tend to have the poorest psychosocial health. For example, and in line with the current results, bully-victimization has been found to be related to higher levels of depression (Holt & Espelage, 2007; Marini et al., 2006; Mensini et al., 2009; Pranjic & Bajraktarevic, 2011) and hyperactivity (Gini, 2008; Leenaars & Rinaldi, 2010), and lower levels of self-esteem (Pollastri et al., 2010) as well as other aspects of internalizing and externalizing behaviour often above that of pure bullies. From these findings, we can see that although there are some commonalities, traditional bullying and bully-victimization appear to be related yet distinct phenomena.

Cyberbullying and cyberbully-victimization. Although these two types of bullying roles have previously been addressed separately, they will be discussed together as similar results were found for both. Contrary to previous research,

which has found a strong link between traditional bullying and cyberbullying (e.g., Hinduja & Patchin, 2008; Li, 2009; Sourander et al., 2010), traditional bullying was not significantly related to cyberbullying or cyberbully-victimization. Traditional bully-victimization was, however, significantly yet weakly related to cyberbullying ($r = 0.17$) and cyberbully-victimization ($r = 0.24$). Although the models for cyberbullying and bully-victimization appear similar to those for traditional bullying and bully-victimization, and despite that they both fit the data well, the model did not account for any of the variability in cyberbullying (0.05%) or cyberbully-victimization (0.06%). Further, none of the direct or indirect paths from internalizing or externalizing behaviours, attitude and beliefs, or control to cyberbullying or bully-victimization were significant.

The results of the SEM are not surprising when the inter-correlations between cyberbullying and bully-victimization and the other study variables are inspected. The only variable with which cyberbullying was significantly correlated was traditional bully-victimization. Cyberbully-victimization, on the other hand, was significantly related albeit weakly to depression ($r = 0.14$), self-esteem ($r = -0.17$), ego strength ($r = -.016$), attitude ($r = 0.12$), locus of control (-0.15), and reactive intention ($r = 0.12$). Despite these weak correlations, the results of this study are in general inconsistent with the results of previous research, which has found significant relationships between psychosocial and behavioural problems and cyberbullying and cyberbully-victimization (Hinduja & Patchin, 2010; Ybarra & Mitchell, 2007).

What can explain these discrepancies between traditional bullying/bully-victimization and cyberbullying/bully-victimization? For one, the study of cyberbullying is a newer field, hence there is far less research on it and its correlates than that of traditional bullying. It is therefore possible that cyberbullying is, in general, a distinct form of bullying separate from traditional bullying with unique causes and outcomes. Second, the operational definition of cyberbullying in the current study may also have affected the results. The measure used was perhaps a better reflection of cyber-aggression than of cyberbullying, and thereby did not capture the repetitive nature of bullying or the inherent power imbalance. Further, previous studies have found that adolescents view cyberbullying in general as less harmful than traditional forms of bullying (Slonje & Smith, 2008; Smith et al., 2008), and some adolescents even view cyberbullying as acceptable, normal, and not hurtful (Cassidy et al., 2009). In line with this, Shariff and Hoff (2007) argued that cyberbullying warrants attention in the bullying research as the anonymity and participation of an infinite audience make it unique from most experiences of traditional bullying. Nocentini et al. (2010) have similarly argued that in addition to the three traditional criteria of bullying (imbalance of power, intention, repetition) cyberbullying also involves "publicity" and "anonymity".

Although acts of cyberbullying may not always be anonymous, and acts of traditional bullying can at times be anonymous (e.g., rumour spreading), the one factor that appears to differentiate cyberbullying from the majority of traditional bullying is anonymity. Anonymity taken together with a general feeling that

cyberbullying is normal and not harmful may in part explain the differences found between traditional and cyberbullying in this study. Anonymity allows individuals to engage in behaviours that they would likely not engage in in face-to-face situations. Anonymity lowers one's inhibition and greatly reduces the possibility of negative social consequences. Suler (2004) put forth the notion of "the online disinhibition effect" to explain why individuals do and say things on the internet that they would not say or do face-to-face. Suler described six factors that lead to the online disinhibition effect including dissociative anonymity (you don't know me), invisibility (you can't see me), asynchronicity (see you later), solipsistic introjection (it's all in my head), dissociative imagination (it's just a game), and minimizing authority (we're equals). It is easy to see how these factors could lead someone to engage in cyberbullying who would not bully in the face-to-face world. Despite the relationship between traditional and cyber bullying found in some previous studies, it is possible then that in general cyberbullies and traditional bullies are more dissimilar than they are similar. This may account for the lack of variance explained in cyberbullying and cyberbully-victimization by the current model; a model which did explain 40% and 34% of the variance in traditional bullying and bully-victimization, respectively.

One of the major practical implications of these findings is that attitude and beliefs significantly predicted both traditional bullying and bully-victimization. Fortunately, attitudes and beliefs can be altered. The alteration of attitudes and beliefs about bullying is something that can be addressed through anti-bullying programs which incorporate home and community components. We

need to change the notion that "it is far safer to be feared than loved" (Machiavelli, 1532/1990, p. 56). If we can promote a school atmosphere in which bullying is descried to be unacceptable and undesirable, we can perhaps start working towards altering children and adolescents' attitudes and beliefs about bullying, and thereby bullying itself. Influential adults including school staff, parents, and community leaders can play a major role in reinforcing and modeling that bullying is unacceptable and will not be tolerated.

The possibility that traditional bullying and bully-victimization and cyberbullying and bully-victimization are related yet distinct phenomena suggests that these different types of bullying behaviour may require distinct methods of intervention. It is clear from this study and previous research that bully-victims suffer significant psychosocial consequences, such as higher rates of internalizing and externalizing problems, suicidal ideation and suicide often over and above that of pure bullies. These individuals, like the shooters in the Columbine Massacre, pose a threat not only to themselves but also to society. Further, due to the lack of previous research and the results of this study, and in line with Shariff and Hoff (2007), it is also evident that cyberbullying and cyberbully-victimization must be addressed. Individuals who work with and influence children, such as school staff, parents, and community partners need to combat those factors such as dissociative anonymity that lead to online disinhibition, as well as the notion seemingly held by many adolescents that cyberbullying is not harmful and acceptable. Combating those factors is essential given that the use of technology and online communication continues to rise, and appears to in some instances

replace face-to-face social interaction. In the past, if a child/adolescent was being victimized, the bully was almost always known and the impact of the bullying was typically confined to that child's classroom or school, and therefore was theoretically escapable. Today, however, cyberbullying allows for an infinite audience so that children cannot escape the torment. Moreover, due to the permanency of the internet, the victims of cyberbullying may also continue to (re)experience the consequences of victimization for years to come. Taken together, the results of the present study provide further information that can help in the development and implementation of effective prevention and intervention programs, and can inform evidence-based practice with individuals in counselling and psychotherapy, as well as in school settings.

Limitations

There are a few limitations that should be taken into consideration when interpreting the present results. The major limitation of this study is the relatively small sample size, which affects the degree to which the present results may be generalized to the larger population. The generalizability of the results may also have been affected by the need to delete 17 univariate/multivariate outliers from the final analysis. Another limitation is that the data are based on self-report measures. However, this methodology has been used extensively in this area of research and appears to yield reliable, valid, and informative results that are comparable to peer reports (see Crick & Bigbee, 1998). Given the use of the one measure of traditional bullying and bully-victimization which had few items, it was not possible to separate overt from relational bullying. As previous research

has found differences in terms of sex and other factors between these forms of bullying, it may be that the current model differs depending on the examination of overt versus relational bullying; however, it was not possible to test for such differences. It is also possible that the lack of variance explained by the model for cyberbullying and bully-victimization may in part be due to the measure used, which has not been firmly grounded in previous research. Nevertheless, both the cyberbullying and cybervictimization scales had good internal consistency reliability in this study. Finally, due to the nature of the data and the limited sample size, it was not possible to test the full originally proposed model, which included more indicators of psychological adjustment and the intention (reactive and proactive aggression) variable. It is therefore not possible with the current results to state with confidence whether TPB is applicable to bullying behaviour.

Directions for Future Research

This study demonstrates the necessity of investigating bullying and bully-victimization in general, and cyberbullying and cyberbully-victimization specifically. Continued research in this area is essential so that we may more fully comprehend bullying and bully-victimization in adolescence and across the life span. It would be beneficial to assess whether the proposed model holds for overt and relational bullying, which have been found to be related, yet distinct forms of bullying. Although part of the draw of SEM is the potential for making causal inferences, such inferences may only be made with confidence once the model has been tested with several different samples. Given this and the relatively small sample size of this study, the model should be re-assessed to

increase confidence in its ability to predict bullying behaviour. An increased sample size would also likely lend itself to a multiple groups comparison so that sex differences in the model's ability to predict bullying may be addressed. Future research should also address the potential conceptual and measurement issues surrounding the intention construct. The statistical requirements and assumptions associated with SEM required the removal of the 17 outliers from the analysis. However, from a clinical and individual differences perspective, it would be beneficial in the future to examine the characteristics and scores of the 17 deleted outliers. This would allow for an investigation into the exact nature of their differences from the remaining adolescents in the sample, which may better inform practice and intervention when working with a wide range of adolescents. Finally, the results highlight the need to incorporate and evaluate strategies that address attitude and beliefs about bullying into anti-bullying prevention and intervention programs.

Conclusion

As predicted, traditional bullying and bully-victimization were predicted by attitude and beliefs supporting bullying. Further, attitude and beliefs and anger control mediated the relationships between internalizing (depression and ego strength) and externalizing (sensation seeking and hyperactivity) behaviour and traditional bully-victimization. Overall, the model accounted for 40% of the variability in traditional bullying and 34% of the variance in traditional bully-victimization. However, although the model fit well, it did not account for a significant amount of the variance in cyberbullying (0.05%) or cyberbully-

victimization (0.06%). Although the model could not be evaluated for sex differences using multiple groups comparisons, boys were found to have higher ratings of traditional bullying and bully-victimization than girls, but no sex differences were found in cyberbullying or bully-victimization.

In conclusion, the current findings reinforce the need to broaden our investigations of bullying and bully-victimization, especially when it occurs in cyberspace. The results lend support to investigating these phenomena from an alternative theoretical framework in an attempt to add to our understanding, prediction, and control of bullying and bully-victimization. The results also highlight our need as a society to address the attitude and beliefs that we instill in our children regarding aggression and bullying. It is influential adults such as school staff, parents, community partners, and the popular media that need to take responsibility in teaching our children that bullying is not and will never be acceptable. We must not teach, nor model, for our children that "it is far safer to be feared than loved" (Machiavelli, 1532/1990, p. 56).

References

Aarts, H., Verplanken, B., & van Knippenberg, A. (1998). Predicting behavior from actions in the past: Repeated decision making or a matter of habit? *Journal of Applied Social Psychology*, *28*, 1355-1374.

Adams, L., & Russakoff, D. (1999, June 12). Dissecting Columbine's cult of the athletic. *The Washington Post*, *A1*.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, *50*, 179-211.

Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, *32*, 665-683.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (DSM-IV-TR) (4th ed.). Washington, DC: Author.

Ando, M., Asakura, T., & Simons-Monton, B. (2005). Psychosocial influences on physical, verbal, and indirect bullying among Japanese early adolescents. *Journal of Early Adolescence*, *25*, 268-297. doi: 10.1177/0272431605276933

Andreou, E. (2004). Bully/victim problems and their association with Machiavellianism and self-efficacy in Greek primary school children. *British Journal of Educational Psychology*, *74*, 297-309.

Andreou, E., Vlachou, A., & Didashalou, E. (2005). The roles of self-efficacy, peer interactions and attitudes in bully-victim incidents. *School Psychology International*, *26*, 545-562. doi: 10.1177/0143034305060789

Ang, R. P., Ong, E. Y. L., Lim, J. C. Y., & Lim, E. W. (2010). From narcissistic exploitativeness to bullying behavior: The mediating role of approval-of-aggression beliefs. *Social Development*, *19*, 721-735.

Archer, J. (2004). Which attitudinal measures predict trait aggression? *Personality and Individual Differences*, *36*, 10.1016/S0191-8869(03)00050-3

Archer, J., & Coyne, S. M. (2005). An integrated review of indirect, relational, and social aggression. *Personality and Social Psychology Review*, *9*, 212-230.

Aricak, T., Siyhhan, S., Uzunhasanoglu, A., Saribeyoglu, S., Ciplak, S., Yilmaz, N., & Memmedor, C. (2008). Cyberbullying among Turkish adolescents. *CyberPsychology and Behavior*, *11*, 253-261. doi: 10.1089/cpb.2007.0016

Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behavior: A meta-analytic review. *British Journal of Social Psychology*, *40*, 471-499.

Bacchini, D., Affuso, G., & Trotta, T. (2008). Temperament, ADHD and peer relations among school children. *Aggressive Behavior*, *34*, 447-459.

Bailey, C. A., & Ostrov, J. M. (2008). Differentiating forms and functions of aggression in emerging adulthood: Associations with hostile attribution biases and normative beliefs. *Journal of Youth and Adolescence*, *37*, 713-722. doi: 10.1007/s10964-007-9211-5

Baker, L. A., Raine, A., Liu, J., & Jacobson, K. C. (2008). Differential genetic and environmental influences on reactive and proactive aggression in

children. *Journal of Abnormal Child Psychology*, *36*, 1265-1278. doi: 10.1007/s10802-008-9249-1

Baldry, A. C. (2004). The impact of direct and indirect bullying on the mental and physical health of Italian youngsters. *Aggressive Behavior*, *30*, 343-355. doi: 10.1002/ab.20043

Baldry, A. C., & Farrington, D. P. (2004). Evaluation of an intervention program for the reduction of bullying and victimization in schools. *Aggressive Behavior*, *30*, 1-15.

Ball, H. A., Arseneault, L., Taylor, A., Maughan, B., Caspi, A., & Moffitt, T. E. (2008). Genetic and environmental influences on victims, bullies and bully-victims in childhood. *The Journal of Child Psychology and Psychiatry*, *49*, 104-112. doi: 10.1111/j.1469-7610.2007.01821.x

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191-215.

Barboza, G. E., Schiamberg, L. B., Oehmke, J., Korzenienski, S. J., Post, L. A., & Heraux, C. G. (2009). Individual characteristics and the multiple contexts of adolescent bullying: An ecological perspective. *Journal of Youth and Adolescence*, *38*, 101-121. doi: 10.1007/s10964-008-9271-1

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51I*, 1173-1182.

Bellmore, A. D., Witkow, M. R., Graham, S., & Juvonen, J. (2005). From beliefs to behavior: The mediating role of hostile response selection in predicting aggression. *Aggressive Behavior*, *31*, 453-472. doi: 10.1002/ab.20094

Bender, D., & Lösel, F. (2011). Bullying at school as a predictor of delinquency, violence and other anti-social behaviour in adulthood. *Criminal Behaviour and Mental Health*, *21*, 99-106. doi: 10.1002/cbm.799

Bijleveld, C., Van Der Geest, V., & Hendriks, J. (2011). Bullying and (re)offending: Results from three samples in the Netherlands. *Criminal Behaviour and Mental Health*, *21*, 145-150. doi: 10.1002/cbm.800

Bisset, A. (Ed.). (2000). *The Canadian Oxford paperback dictionary*. Don Mills, ON: The Oxford University Press.

Bjorklund, D. F., & Pellegrini, A. D. (2000). Child development and evolutionary psychology. *Child Development*, *71*, 1687-1708.

Bjorkqvist, K., Lagerspetz, K. M. J., & Kaukiainen, A. (1991). Do girls manipulated and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior*, *18*, 117-127.

Bollen, K. A., & Stine, R. (1992). Bootstrapping goodness of fit measures in structural equation models. *Sociological Research Methods and Research*, *21*, 205-229.

Boulton, M. (2008). Pupils' perceptions of bullying and disruptions to concentration and attention to schoolwork. *Pastoral Care in Education*, *26*, 83-89.

Boulton, M. J., Trueman, M., & Flemington, I. (2002). Associations between secondary school pupils' definitions of bullying, attitudes towards bullying, and tendencies to engage in bullying: Age and sex differences. *Educational Studies*, *28*, 354-370. doi: 10.1080/0305569022000042390

Boulton, M. J., Smith, P. K., & Cowie, H. (2010). Short-term longitudinal relationships between children's peer victimization/bullying experiences and self-perceptions: Evidence for reciprocity. *School Psychology International*, *31*, 296-311. doi: 10.1177/0143034310362329

Bradshaw, C. P., Sawyer, A. L., & O'Brennan, L. M. (2007). Bullying and peer victimization at school: Perceptual differences between students and school staff. *School Psychology Review*, *36*, 361-382.

Bradshaw, C. P., Sawyer, A. L., & O'Brennan, L. M. (2009). A social disorganization perspective on bullying-related attitudes and behaviors: The influence of school context. *American Journal of Community Psychology*, *43*, 204-220. doi: 10.1007/s10464-009-9240-1

Burns, S., Maycock, B., Cross, D., & Brown, G. (2008). The power of peers: Why some students bully others to conform. *Qualitative Health Research*, *18*, 1704-1716. doi: 10.1177/1049732308325865

Campbell, A. (2004). Female competition: Causes, constraints, content and context. *The Journal of Sex Research*, *4*, 16-26.

Camodeca, M., & Goossens, F. A. (2005). Aggression, social cognitions, anger and sadness in bullies and victims. *Journal of Child Psychology and Psychiatry*, *46*, 186-197. doi: 10.1111/j.1469-7610.2004.00347.x

Camodeca, M., Goossens, F. A., Terwogt, M. M., & Schuengel, C. (2002). Bullying and victimization among school-age children: Stability and links to proactive and reactive aggression. *Social Development*, *11*, 332-345.

Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations and relations to maladjustment. *Child Development*, *79*, 1185-1229.

Carlson, L. W., & Cornell, D. G. (2008). Differences between persistent and desistent middle school bullies. *School Psychology International*, *29*, 442-451. doi: 10.1177/0143034308096433

Carlyle, K. E., & Steinman, K. J. (2007). Demographic differences in the prevalence, co-occurrence, and correlates of adolescent bullying in school. *Journal of School Health*, *77*, 623-629.

Cassidy, T., & Taylor, L. (2005). Coping and psychological distress as a function of the bully victim dichotomy in older children. *Social Psychology of Education*, *8*, 249-262. doi: 10.1007/s11218-005-3021-y

Cassidy, W., Jackson, M., & Brown, K. N. (2009). Sticks and stones may break my bones, but how can pixels hurt me? Students' experiences with cyber-bullying. *School Psychology International*, *30*, 383-402. doi: 10.1177/0143034309106948

Calvete, E., Orue, I., Estévez, A., Villardón, L., & Padilla, P. (2010). Cyberbullying in adolescents: Modalities and aggressors' profile.

Computers in Human Behavior, *26*, 1128-1135. doi: 10.1016/j.chb.2010.03.017

Chaux, E., Molano, A., & Podlesky, P. (2009). Socio-economic, socio-political and socio-emotional variables explaining school bullying: A county-wide multilevel analysis. *Aggressive Behavior*, *35*, 520-529.

Christie-Mizell, C. A. (2003). Bullying: The consequences of interparental discord and child's self-concept. *Family Process*, *42*, 237-251.

Coolidge, F. L., DenBoer, J. W., & Segal, D. L. (2004). Personality and neuropsychological correlated of bullying behavior. *Personality and Individual Differences*, *36*, 1559-1569. doi: 10.1016/j.paid.2003.06.005

Crapanzano, A. M., Frick, P. J., & Terranova, A. M. (2010). Patterns of physical and relational aggression in a school-based sample of boys and girls. *Journal of Abnormal Child Psychology*, *38* 433-445. doi: 10.1007/s10802-009-9376-3

Crick, N. R. (1996). The role of overt, relational aggression and prosocial behavior in the prediction of children's future social adjustment. *Child Development*, *67*, 2317-2327.

Crick, N. R., & Bigbee, M. A. (1998). Relational and overt forms of peer victimization: A multi-informant approach. *Journal of Consulting and Clinical Psychology*, *66*, 337-347.

Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development*, *66*, 710-722.

Crick, N. R., Grotpeter, J. K., & Bigbee, M. A. (2002). Relationally and physically aggressive children's intent attributions and feelings of distress for relational and instrumental peer provocations. *Child Development*, *73*, 1134-1142.

de Bruyn, E. H., Cillessen, A. H. N., & Wissink, I. B. (2010). Associations of peer acceptance and perceived popularity with bullying and victimization in early adolescence. *Journal of Early Adolescence*, *30*, 543-566. doi: 10.1177/0272431609340517

de Castro, B. O., Merk, W., Koops, W., Veerman, J. W., & Bosch, J. D. (2005). Emotions in social information processing and their relations with reactive and proactive aggression in referred aggressive boys. *Journal of Clinical Child and Adolescent Psychology*, *34*, 105-116.

Dehue, F., Bolman, C., & Völlink, T. (2008). Cyberbullying: Youngsters' experience and parental perceptions. *CyberPsychology and Behavior*, *11*, 217-223. doi: 10.1089/cpb.2007.0008

Dijkstra, J. K., Lindenberg, S., & Veenstra, R. (2007). Same-gender and cross-gender peer acceptances and peer rejection and their relation to bullying and helping among preadolescents: Comparing predictions from gender-homophily and goal-framing approaches. *Developmental Psychology*, *43*, 1377-1389. doi: 10.1037/0012-1649.43.6.1377

Dijkstra, J. K., Lindenberg, S., & Veenstra, R. (2008). Beyond the class norm: Bullying behavior of popular adolescents and its relation to peer

acceptance and rejection. *Journal of Abnormal Child Psychology*, *36*, 1289-1299. doi: 10.1007/s10802-008-9251-7

Dodge, K. A., & Coie, J. D. (1987). Social-information-processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology*, *53*, 1146-1158.

Due, P., Holstein, B. E., Lynch, J., Diderichsen, F., Gabhain, S. N., Scheidt, P., …The Health Behavior in School-Aged Children Bullying Working Group. (2005). Bullying and symptoms among school-aged children: International comparative cross-sectional study in 28 countries. *European Journal of Public Health*, *15*, 128-132. doi: 10.1093/eurpub/cki105

Duffy, A. L., & Nesdale, D. (2009). Peer groups, social identity, and children's bullying behavior. *Social Development*, *18*, 121-139. doi: 10.1111/j.1467-9507.2008.00484.x

Dupper, D. R., & Meyer-Adams, N. (2002). Low-level violence: A neglected aspect of school culture. *Urban Education*, *37*, 350-364.

Eliot, M., & Cornell, D. G. (2009). Bullying in middle school as a function of insecure attachment and aggressive attitudes. *School Psychology International*, *30*, 201-214. doi: 10.1177/0143034309104148

Farmer, T. W., Petrin, R. A., Robertson, D. L., Fraser, M. W., Hall, C. M., Day, S. H., & Dadisman, K. (2010). Peer relations of bullies, bully-victims, and victims: The two social worlds of bullying in second-grade classrooms. *The Elementary School Journal*, *110*, 364-392.

Farrington, D. P., & Ttofi, M. M. (2011). Bullying as a predictor of offending, violence and later life outcomes. *Criminal Behaviour and Mental Health*, *21*, 90-98. doi: 10.1002/cbm. 801

Fossati, A., Raine, A., Borroni, S., Bizzozero, A., Volpi, E., Santalucia, I., & Maffei, C. (2009). A cross-cultural study of the psychometric properties of the reactive-proactive aggression questionnaire. *Psychological Assessment*, *21*, 131-135. doi: 10.1037/a0014743

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Gasser, L., & Keller, M. (2009). Are the competent the morally good? Perspective taking and moral motivation of children involved in bullying. *Social Development*, *18*, 798-816. doi: 10.1111/j.1467-9507.2008.00516.x

Gao, S., Mokhtarian, P. L., & Johnston, R. A. (2008). Nonnormality of data in structural equation modeling. *Transportation Research Record*, *2082* 116-124. doi: 10.3141/2082-14

Georgiou, S. N., & Stavrinides, P. (2008). Bullies, victims and bully-victims: Psychosocial profiles and attribution styles. *School Psychology International*, *29*, 574-589. doi: 10.1177/0143034308099202

Gini, G. (2006). Social cognition and moral cognition in bullying: What's wrong? *Aggressive Behavior*, *32*, 528-539.

Gini, G. (2008). Associations between bullying behavior, psychosomatic complaints, emotional and behavioural problems. *Journal of Pediatrics and Child Health*, *44*, 492-497. doi: 10.1111/j.1440-1754.2007.01155.x

Gini, G. (2008). Italian elementary school students' blaming the victim of bullying and perception of school moral atmosphere. *The Elementary School Journal*, *108*, 335-354.

Gini, G., Pozzoli, T., Hauser, M. (2011). Bullies have enhanced moral competence to judge relative to victims, but lack moral compassion. *Personality and Individual Differences*, *50*, 603-608.

Glover, D., Gough, G., Johnson, M., & Cartwright, N. (2000). Bullying in 25 secondary schools: Incidence, impact, and intervention. *Educational Research*, *42*, 141-156.

Gottheil, N. F., & Dubow, E. F. (2001). Tripartite beliefs models of bully and victim behavior. *Journal of Emotional Abuse*, *2*, 25-47.

Haff, D. W., Floyd, H. H., & Shinn, L. K. (2006). Acceptance patterns of retaliatory aggression among adjudicated youth by sex and race. *Psychological Reports*, *99*, 335-342. doi: 10.2466/PR0.99.2.335-342

Hagger, M. S., & Chatzisarantis, N. L. D. (2005). First- and higher-order models of attitudes, normative influence, and perceived behavioral control in the theory of planned behavior. *British Journal of Social Psychology*, *44*, 513-535. doi: 10.1348/014466604X16219

Hancock, G. R., & Nevitt, J. (1999). Bootstrapping and identification of exogenous latent variables within structural equation models. *Structrual Equation Modeling: A Multidisciplinary Journal*, *6*, 394-399.

Hankins, M., French, D., & Horne, R. (2000). Statistical guidelines for studies of the theory of reasoned action and the theory of planned behavior. *Psychology and Health*, *15*, 151-161.

Hawley, P. H. (2003). Strategies of control, aggression, and morality in preschoolers: An evolutionary perspective. *Journal of Experimental Child Psychology*, *85*, 213-235. doi: 10.1016/S0022-0965(03)00073-0

Hawley, P. H. (2007). Social dominance in childhood and adolescence: Why social competence and aggression may go hand in hand. In P. H. Hawley, T. D. Little, & P. C. Rodkin (Eds.), *Aggression and adaptation: The bright side to bad behavior.* New York, NY: Psychology Press.

Hawley, P. H., Little, T. D., & Rodkin, P. C. (2007). *Aggression and adaptation: The bright side to bad behavior*. New York, NY: Psychology Press.

Hemphill, S. A., Kotevski, A., Herrenkohl, T. I., Bond, L., Kim, M. J., Toumbourou, J. W., & Catalano, R. F. (2011). Longitudinal consequences of adolescent bullying perpetration and victimization: A study of students in Victoria, Australia. *Criminal Behaviour and Mental Health*, *21*, 107-116. doi: 10.1002/cbm.802

Herrenkohl, T. I., McMorris, B. J., Catalano, R. F., Abbott, R. D., Hemphill, S. A., & Toumbourou, J. W. (2007). Risk factors for violence and relational aggression in adolescence. *Journal of Interpersonal Violence*, *22*, 386-405. doi: 10.1177/0886260506296986

Hinduja, S., & Patchin, J. W. (2008). Cyberbullying: An exploratory analysis of factors related to offending and victimization. *Deviant Behavior*, *29*, 129-156. doi: 10.1080/01639207014578l6

Hinduja, S., & Patchin, J. W. (2010). Bullying, cyberbullying, and suicide. *Archives of Suicide Research*, *14*, 206-221. doi: 10.1080/13811118.2010.494133

Holmberg, K., & Hjern, A. (2008). Bullying and attention-deficit-hyperactivity disorder in 10-year-olds in a Swedish community. *Developmental Medicine and Child Neurology*, *50*, 134-138. doi: 10.1111/j.1469-8749.2007.02019.x

Holt, M. K., & Espelage, D. L. (2007). Perceived social support among bullies, victims and bully-victims. *Journal of Youth and Adolescence*, *36*, 984-994. doi: 10.1007/s10964-006-9153-3

Huang, Y-Y., & Chou, C. (2010). An analysis of multiple factors of cyberbullying among junior high school students in Taiwan. *Computers in Human Behavior*, *26*, 1581-1590. doi: 10.1016/j.chb.2010.06.005

Huesmann, L. R., & Guerra, N. G. (1997). Children's normative beliefs about aggression and aggressive behavior. *Journal of Personality and Social Psychology*, *72*, 408-419.

Huesmann, L. R., Dubow, E. F., & Boxer, P. (2009). Continuity of aggression from childhood to early adulthood as a predictor of life outcomes: Implications for the adolescent-limited and life-course persistent models. *Aggressive Behavior*, *35*, 136-149.

Ivarsson, T., Broberg, A. G., Arvidsson, T., & Gillberg, C. (2005). Bullying in adolescence: Psychiatric problems in victims and bullies as measured by the youth self report (YSR) and the depression self-rating scales (DSRS). *Nordic Journal of Psychiatry*, *59*, 365-373. doi: 10.1080/08039480500227816

Jankauskiene, R., Kardelis, K., Sukys, S., & Kardeliene, L. (2008). Associations between school bullying and psychosocial factors. *Social Behavior and Personality*, *36*, 145-162.

Jeffrey, L. R., Miller, D., & Linn, M. (2001). Middle school bullying as a context for the development of passive observers to the victimization of others. *Journal of Emotional Abuse*, *2*, 143-156.

Jiang, D., Walsh, M., & Augimeri, L. K. (2011). The linkage between childhood bullying behaviour and future offending. *Criminal Behaviour and Mental Health*, *21*, 128-135. doi: 10.1002/cbm.803

Jolliffe, D., & Farrington, D. P. (2011). Is low empathy related to bullying after controlling for individual and social background variables? *Journal of Adolescence*, *34*, 59-71.

Kaloyirou, C., & Lindsay, G. (2008). The self-perceptions of bullies in Cyprus primary schools. *European Journal of Special Needs Education*, *23*, 223-235. doi: 10.1080/08856250802130426

Kaukiainen, A., Bjorkqvist, K., Lagerspetz, K., Osterman, K., Salmivalli, C., Rothberg, S., & Ahlbom, A. (1999). The relationship between social

intelligence, empathy, and three types of aggression. *Aggressive Behavior*, *25*, 81-89.

Kikas, E., Peets, K., Tropp, K., & Hinn, M. (2009). Associations between verbal reasoning, normative beliefs about aggression, and different forms of aggression. *Journal of Research on Adolescence*, *19*, 137-149.

Kim, M. J., Catalano, R. F., Haggerty, K. P., & Abbott, R. D. (2011). Bullying at elementary school and problem behaviour in young adulthood: A study of bullying, violence and substance use from age 11 to 21. *Criminal Behaviour and Mental Health*, *21*, 136-144. doi: 10.1002/cbm.804

Kim, Y. S., Leventhal, B. L., Koh, Y-J., Hubbard, A., & Boyce, W. T. (2006). School bullying and youth violence: Causes or consequences of psychopathologic behavior? *Archives of General Psychiatry*, *63*, 1035-1041.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York, NY: The Guilford Press.

Klomek, A. B., Marrocco, F., Kleinman, M., Schonfeld, I. S., & Gould, M. S. (2007). Bullying, depression, and suicidality in adolescents. *Journal of American Academy of Child and Adolescent Psychiatry*, *46*, 40-49. doi: 10.1097/01.chi.0000242237.84925.18

Klomek, A. B., Sourander, A., Niemelä, S., Kumpulainen, K., Piha, J., Tamminen, T., … Gould, M. S. (2009). Childhood bullying behaviors as a risk for suicide attempts and completed suicides: A population-based birth

cohort study. *Journal of American Academy of Child and Adolescent Psychiatry*, *48*, 254-261. doi: 10.1097/CHI.0b013e318196b91F

Kokkinos, C. M., & Panayiotou, G. (2004). Predicting bullying and victimization among early adolescents: Associations with disruptive behaviour disorders. *Aggressive Behavior*, *30*, 520-533. doi: 10.1002/ab.20055

Lagerspetz, K. M., Bjorkqvist, K., & Peltonen, T. (1988). Is indirect aggression typical of females? Gender differences in aggressiveness in 11- to 12-year-old children. *Aggressive Behavior*, *14*, 403-414.

Lee, E. (2009). The relationship of aggression and bullying to social preference: Differences in gender and types of aggression. *International Journal of Behavioral Development*, *33*, 323-330. doi: 10.1177/0165025408098028

Leenaars, L. S., Dane, A. V., & Marini, Z. A. (2008). Evolutionary perspective on indirect victimization in adolescence: The role of attractiveness, dating, and sexual behavior. *Aggressive Behavior*, *34*, 404-415.

Leenaars, L., & Lester, D. (2011). Indirect aggression and victimization are positively associated in emerging adulthood: The psychological functioning of indirect aggressors and victims. *Journal of College Student Development*, *52*, 62-76.

Leenaars, L. S., & Rinaldi, C. M. (2010). Male and female university students' experiences of indirect aggression. *Canadian Journal of School Psychology*, *25*, 131-148. doi: 10.1177/0829573509350062

Li, Q. (2007). New bottle but old wine: A research of cyberbullying in schools. *Computers in Human Behavior*, *23*, 1777-1791. doi: 10.1016/j.chb.2005.10.005

Ma, L, Phelps, E., Lerner, J. V., & Lerner, R. M. (2009). The development of academic competence among adolescents who bully and are bullied. *Journal of Applied Developmental Psychology*, *30*, 628-644. doi: 10.1016/j.appdev.2009.07.006

Ma, X. (2002). Bullying in middle school: Individual and school characteristics of victims and offenders. *School Effectiveness and School Improvement*, *13*, 63-89.

Machiavelli, N. (1998). *The prince* (P. Bondanella & M. Musa, Trans.). Oxford: Oxford University Press. (Original work published 1532)

Malti, T., Gasser, L., & Buchmann, M. (2009). Aggressive and prosocial children's emotion attributions and moral reasoning. *Aggressive Behavior*, *35*, 90-102.

Manning, M. A., & Bear, G. G (2002). Are children's concerns about punishment related to their aggression? *Journal of School Psychology*, *40*, 523-539.

Marini, Z. A., Dane, A. V., Bosacki, S. L., & YLC-CURA. (2006). Direct and indirect bully-victims: Differential psychosocial risk factors associated with adolescents involved in bullying and victimization. *Aggressive Behavior*, *32*, 551-569.

Marsee, M. A., Silverthorn, P., & Frick, P. J. (2005). The association of psychopathic traits with aggression and delinquency in non-referred boys

and girls. *Behavioral Sciences and the Law*, *23*, 803-817. doi: 10.1002/bsl.662

McConville, D. W., & Cornell, D. G. (2003). Aggressive attitudes predict aggressive behavior in middle school students. *Journal of Emotional and Behavioral Disorders*, *11*, 179-187.

Menesini, E., Modena, M., & Tani, F. (2009). Bullying and victimization in adolescence: Concurrent and stable roles and psychological health symptoms. *The Journal of Genetic Psychology*, *170*, 115-133.

Menessini, E., Sanchez, V., Fonzi, A., Ortega, R., Costabile, A., & Lo, Feudo, G. (2003). Moral emotions and bullying: A cross-national comparison of differences between bullies, victims and outsiders. *Aggressive Behavior*, *29*, 515-530. doi: 10.1002/ab.10060

Mishna et al. (2006). Checking in on-line: What's happening in cyberspace? Children (age 9-17). Unpublished survey. Toronto, ON: University of Toronto.

Muñoz, L. C., Qualter, P., & Padgett, G. (2011). Empathy and bullying: Exploring the influence of callous-unemotional traits. *Child Psychiatry & Human Development*, *42*, 183-196.

Murray-Close, D., Crick, N. R., & Galotti, K. M. (2006). Children's moral reasoning regarding physical and relational aggression. *Social Development*, *15*, 345-372.

Murray-Close, D., Ostrov, J. M., & Crick, N. R. (2007). A short-term longitudinal study of growth of relational aggression during middle childhood:

Associations with gender, friendship intimacy and internalizing problems. *Development and Psychopathology*, *19*, 187-203. doi: 10.1017/S0954579407070101

Muthén, B., & Kaplan, D. (1985). A comparison of methodologies for the factor analysis of non-normal likert variables. *British Journal of Mathematical and Statistical Psychology*, *38*, 171-189.

Nelson, D. A., Springer, M. M., & Bean, N. H. (2008). Normative beliefs regarding aggression in emerging adulthood. *Social Development*, *17*, 638-660. doi: 10.1111/j.1467-9507.2007.00442.x

Nesdale, D., Milliner, E., Duffy, A., & Griffiths, J. A. (2009). Group membership, group norms, empathy, and young children's intentions to aggress. *Aggressive Behavior*, *35*, 244-268.

Nevitt, J., & Hancock, G. R. (2001). Performance of bootstrapping approaches to model test statistics and parameter standard error estimation in structural equation modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, *8*, 353-377.

Nocentini, A., Calmaestra, J., Schultze-Krumbholz, A., Scheithauer, H., Ortega, R., & Menesini, E. (2010). Cyberbullying: Labels, behaviours, and definition in three European countries. *Australian Journal of Guidance & Counselling*, *20*, 129-142.

Notani, A. S. (1998). Moderators of perceived behavioral control's predictiveness in the theory of planned behavior: A meta-analysis. *Journal of Consumer Psychology*, *7*, 247-271.

Obermann, M-L. (2011). Moral disengagement in self-reported and peer-nominated school bullying. *Aggressive Behavior*, *37*, 133-144. doi: 10.1002/ab.20378

O'Brennan, L. M., Bradshaw, C. P., & Sawyer, A. L. (2009). Examining developmental differences in the social-emotional problems among frequent bullies, victims, and bully/victims. *Psychology in the Schools*, *46*, 100-115. doi: 10.1002/pits.20357

Olweus, D. (1989). Prevalence and incidence in the study of antisocial behavior: Definitions and measurement. In M. Klein (Ed.), *Cross-national research in self-reported crime and delinquency*. Dordrecht, The Netherlands: Kluwer.

Olweus, D. (1994). Annotation: Bullying at school: Basic facts and effects of a school based intervention program. *Journal of Child Psychology and Psychiatry*, *35*, 1171-1190.

Olweus, D. (2011). Bullying at school and later criminality: Findings from three Swedish community samples of males. *Criminal Behaviour and Mental Health*, *21*, 151-156. doi: 10.1002/cbm.806

Owens, L., Shute, R., & Slee, P. (2000). "Guess what I just heard!": Indirect aggression among teenage girls in Australia. *Aggressive Behavior*, *26*, 67-83.

Palmer, E. J., & Begum, A. (2006). The relationship between moral reasoning, provictim attitudes, and interpersonal aggression among imprisoned young

offenders. *International Journal of Offender Therapy and Comparative Criminology*, *11*, 446-457.

Peeters, M., Cillessen, A. H. N., & Scholte, R. H. J. (2010). Clueless of powerful? Identifying subtypes of bullies in adolescence. *Journal of Youth and Adolescence*, *39*, 1041-1052. doi: 10.1007/s10964-009-9478-9

Peña, M. E., Andreu, J. M., & Graña, J. L. (2008). Moderate and severe aggression justification in instrumental and reactive contexts. *Social Behavior and Personality*, *36*, 229-238.

Penning, S. L., Bhagwanjee, A., & Govender, K. (2010). Bullying boys: The traumatic effects of bullying male adolescent learners. *Journal of Child and Adolescent Mental Health*, *22*, 131-143.

Pepler, D. J., Craig, W. M., Connolly, J. A., Yuile, A., McMaster, L., & Jiang, D. (2006). A developmental perspective on bullying. *Aggressive Behavior*, *32*, 376-384. doi: 10.1002/ab

Pepler, D., Jiang, D., Craig, W., & Connolly, J. (2008). Developmental trajectories of bullying and associated factors. *Child Development*, *79*, 325-338.

Pollastri, A. R., Cardemil, E. V., & O'Donnell, E. H. (2010). Self-esteem in pure bullies and bully/victims: A longitudinal analysis. *Journal of Personal Violence*, *25*, 1489-1502. doi: 10.1177/0886260509354579

Pranjic, N., & Bajraktarevic, A. (2010). Depression and suicide ideation among secondary school adolescents involved in school bullying. *Primary Health*

Care Research & Development, *11*, 349-362. doi: 10.1017/S1463423610000307

Raine, A., Dodge, K., Loeber, R., Gatzke-Kopp, L., Lynam, D., Reynolds, C., … Liu, J. (2006). The reactive-proactive aggression questionnaire: Differential correlated of reactive and proactive aggression in adolescent boys. *Aggressive Behavior*, *32*, 159-171. doi: 10.1002/ab

Renda, J., Vassallo, S., & Edwards, B., (2011). Bullying early adolescence and its association with anti-social behaviour, criminality and violence 6 and 10 years later. *Criminal Behaviour and Mental Health*, *21*, 117-127. doi: 10.1002/cbm.805

Rigby, K. (2005a). Bullying in childhood. In P. K. Smith & C. H. Hart (Eds.), *Blackwell handbook of childhood social development* (pp. 549-568). Malden, MA: Blackwell Publishing, Inc.

Rigby, K. (2005b). Why do some children bully at school? The contributions of negative attitudes towards victims and the perceived expectations of friends, parents and teachers. *School Psychology International*, *26*, 147-161. doi: 10.1177/0143034305052910

Rigby, K., & Slee, P. T. (1991). Bullying among Australian school children: Reported behaviors and attitudes toward victims. *The Journal of Social Psychology*, *131*, 615-627.

Rigby, K., & Slee, P. T. (1993). Dimensions of interpersonal relation among Australian children and implications for psychological well-being. *The Journal of Social Psychology*, *133*, 33-42.

Rodkin, P. C., & Berger, C. (2008). Who bullies whom? Social status asymmetries by victim gender. *International Journal of Behavioural Development*, *32*, 473-485. doi: 10.1177/0165025408093667

Roland, E. (2002). Aggression, Depression, and bullying others. *Aggressive Behavior*, *28*, 198-206. doi: 10.1002/ab.90022

Roland, E., & Idsøe, T. (2001). Aggression and bullying. *Aggressive Behavior*, *27*, 446-462.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs (General & Applied, 80*, 1-28.

Salmivalli, C., & Nieminen, E. (2002). Proactive and reactive aggression among school bullies, victims, and bully/victims. *Aggressive Behavior*, *28*, 30-44. doi: 10.1002/ab.90004

Salmivalli, C., & Voeten, M. (2004). Connections between attitudes, group norms, and behaviors in bullying situations. *International Journal of Behavioral Development*, *28*, 246-258. doi: 10.1080/01650250344000488

Schulte, R. H. J., Engels, R. C. M. E., Overbeek, G., de Kemp, R. A. T., & Haselager, G. J. T. (2007). Stability in bullying and victimization and its association with social adjustment in childhood and adolescence. *Journal of Abnormal Child Psychology*, *35*, 217-228. doi: 10.1007/s10802-006-9074-3

Seah, S. L., & Ang, R. P. (2008). Differential correlates of reactive and proactive aggression in Asian adolescents: Relations to narcissism, anxiety, schizotypal traits and peer relations. *Aggressive Behavior*, *34*, 553-562.

Seals, D., & Young, J. (2003). Bullying and victimization: Prevalence and relationship to gender, grade level, ethnicity, self-esteem, and depression. *Adolescence*, *38*, 735-747.

Shariff, S., & Hoff, D. L. (2007). Cyberbullying: Clarifying legal boundaries for school supervision in cyberspace. *International Journal of Cyber Criminology*, *1*, 76-118.

Shin, Y. (2010). Psychosocial and friendship characteristics of bully/victim subgroups in Korean primary school children. *School Psychology International*, *31*, 372-388.

Sijtsema, J., Veenstra, R., Lindenberg, S., & Salmivalli, C. (2009). Empirical tests of bullies' status goals: Assessing direct goals, aggression and prestige. *Aggressive Behavior*, *35*, 57-67.

Slonje, R., & Smith, P. K. (2008). Cyberbullying: Another main type of bullying? *Scandinavian Journal of Psychology*, *49*, 147-154. doi: 10.1111/1467-9450.2007.00611.x

Smith, P. K. (2007). Why has aggression been thought of as maladaptive? In P. H. Hawley, T. D. Little, & P. C. Rodkin (Eds.). *Aggression and adaptation: The bright side to bad behavior* (pp. 65-83). New York, NY: Psychology Press.

Smith, P. K., Mahdavi, S., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: Its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry*, *49*, 376-385. doi: 10.1111/j.1469-7610.2007.01846.x

Solberg, M. E., Olweus, D., & Endresen, I. M. (2007). Bullies and victims at school: Are they the same pupils? *British Journal of Educational Psychology*, *77*, 441-464. doi: 10.1348/000709906X105689

Sourander, A., Ronning, J., Brunstein-Klomek, A., Gyllenberg, D., Kumpulainen, K., Niemelä, S., … Almqvist, F. (2009). Childhood bullying behavior and later psychiatric hospital and psychopharmalogic treatment: Findings from the Finnish 1981 birth cohort study. *Archives of General Psychiatry*, *66*, 1005-1012. Retrieved from www.archgenpsychiatry.com

Sourander, A., Brunstein Klomek, A., Ikonen, M., Lindroos, J., Luntamo, T., Koskelainen, M., … Helenius, H. (2010). Psychosocial risk factors associated with cyberbullying among adolescents: A population-based study. *Archives of General Psychiatry*, *67*, 720-728.

Statistics Canada. (2006) *Education Matters: Profile of Canada's school principals*. Retrieved from www.statcan.ca

Stevens, V., Van Oost, & de Bourdeauddhuij, L. (2000). The effects of an anti-bullying intervention program on peers' attitudes and behavior. *Journal of Adolescence*, *23*, 21-34.

Stein, J. A., Dukes, R. L., & Warren, J. I. (2007). Adolescent male bullies, victims, and bully-victims: A comparison of psychosocial and behavioral

characteristics. *Journal of Pediatric Psychology*, *32*, 273-282. doi: 10.1093/jpepsy/jsl023

Storch, E. A., Crisp, H., Roberti, J. W., Bagner, D. M., & Masia-Werner, C. (2005). Psychometric evaluation of the social experience questionnaire in adolescents: Descriptive data, reliability, and factorial validity. *Child Psychiatry and Human Development*, *36*, 167-176. doi: 10.1007/s10578-005-3495-z

Strohmeier, D., Wagner, P., Spiel, C., & von Eye, A. (2010). Stability and constancy of bully-victim behavior: Looking at variables and individuals. *Journal of Psychology*, *218*, 185-193. doi: 10.1027/0044-3409/z000028

Sukhodolsky, D. G., & Ruchkin, V. V. (2004). Associations of normative beliefs and anger with aggression and antisocial behavior in Russian male juvenile offenders and high school students. *Journal of Abnormal Child Psychology*, *32*, 225-236.

Suler, J. (2004). The online disinhibition effect. *CyberPsychology and Behavior*, *7*, 321-326.

Swearer, S. M., & Cary, P. T. (2003). Perceptions and attitudes toward bullying in middle school youth: A developmental examination across the bully/victim continuum. *Journal of Applied School Psychology*, *19*, 63-79. doi: 10.1300/J008v19n02-05

Ttofi, M. M., Farrington, D. P., Lösel, F., & Loeber, R. (2011). The predictive efficiency of school bullying versus later offending: A systematic/meta-

analytic review of longitudinal studies. *Criminal and Mental Health*, *21*, 80-89. doi: 10.1002/cbm.808

Turblad, C., Raine, A., Zheng, M., & Baker, L. A. (2009). Genetic and environmental stability differs in reactive and proactive aggression. *Aggressive Behavior*, *35*, 437-452.

Ucanok, Z., Smith, P. K., & Karasoy, D. S. (2011). Definitions of bullying: Age and sex differences in a Turkish sample. *Asian Journal of Social Psychology*, *14*, 75-83. doi: 10.111/j.1467-839X.2010.01334.x

Underwood, M. K. (2005). Sticks and stones and social exclusion: Aggression among girls and boys. In P. K. Smith & C. H. Hart (Eds.), *Blackwell handbook of childhood social development* (pp. 533-548). Malden, MA: Blackwell Publishing, Inc.

Underwood, M. K., Beron, K. J., & Rosen, L. H. (2009). Continuity and change in social and physical aggression from middle childhood through early adolescence. *Aggressive Behavior*, *35*, 357-375.

Unnever, J. D. (2005). Bullies, aggressive victims, and victims: Are they distinct groups? *Aggressive Behavior*, *31*, 153-171. doi: 10.1002/ab.20083

Unnever, J. D., & Cornell, D. G. (2003). Bullying, self-control, and ADHD. *Journal of Interpersonal Violence*, *18*, 129-147. doi: 10.1177/0886260502238731

van der Wal, M. F., de Wit, C. A. M., & Hirasing, R. A. (2003). Psychosocial health among young victims and offenders of direct and indirect bullying. *Pediatrics*, *111*, 1312-1317.

van Goethem, A. A. J., Scholte, R. H. J., & Wiers, R. W. (2010). Explicit- and implicit bullying attitudes in relation to bullying behavior. *Journal of Abnormal Child Psychology*, *38*, 829-842. doi: 10.1007/s10802-010-9405-2

Varjas, K., Meyers, J., Bellmoff, L., Lopp, E., Brickbichler, L., & Marshall, M. (2008). Missing voices: Fourth through eighth grade urban students' perceptions of bullying. *Journal of School Violence*, *7*, 97-118. doi: 10.1080/153882201973912

Vaughn, B. E., & Santos, A. J. (2007). An evolutionary/ecological account of aggressive behavior and trait aggression in human children and adolescents. In P. H. Hawley, T. D. Little, & P. C. Rodkin (Eds.). *Aggression and adaptation: The bright side to bad behavior* (pp. 31-63). New York, NY: Psychology Press.

Viding, E., Simmonds, E., Petrides, K. V., & Frederickson, N. (2009). The Contribution of callous-unemotional traits and conduct problems to bullying in early adolescence. *The Journal of Child Psychology and Psychiatry*, *50*, 471-481. doi: 10.1111/j.1469-7610.2008.02012.x

Vitaro, F., Brendgen, M., & Tremblay, R. E. (2002). Reactively and proactively aggressive children: Antecedent and subsequent characteristics. *Journal of Child Psychology and Psychiatry*, *43*, 495-505.

Wade, A., & Beran, T. (2011). Cyberbullying: The new era of bullying. *Canadian Journal of School Psychology*, *26*, 44-61. doi: 10.1177/0829573510396318

Warden, D., & Mackinnon, S. (2003). Prosocial children, bullies and victims: An investigation of their sociometric status, empathy and social problem-solving strategies. *British Journal of Developmental Psychology*, *21*, 367-385. Retrieved from www.bps.org.uk

Werner, N. E., & Nixon, C. L. (2005). Normative beliefs and relational aggression: An investigation of the cognitive bases of adolescent aggressive behavior. *Journal of Youth and Adolescence*, *34*, 229-243. doi: 10.1007/s10964-005-4306-3

Williams, K. R., & Guerra, N. G. (2007). Prevalence and predictors of internet bullying. *Journal of Adolescent Health*, *41*, S14-S21. doi: 10.1016/j.jadohealth.2007.08.018

World Health Organization (2002). *World report on violence and health*. Geneva: World Health Organization.

Ybarra, M. L., & Mitchell, K. J. (2007). Prevalence and frequency of internet harassment instigation: Implications for adolescent health. *Journal of Adolescent Health*, *41*, 189-195. doi: 10.1016/j.jadolhealth.2007.03.005

Zimmer-Gembeck, M. J., Geiger, T. C., & Crick, N. R. (2005). Relational and physical aggression, prosocial behavior, and peer relations: Gender moderation and bidirectional associations. *Journal of Early Adolescence*, *25*, 421-452. doi: 10.1177/0272431605279841