# ABSTRACT


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| Title of Document: | BULLYING, FAMILY RESOURCES, AND MENTAL HEALTH: A TEST OF THE ABC-X THEORY |
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Bullying has become a public health threat; it is associated with numerous highly publicized suicides over the past few years. While some research on the topic suggests that overall rates of bullying are low, the consequences are potentially severe. Although schools and policymakers are working to better define and eradicate instances of bullying, the role that family plays in the related mental health risks has not been well-considered. As guided by the ABC-X theory, it was hypothesized that children with bullying experiences - as a victim, bully, or hybrid bully/victim, who had high levels of parental support, and who interpreted this support as a strong resource - would not suffer the same degree of mental health problems or poor life satisfaction as that reported by children with bullying experiences and poorer family resources. Using a sample of over 6,900 children from the HBSC 2005/2006 U.S. dataset, hierarchical, stepwise regression was employed to determine if family factors did indeed moderate the linkage between bullying experiences and both mental health and life satisfaction. Specifically, it was predicted that the relationship between

bullying and either mental health or life satisfaction will be weaker for those with high levels of family resources than for those with low levels. Four types of bullying were considered; physical, verbal, relational and cyber. Demographic variables were held constant to ensure that they did not influence results. Overall, this study found that, regardless of bullying status, children with higher levels of parental communication and involvement do have better mental health and life satisfaction. However, in general, these family factors did not moderate the relationship between bullying and mental health and life satisfaction as predicted. The few exceptions to this are detailed in this study, as are potential explanations for the findings, suggestions for future research, and the implications of this research.

# BULLYING, FAMILY RESOURCES, AND MENTAL HEALTH: A TEST OF THE ABC-X THEORY.

By

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## TABLE OF CONTENTS

# List of Tables

# List of Figures

# Chapter 1: Introduction

## Statement of the Problem

Bullying is a pervasive problem in the United States, with long-term effects of victimization ranging from depression and anxiety to suicidal behaviors (Carlyle & Steinman, 2007; Drogin & Young, 2008; Smokowski & Kopasz, 2005). Interest in bullying has been fueled by national headlines regarding bullying-related violence and deaths. The potentially fatal effects of bullying first came to light in America as the relational bullying experienced by Eric Harris and Dylan Klebold became a commonly believed catalyst for their murderous rampage at their Colorado high school in 1999 (Quinn, Barone, Kearns, Stackhouse & Zimmeran, 2003). With heightened awareness of the risks of bullying behaviors, headlines regarding suicides that are believed to be the direct result of bullying behaviors have since become more prominent in national news. For example, the story of Phoebe Prince, a 15-year old girl who immigrated with her family from Ireland to suburban Massachusetts has been shared nation-wide. After suffering constant taunting and name calling from other girls in her school, Phoebe committed suicide in her family home (Cullen, 2010). Towns across America have experienced countless incidences of young teens choosing death over relentless victimization by peers. These stories highlight the severity of bullying and the potentially lethal effects of actions that were arguably once seen as schoolyard antics and benign childhood behaviors. Although bullying-related deaths are severely devastating and garner world-wide attention, other serious long-term consequences, such as threats to children's mental health and well-being are linked with bullying victimization as well. Despite not being as highly sensationalized, these issues require enhanced understanding

to ensure that all bullying associated risks to innocent children are appropriately addressed.

The U.S. does not rank as the country with the highest rates of bullying exposure in the world; however, it maintains rates that are similar to the median of those in countries frequently considered in bullying research (Craig et al., 2009). In America, approximately 20% of students in middle school and high school (6th-12th grade) report experiencing bullying victimization, nearly 19% report perpetration of bullying behaviors, and over 28% of surveyed students report some involvement with bullying behavior, as victim, perpetrator, or both, in the past year (Carlyle & Steinman, 2007). Other research finds that nearly 30% of students across the nation report involvement in some form of bullying behavior (Nansel et al., 2001).

Children and adolescents have varying experiences with bullying. Some may perpetrate the behavior, some are victims, while others have the dual experiences of both perpetrator and victim (Health Resources and Services Administration [HRSA], n.d.). At a very general level, a child is defined as being bullied if he or she is "...exposed, repeatedly and over time, to negative actions on the part of one or more other persons, and he or she has difficulty defending himself or herself" (Olweus Bullying Prevention Program, 2010). Definitions of bullying perpetration have evolved over time. Most recently, Dr. Ken Rigby, an Australian expert on the topic, settled on the following definition of bullying perpetration after thorough consideration of existing literature, "... a desire to hurt + hurtful action + a power imbalance + (typically) repetition + an unjust use of power + evident enjoyment by the aggressor and a sense of being oppressed on the part of the victim" (Bullying in Schools and What to do About it, 2010). Bullying

behavior can take on many forms, including physical, verbal, relational, and more recently – cyber.

Implications of bullying have been studied worldwide and reveal significant associations between both bullying perpetration and victimization, and poor adjustment. Overall, several studies found higher levels of life satisfaction in students who were not involved in bullying behaviors, in contrast to those who identified as bullying perpetrators, bullying victims, or bully/victims (Estevez et al., 2009; Gobina et al., 2008). Furthermore, bullying victimization has been linked with adolescent experiences of somatic symptoms, as well as poor emotional, social, and academic adjustment in adolescents in over 20 countries (Due et al., 2005). More specifically, depressive symptoms (Carlyle & Steinman, 2007), anxiety (Smokowski & Kopasz, 2005), post-traumatic stress (Mynard, Joseph, & Alexander, 2000) and suicidal behaviors (Drogin & Young, 2008) have been found to be pronounced significantly in teens suffering bullying victimization.

Perpetration of bullying is associated with a wide-range of maladaptive behaviors as well. Substance abuse (Carylyle & Steinman, 2007), aggression, and delinquency (Menesini, Modena, & Tani, 2009) have been linked with bullying perpetration. Unfortunately, due to a dearth of longitudinal studies on bullying perpetration, it is difficult to differentiate between causes of bullying perpetration and consequences of bully perpetration. Although stories of bullying victims attempting suicide are more often highlighted in media coverage of bullying-related deaths, some research finds that suicide attempts have been linked with the perpetration of bullying as well (Luukkonen, Rasanen, Hakko, & Riala, 2009).

Teens identifying as both a bully and a victim have been found to exhibit the poorest psychosocial adjustment out of all teens involved in bullying. This dual-sided exposure to bullying is associated with troublesome behaviors such as drinking, smoking, stealing, and damaging property (Haynie et al., 2001).

Early adolescence is a time during which bullying behaviors are ripe for growth. Although rates of bullying have been found to decrease with age, they tend to be the highest in middle school aged children or early adolescents (Carlyle & Steinman, 2007), with perpetration rates rising significantly between sixth and seventh grade (Demaray & Malecki, 2003) and exposure beginning to decline by eighth grade (Seals & Young. 2003). That said, those who continue to experience bullying as they get older are the most at-risk for experiencing related long-term difficulties. (Craig et al., 2009). Adolescents are particularly sensitive to situations involving social exclusion; bullying experiences at this stage of life may greatly impact social growth and development (Due et al., 2005).

Methods of bullying are variable and vast. Children may choose to bully in one or numerous modes. Most commonly, bullying behaviors are categorized as physical, verbal, relational, or cyber. Some forms of bullying are more popular among males and others are more common among females. Additionally, severe outcomes of all forms of bullying have been reported, although research finds unique outcomes with some specific bullying types.

Physical or direct bullying is more common among males (Wang, Iannotti, & Nansel, 2009). Measures of physical bullying often include questions about fighting, such as hitting, slapping, or pushing - which are the most commonly reported experiences of male victims, in one study of American early adolescents (Nansel et al., 2001). Physical

bullying is also unique in that it has been found to not decline with age to the same extent as other forms of bullying and may actually increase with age among females, according to one study (Seals & Young, 2003).

Direct verbal bullying is found to be more prevalent than physical bullying (Seals & Young, 2003). Verbal bullying includes actions such as name calling and making fun of victims directly to them (Demaray & Malecki, 2003), as well as belittling students' race, religion, or physical attributes (such as appearance) (Nansel et al., 2001). Sexually harassing comments are also considered verbal bullying (Nansel et al., 2001). Verbal bullying is associated with both males and females (Nansel et al., 2001). A recent study found experiences of verbal bullying as high as 54% among American early adolescents in the past two months (Wang et al., 2009). Additionally, victims of verbal bullying are found to display lower levels of self-worth and a belief that their locus of control lies with others, which is associated with poor mental health (Mynard et al., 2000).

Relational bullying is more common among females and was found in one study to have rates as high as over 50%, in terms of exposure in the past two months (Wang et al., 2009). Although reports of verbal bullying are occasionally inclusive of relational bullying, relational bullying is typically distinguished from verbal bullying by more subtle actions, such as slandering, rumor spreading (which is also considered a form of direct verbal bullying in some research), and exclusion (Frissen, Jonsson, & Persson, 2007). Often, relational bullying is employed to socially isolate victims (Janssen, Craig, Boyce, & Pickett, 2004). Low self-esteem, poor school attitudes, injuries, general problem behavior (Dukes et al., 2009), social anxiety, and difficulties with social

relationships (Marini, Dane, Bosacki, & YLC-CURA, 2006) have all been associated with experiences of dual relational bullying/victimization. Relational bullying is particularly troubling, in that it also maintains a link with violent behavior (Dukes et al., 2009). Violent behaviors may be the result of relationally victimized teens retaliating against perpetrators of relational bullying tactics.

Recently, cyber bullying has emerged as an area of interest, particularly in light of its reported fatal impact on some children (Drogin & Young, 2008). Cyber bullying is experienced at a relatively similar rate among males and females according to one study, (Slonje & Smith, 2008) although others report higher rates of bullying and victimization among females (Kowalski & Limber, 2007). Cyber bullying is most frequently carried out via instant messaging, in chat rooms, and over email (Kowalski & Limber, 2007), although it may also include phones calls and the posting of pictures and video/clips that are undesired by the victims (Slonje & Smith, 2008). In one study, 11% of students had experienced cyber bullying in the past couple of months, although this number is believed to be low, as children may not always recognize and label cyber bullying as such, since it is a relatively new phenomenon (Kowalski & Limber, 2007). Other reports of cyber bullying rates are as high as over 50% of students reporting that they know someone who has been a victim of cyber bullying (Li, 2007). Rates are expected to increase as use of electronic media by teens continues to grow (Smith et al., 2008). Cyber bullying is particularly troubling because it can be carried out under full anonymity (Drogin & Young, 2008; Li, 2007) and the audience witnessing the bullying is limitless (Kowalski & Limber, 2007).

Differences in bullying behaviors can be found across a variety of demographic characteristics, such as gender, race, ethnicity and socio-econmic status. As previously noted, males are more likely to engage in physical or direct verbal bullying whereas females are more likely to engage in relational bullying behaviors (Wang et al., 2009). Racial and ethnic differences in bullying experiences have also been reported. Higher rates of bullying perpetration and lower rates of victimization have been found for African American students than for their White and Hispanic peers (Wang et al., 2009); however, other studies find no differences in rates of bullying or victimization among races (Demaray & Malecki, 2003; Seals & Young, 2003). Socioeconomically, exposure to bullying is variable. An international study including 35 countries found that overall, teens from less affluent families were more frequently the target of bullying behaviors (Due et al., 2009). The study also found that teens in countries with higher economic inequality, such as the U.S., are at an increased risk of victimization (Due et al., 2009;) and perpetration (Elgar, Craig, Boyce, Morgan, & Vella-Zarb, 2009).

Despite the apparent prevalence of bullying behaviors in the United States, not all children are involved. A variety of protective factors that reduce teens' exposure to bullying have been found. One particularly important factor requiring further examination is the role of teens' families in influencing bullying involvement. Although only minimal research has considered the relationship between family factors and bullying behaviors and victimization, an enhanced focus on families is highly relevant because teens develop their identities, in part, based on their experiences in their homes and with vital family members such as parents. Studies that have considered the role of family in bullying tendencies find strong associations. Student rated levels of parental

support were found to be highest among adolescents with the least involvement in bullying, regardless or the type of involvement or type of bullying, (Demaray & Malecki, 2003; Wang et al., 2009). Maternal support was specifically cited in two studies; Holt and Espalage (2007) found that teens not involved in bullying - as either victims, perpetrators, or both - reported the highest levels of maternal support. Also, Marini et al. (2006) found that low maternal support played an important role in bullying involvement; bully/victims in their study reported higher rates of alienation from their mothers than teens in any other bullying category. Victimized males also reported more alienation from their mothers than males who were not victimized. Finally, family roles were found to be relevant in protecting against the ill effects of bullying victimization. In one study, adult support, including parental support was found to be more beneficial than peer support in buffering the effects of bullying victimization on American middle school students (Davidson & Demaray, 2007).

The present study is unique in that it will consider family form, parental involvement, ease of parental communication, and satisfaction with family, in its exploration of factors that may moderate the negative effects of bullying experiences. These family-related factors are important to consider because they are rarely included in research on the topic despite the evidence that family plays a potentially important role in protecting children from becoming bullying perpetrators, victims or both ( Holt & Espelage, 2007), as well as in buffering against the ill effects of bullying involvement, when it does occur (Davidson & Demaray, 2007).

Using data from the Health Behaviors of School Aged Children 2005/2006 U.S. survey (HBSC), this study will consider the potential moderating role of a variety of

family factors on children's life satisfaction and mental health related to their bullying experiences. It will provide recognition of the interplay between family-related traits, such as involvement, communication and satisfaction. Findings may inform parenting practices as well as intervention efforts and programming opportunities that may greatly impact bullying behaviors.

# Chapter 2: Review of the Literature

## History of Bullying Recognition

Bullying is certainly not a new or recently developed behavior or concept (with the exception of technology-driven cyber bullying). However, research in to bullying behavior only began in the United States in the late 1970s, pioneered years earlier in Norway by Dr. Dan Olweus, a Norwegian professor. Dr. Olweus is also credited with the creation of one of the most renowned bullying prevention programs world-wide - the Olweus Bullying Prevention Program. The creation of the program was prompted by numerous teen suicides that were believed to stem from bullying victimization (Olweus Bullying Prevention Program, n.d.). With the recognition that bullying victimization can lead to fatal consequences and the creation of an apparently effective program to address bullying behaviors in schools, the once fact-of-life experiences of bullying began to be recognized as the potentially harmful events that they are.

As news of bullying-related violence and death hit the United States, increased attention and a heightened focus on the dangers of bullying behaviors emerged. The most recommended and respected intervention and assessment efforts in the United States continue to be based on the early work of Dr. Olweus, which remains the gold standard for bullying programming and research to this day (Olweus Bullying Prevention Program, n.d.) and is considered a top program according to the federal government's Substance Abuse and Mental Health Services Administration (SAMHSA), and *Blueprint for Violence Prevention,* which is a guide to best practices (Olweus & Limber, 1999). Over time, new bullying programs have been developed and implemented nationwide. Although many school programs include bullying as a component of prevention goals,

only a few have been identified that focus specifically on bullying prevention and have proven positive outcomes. Among those are the Safe School Ambassadors Program, which is desigend for both children ages 6-12 and adolescents 13-17 and was evaluated in 2011 (SAMHSA, 2013a). Also, the Steps to Respect program, which is exclusively for children ages 6-12 and was evaluated in 2011 as well (SAMHSA, 2013b).

Unfortunately, severe consequences to bullying that may significantly impact life satisfaction, but are not as extreme as suicide, receive far less media attention. Despite the creation of successful programs, complete and total annihilation of bullying among young teens is unlikely. As such, it is vital that factors that are potentially predictive of bullying involvement, as well as those that may mitigate this risk are identified. Additionally, factors that may alter the potentially detrimental experiences of bullies, victims and bully/victims - such as parental communication or involvement, are important to identify. Although bullying often occurs on school grounds, interactions in the home may be the key to decreasing bullying involvement, or at least buffering bullying's ill effects, on those impacted by this all too common childhood behavior.

**Rates of Bullying**

Despite programming and empirical effort, recent research indicate 45% of boys and nearly 36% of girls are involved in perpetrating bullying, victimized by bullying, or experience both bullying and victimization in countries with the highest rates (Craig et al., 2009). These rates are based on responses to the Health Behaviors of School-Aged Children (HBSC) study, a comprehensive survey of over 202,000 11-, 13- and 15-year old adolescents across 40 countries throughout Europe and North America. These data also suggest that bullying is not as pervasive in America as in many other countries; rates

are on par with the median of countries participating in the HBSC survey. The U.S. ranks in the middle - 20th - out of 40 countries studied, in terms of the proportion of boys reporting involvement in some level of bullying and or victimization, and 24th out of 40 countries in terms of the proportion of girls experiencing some level of bullying and/or victimization (Craig et al., 2009). In an average week in the United States, approximately 15% of students in the 6th-10th grades are involved in bullying behavior according to Srabstein, McCarter, Shao and Huang's (2006) study on the topic. Rates are far higher however in some studies, soaring to over 50% for recent reports of exposure to relational and verbal bullying in the past two months (Wang, Iannotti, & Nansel, 2009).

Overall, in the U.S., reported rates of bullying were highest among 15-year old boys completing the 2005 HBSC survey - nearly 19% of those surveyed reported perpetration of direct, verbal bullying in the past two months. For girls the most common form of bullying was direct verbal bullying as well, with rates peaking at nearly 13% of 13-year old girls reporting perpetration of these behaviors. Victimization rates were considerably higher, with nearly 32% of 11-year old boys reporting that they had been the victim of direct verbal bullying and over 27% of 11-year old girls reporting that they had been the victim of either direct and/or indirect verbal bullying in the past two months as well. These were the highest rates of victimization reported for both boys and girls across the three age groups surveyed (11-, 13-, and 15-year olds,) and in consideration of all types of bullying behavior considered (Craig et al., 2009).

Overall, the 2005 HBSC data reveal that nearly 21% of all children across the countries surveyed have been victims or perpetrators of physical bullying, nearly 54% have been victims or perpetrators of verbal bullying, and over 51% were victims or

perpetrators of relational bullying in the past two months. Furthermore, the most recent research includes rates of cyber bullying with nearly 14% of students involved as either perpetrators or victims in the past two months, based on HBSC data (Wang et al., 2009).

Smaller studies have revealed similar results. One study in a Maryland school district found that nearly 31% of students reported that they were victimized at least three times in the past year and over 7% of students in this study reported that they were bullying perpetrators at least three times in the past year (Haynie et al., 2001). A study of 7th and 8th graders in the Northern Delta region of the U.S. found slightly lower rates; 24% of students were involved in bullying as either a perpetrator, victim or both; however, 45% of seventh graders reported that bullying occurs "often" in their schools (Seals & Young, 2003). Similar reports of cyber bullying were found as well; 11% of students at middle schools across the southeastern and northwestern U.S. reported victimization in the past two months; 7% of students reported both victimizing and bullying via electronic means in the past two months, and 4% reported bullying others electronically in the past two months (Kowalski & Limber, 2007).

It is important to note that obtaining precise rates of bullying perpetration and victimization may be difficult as most studies rely on self-report measures from children who may be afraid to admit to bullying others or ashamed of their roles as bullying victims. Additionally, although bullying is typically clearly defined in these measures, there may be subtle acts that occur that children do not recognize as fitting under given definitions. That said, rates reported in research conducted with adolescents in the U.S. are similar across studies, which indicates that measures may be collecting data that are consistent and likely reflective of the state of bullying in the nation.

**Age of Vulnerability**

It is important to determine at what age intervention for bullying behaviors is most necessary. Is it possible that bullying is even more prevalent among younger children or older adolescents? Based on a thorough review of literature, it appears that although bullying can occur at any age, adolescence - particularly early adolescence, is a time during which it peaks (Carlyle & Steinman, 2007). This is especially troubling because early adolescence is also a time during which vulnerability to peer interactions is particularly strong. Moreover, adolescence is a time during which social development and growth are informed via peer interactions. Social development may be stunted however, because bullying in adolescence often involves social exclusion by peers, which may in turn harm children's potential for future success as social skills remain underdeveloped due to a lack of appropriate interactions (Due et al., 2005).

It is important to note that victimization is found to decline with age (Craig et al., 2009; Due et al., 2009; Frisen et al., 2007; Wang et al., 2009) and perpetration tends to increase with age (Craig et al., 2009; Demaray & Malecki, 2003; Frisen et al., 2007). Specifically, perpetration rates were found to be higher in older boys in the majority of countries surveyed in the 2005 HBSC survey - which considers 11-, 13- and 15-year olds, while victimization rates declined as boys aged. For girls, a different pattern emerged - victimization decreased with age in the majority of countries in the same study, yet no trend was observed in half of the countries in terms of perpetration rates by age (Craig et al., 2009). These findings can be interpreted to mean that boys in particular tend to bully other boys who are younger than them. Girls, on the other hand, are less likely to be

victimized as they get older, yet may maintain a steady rate of perpetration, regardless of their age.

Other studies found that perpetration rates among sixth graders are significantly lower than those of seventh graders, although victimization rates do not significantly change with age in a sixth through eighth grade sample (Demaray & Malecki, 2003). Looking at only seventh and eighth graders, a study of students in the Northern Delta region of the U.S. found higher rates of bullying in seventh than eighth grade (Seals & Young, 2003). Consideration of numerous studies reveals that indeed, bullying involvement tends to peak in early adolescence, which has been confirmed in larger studies, finding that overall, although perpetration rates rise with age in early adolescents or middle school students (Craig et al., 2009; Demaray & Malecki, 2003; Frisen et al., 2007), they tend to drop as children transition out of middle school and head in to high school, at which point they are approaching later adolescence (Nansel et al., 2001).

There are many factors that figure in to patterns of bullying by age. During adolescence there is significant development of cognitive, physical and psychological abilities. As children age, their judgment and logic may alter and influence their decisions regarding bullying behavior, resulting in a tapering effect as they hit ages verging on young adulthood. Furthermore, significant social changes occur throughout adolescence as well - both in terms of skills and activities - which may also play a role in young teens' understanding of, and opportunities to, perpetrate bullying behaviors. Physical changes such as overall growth that are pronounced during adolescence may also inhibit victimization as older children become less likely targets (Craig et al., 2009) due to their potential ability to fight back or their overall more intimidating physical presence.

Interestingly, children who remain victims despite aging out of peak times for victimization are those who are most vulnerable to adjustment problems in their futures (Craig et al., 2009).

**Types of Bullying**

It is commonly recognized that four types of bullying behavior occur among adolescents; physical, verbal, relational and cyber. It is important to note however, that although research on bullying often recognizes the different possible forms (although cyber is only included in more recent studies), it does not often consider outcomes in relation to each form individually. Often, all forms are grouped together to create an overall category of bullying behavior in general. As such, outcome information for specific types of bullying among early adolescence is not typically reported. The exception to this pattern is cyber bullying, which has a unique dedicated literature that is currently forming.

A thorough review of literature that examines psychosocial correlates of bullying behavior revealed very few studies considering these correlates in terms of type of bullying. Apparently, a tendency to simplify bullying in to a composite category of all types rather than studying unique differences relevant to bullying types has emerged among bullying researchers.

**Physical bullying.** Studies vary in their definition of acts of physical bullying. Some include a wide range of physical bullying options on surveys ranging from minor to more severe. For example, a study in a middle school in Illinois included a bullying measure with items asking about the frequency of the following experiences of physical bullying in the past year: ‘someone broke or stole my things’, ‘someone attacked me’,

'someone threatened me with a weapon', and 'someone used a weapon to hurt me' (Demaray & Malecki, 2003, p. 477). Another study of over 79,000 students in Ohio used "push[ing] others around," "threaten[ing] to beat up someone," "hit[ting] someone with your fists," "tak[ing] money or things by force," and "fear... for physical safety," in its measures of physical bullying (Carlyle & Steinman, 2007, p. 625). Frequently, research includes questions regarding youth being hit, kicked, pushed, shoved or locked in, as the physical bullying measure (Wang et al., 2009), which is more in line with HBSC research, which does not typically include the more severe forms of physical bullying listed in other surveys. Moreover, fighting between students is considered a form of school violence, but is not considered bullying in most studies because it is indicative of an equal display of power rather than an uneven one, which is emblematic of a bullying relationship (Olweus Bullying Prevention Program, 2010).

Research finds that physical bullying occurs less frequently than other forms of bullying (Craig et al., 2009; Demaray & Malecki, 2003; Ng & Tsang, 2008; Seals & Young, 2003) and has been found to occur more commonly among males (Nansel et al., 2001, Ng & Tsang, 2008; Wang et al., 2009).

**Verbal bullying.** Verbal bullying is found to occur with more frequency than physical bullying (Wang et al., 2009; Demaray & Malecki, 2003) and, according to some studies, is the most frequently occurring form of bullying behavior (Wang et al., 2009; Ng & Tsang, 2008). Verbal bullying is found to occur among both males and females (Nansel et al., 2001) - it is not as gender-specific as other forms of bullying.

Often, studies break down types of verbal bullying. Questions regarding this type of bullying may be general, such as being called names or teased (Demaray & Malecki,

2003), or more specific, such as being belittled about one's race or religion, or other personal characteristics, such as appearance or speech. Interestingly, among American children, incidences of verbal bullying specific to one's race or religion were reported to be relatively uncommon (Nansel et al., 2001). It is important to note that these data were likely gathered prior to the September 11 tragedies of 2001; these experiences may lead to a shift in this finding in subsequent years.

Low self-worth has been found among victims of verbal bullying, according Mynard et al.'s (2000) study of over 330 British school children in grades 8-11. Unfortunately, other outcome specific information is difficult to identify. As noted, although most studies on bullying recognize verbal bullying as an important, and frequently occurring form of bullying behavior, they do not often include results specific to verbal bullying. Rather, frequency of verbal bullying and, often, the gender of the majority of bullies and victims is identified. Unfortunately, no additional verbal bullying-specific information is offered, in terms of associated problem behaviors or psychosocial well-being of verbal bullies, victims and bully/victims.

**Relational bullying.** Relational bullying has received heightened attention due to high profile cases that have resulted in teenage deaths (Dukes et al., 2009). By definition, relational bullying is considered to be an indirect form of bullying because it is not physical in nature. Relational bullying typically includes actions such as social isolation or the spreading of rumors or lies about another child. Females are more commonly the victims of relational bullying as illustrated in recent research on the topic, which found 23.6% of males reporting victimization via social isolation and 27.4% of girls reporting the same experience. Furthermore, 27.1% of boys reported being the victims of rumors or

lies spread about them, whereas 36.3% of surveyed girls reported having rumors or lies spread about them in the past two months, based on 2005 HBSC data using a sample of nearly 7,200 American adolescents, (Wang et al., 2009).

Unfortunately, confusion abounds in literature, as relational and verbal bullying are terms that are often used interchangeably. Some more comprehensive studies focus on behaviors such as social isolation or exclusion and rumor spreading when considering relational bullying - more indirect bullying actions - whereas verbal bullying is a separate classification and includes name calling, teasing and verbal harassment. In particular, research using the HBSC tends to differentiate between relational and verbal bullying, focusing measurement of verbal bullying on being called "mean names", being "teased" or having "mean...comments" made (Wang et al., 2009, p. 371) about the victim that are either general or specific to race or religion. That said, rates of relational and verbal bullying in the most recent American sample are quite similar (Wang et al., 2009). For the purposes of the present study, which will use HBSC data, relational bullying will be defined as is it in the HBSC study - behaviors that are indirect, such as social isolation/exclusion and rumor spreading. Verbal bullying will be defined as it is in the HBSC study as well, to only include more direct relational behaviors, such as teasing, name calling, etc.

Studies find that relational bullying is indeed quite detrimental to the well-being of adolescents. One study of nearly 2,500 middle school and high school students in Colorado found that the negative consequences of relational bullying were similar to those of physical bullying, which are quite troubling. Although this study did not include a direct analysis of physical bullying, conclusions were made based on prior

studies of physical bullying victimization. Students that suffered the most extreme consequences from relational bullying involvement were those identifying as bully/victims. These students displayed lower self-esteem, more problem behaviors and experienced more physical injuries than students who were not involved in relational bullying in any way or were pure bullies or pure victims. Furthermore, an association was found between physical bullying and relational bullying; relational bully/victims were found to be more likely to be physical bullying victims or perpetrators than students not involved in relational bullying behaviors (Dukes et al., 2009).

Both internalizing and externalizing behaviors have been seen in children involved in bullying on some level. Specifically, externalizing behaviors differ from internalizing behaviors because they are a more outward display. Externalizing behaviors tend to be those that are specifically disobedient and aggressive. Internalizing behaviors are displayed by children who suffer in less visible ways. These children may be socially withdrawn or exhibit signs of sadness or anxiety (Smith, 1999 as cited in Gersham et al., 1999).

A Canadian study of 7,290 teens in an age range similar to the Dukes et al., (2009) study, also found detrimental effects of relational bullying behaviors. Internalizing problems among youth were found to be associated with relational bullying victimization. Specifically, higher rates of social anxiety were found among female relational bullying victims (Marini et al., 2006). Although the experience of relational bullying may in and of itself be a peer relational challenge, social difficulties such as low self-esteem, poor attitudes towards school, and general behavioral problems (Dukes et al., 2009) were also an additional challenge faced by relational bullying victims; potentially a related outcome

to the experiences of being a victim of relational bullying. Difficulty in interpreting these findings in terms of cause and effect illustrates that in cases of relational bullying it is at times difficult to determine if the peer relational difficulties are the reason that certain children are chosen as the target of bullying behavior, or if the relational problems are in fact the result of being victimized. Longitudinal work in this area may help further clarify if the relationship between social problems and relational bullying victimization is causal and/or reciprocal in nature.

**Cyber bullying.** Cyber bullying is the most recently recognized form of bullying and involves the use of electronic mediums to harm others. For example, cyber bullying may include hurtful text messages, posts of embarrassing pictures on social networking sites, or taunting emails (Kowalski & Limber, 2007). Methods of cyber bullying are far-reaching and are expected to only increase as new technologies are born.

Cyber bullying is unique in that it has been the source of significant attention and even policy debates in certain regions in the U.S., and has been implicated in the suicides of numerous teenagers (Drogin & Young, 2008). Recent research supports that cyber bullying involvement is related to mental health challenges and suicidal behaviors. A study of nearly 260 Turkish high school students found that cyber bullying perpetration and vicitmization were both, "....positively related to depression, anxiety, and stress (Çetin, Eroğlu, Peker, Akbab, & Pepsoy, 2012, p. 646.)" This is particularly informative and relevant to the suicidal link recently grabbing media attention, particularly in light of Bauman, Toomey and Walker's (2013) research, which included nearly 1,500 high school students across the United States, and found a link between female cyber bullying victimization, depression and suicide attempts. The study also found that,

"...cyberbullying (sic) perpetration [not victimization] was a direct predictor of suicide attempts among males...(p. 346)." Goebert, Else, Matsu, Chung-Do and Chang's (2011) study of nearly 680 Hawaiin high schoolers, also found that experiences of cyber bullying vicitmization not only significantly increased the likelihood of marijuana use and binge drinking, but it also doubled the likelihood attempting suicide. Overall, poor mental health and dangerous behaviors have found to be related to cyber bullying experiences across the U.S. and abroad.

Cyber bullying may lend itself more easily to research in that it leaves a clearer trail; texts, emails, and internet postings are all traceable and their content may be reviewed. However, cyber bullying is also potentially more damaging than other forms of bullying because it may be anonymous (Li, 2007), often occurs outside of school grounds, and can be disseminated quickly to an endless audience (Smith et al., 2008).

Based on findings of a study of over 175 seventh grade students in a school in urban Canada, Li (2007) found that finds that a large majority of cyber bullying victims are female and the majority of cyber bullying perpetrators are male. Other, more resent research reports different findings. Holfeld and Grabe's (2012) study of 665 middle schoolers in the U.S. and Canada found that females are more involved in cyber bullying, overall, than males – as both perpetrators and victims. Similarly, Mark & Ratliffe's (2011) study that included nearly 250 middle school students in Hawaii also found that females were more involved in cyber bullying than males, overall. These more recent findings indicate that perhaps times have changed; females have possibly started to take on cyber bullying as a means of perpetration at a rate that now outpaces males.

Research also finds that cyber bullies also use more than one electronic medium in their perpetration of bullying and are found to have lower levels of academic success than teens who do not perpetrate cyber bullying behaviors (Li, 2007). Although cyber bullying is the least reported form of bullying among American early adolescents (Smith et al., 2008; Wang et al., 2009), it maintains some unique outcomes. For example, although friend support was a protective factor against victimization in all other forms of bullying, it was not found to be protective in cases of cyber bullying in one study of over 7,000 American 11-, 13- and 15-year olds (Wang et al., 2009). Another study of over 1,500 American 10-17 year olds who use the internet revealed that cyber bully/victims report significant rates of depressive symptoms and problem behavior. They are also more frequently targets of traditional forms of bullying, in comparison to children who do not identify as cyber bully/victims (Smith et al., 2008).

**Impact of Bullying on Adolescent Mental Health**

As media reports of severe consequences of bullying, such as bullying-related deaths make national headlines, interest in what was once viewed as benign, slightly normative childhood behavior has peaked. While bullying and suicidal tendencies have received significant attention (Carlyle & Steinman, 2007; Drogin & Young, 2008; Smokowski & Kopasz, 2005), and have been linked in research (Buman et al., 2013; Goebert, 2011), other troubling behaviors and symptoms have been associated with bullying and are also deserving of consideration and investigation. For example, more general associations with poor psychosocial and mental health have been found in research on the topic. Large-scale studies conducted on data from American adolescents find that involvement in bullying on any level, be it as a victim, perpetrator or both

(bully/victim) is associated with higher rates of drinking, smoking, theft, and damage to property (Haynie et al., 2001). Also, somatic symptoms, including headaches, stomachaches, backaches and dizziness, as well as psychological symptoms such as feelings of sadness, irritability, nervousness and sleep disturbances, were more likely to be reported by children involved in any form of bullying (Srabstein et al., 2006). Psychosocial adjustment overall among involved children was also found to be poorer in comparison to those not involved (Nansel et al., 2004).

Unfortunately, the vast majority of research on mental health and young teens is not longitudinal in nature. As such, it is difficult to determine if the bullying experiences result in associated mental health problems or if the mental health problems are actually catalysts for the bullying behaviors. That said, reports of tragedies, such as violence and suicide that appear to stem from bullying victimization fuel a belief that severe mental health disturbances may likely result from bullying experiences in any role.

**Victims.** Victims of bullying experience poor mental health in a variety of ways, which are often quite different from the symptoms experienced by perpetrators of bullying. Although some studies find higher rates of both externalizing and internalizing symptoms among perpetrators and victims (Alikasifoglu et al., 2007), other studies find that perpetrators tend to exhibit more externalizing symptoms and victims tend to exhibit more internalizing disorders (Herba et al., 2008; Menesini et al., 2009).

Specifically, one large study including over 123,000 young adolescents from 28 different countries revealed that victims of bullying reported feeling, “low”, “nervous,” “irritable,” “lonely”, “helpless,” and “left out” - with symptom reports correlating positively with reported rates of victimization (Due et al., 2005, p. 131). Poor social

relationships among victims were also reported in Nansel et al.'s (2004) study of over 113,000 children from 25 different countries.

Depression and anxiety are widely reported among bullying victims as well. A large, American study of over 79,000 adolescents in middle school and high school found higher rates of depressive symptoms among students who reported that they were bullying victims (Carlyle & Steinman, 2007). Smaller studies of American teens have yielded similar results (Haynie et al., 2001; Seals & Young, 2003), as have studies of Italian youth (Menesini et al., 2009) and adolescents in Hong Kong (Ng & Tsang, 2008).

Additionally, studies of bullying victims find increased risks of post-traumatic stress disorder (PTSD) (Mynard et al., 2000) and suicidal ideation (Luukonen et al., 2009). In fact, one smaller study of 26 teens in Ireland that specifically asked questions regarding the use of mental health services, concluded that victimization from bullying was one of the main reason for service usage for over half of the study participants. Furthermore, the study was able to link difficulties in school attendance and thoughts of committing suicide directly to victimization experiences (Dyer & Teggart, 2007). That said, negative mental health and poor psychosocial outcomes that are associated with bullying victimization, such as poor relationships with classmates, (Marini et al., 2006; Nansel et al., 2004), poor social and emotional adjustment (Nansel et al., 2001), low self-worth (Mynard et al., 2000), and loneliness (Estevez et al., 2009) are experiences that may be a catalyst for the victimization as well as a result of it.

**Bullies.** Perpetrators of bullying appear to exhibit behavioral problems and mental health concerns as well, however, not to the same extent as bullying victims. Unfortunately, as noted, bullying research is rarely longitudinal in nature. Therefore

causes of bullying perpetration versus consequences of bullying perpetration cannot be easily pared out. Research does indicate though that the symptoms experienced by perpetrators are far different from those experienced by victims. For example, substance abuse is not noted as a mental health problem associated with bullying victimization; however, it is associated with perpetration of bullying behavior in two large studies - one of American adolescents (Carlyle & Steinman, 2007) and one that included youth from 25 different countries (Nanasel et al., 2004). Other externalizing behaviors, such as oppositional defiant disorder (ODD) and conduct disorder (CD) were found to occur with more frequency among teen bullying perpetrators as well (Kokkinos & Panayiotou, 2004). Although Kokkinos and Panaytiotou's (2004) study is smaller than many other bullying studies, including just over 200 Greek youth, it is the only study identified that includes consideration of these specific disorders. ODD often is a pre-cursor of CD and is considered a "milder" disorder. CD, on the other hand, has been associated with Antisocial Personality Disorder - a severe disorder associated with delinquency and dangerous acts of violence (National Institutes of Health, 2008). Kokkinos and Panaytiotou's (2004) findings indicate that bullying perpetrators have a tendency to exhibit symptoms that are external in nature and their effects are potentially harmful to others. These externalizing problems are interesting in light of the fact that bullying perpetration is an external problem behavior in and of itself. It is possible that children who bully others have a propensity towards outward aggression, which is manifested in bullying behaviors, as well as in other behaviors, such as substance abuse or delinquency.

Interestingly, only one study identified depression, a more internal symptom, as associated with bullying perpetration. The study included a sample of just over 450

American youth and yielded results that indicated higher rates of depression among both bullying victims and bullying perpetrators (Seals & Young, 2003). Additionally, suicide and suicidal thoughts, which are often linked with depression and are other examples of symptoms that are indicative of internalized problems, were linked with both victimization and perpetration in a study of over 500 Finnish adolescents. As is commonly the case with more internalized symptoms, the associations between bullying involvement and suicide were found only among females; there were no significant associations between either victimization or perpetration and suicide among male patients (Luukkonen et al., 2009).

**Bully/victims.** Although many young teens involved in bullying are categorized as either bullies or victims, some are found to fall into the category of being both a bully and a victim, commonly referred to as "bully/victims" in literature on the topic. Bully/victims are identified less frequently than children in either the pure bully or pure victim category (Carlyle & Steinman, 2007); however, according to numerous studies that consider the adjustment and well-being of bully/victims, they have significantly poorer outcomes than children who are in the pure victim or pure bully category.

Based on their work with over 200,000 adolescents internationally, Craig et al. (2009) proposed that bully/victims develop via a "gateway theory." Based on this theory, the bullying involvement often begins with victimization. Children who are victimized may choose to bully others. The idea behind the "gateway theory" is that the level of involvement develops in stages - from minor to severe levels. As victimized children take on perpetrator roles as well, bullying becomes a part of their regular social lifestyle. As such, the more involvement that children have in bullying, the greater their risk is of

suffering the consequences of involvement. This theory is supported by Demaray and Malecki's (2003) work with a sample of nearly 500 American middle school students, which revealed that bully/victims engaged in more bullying than pure bullies and experience more victimization than pure victims; as involvement grows, its stage of severity increases. Particularly high rates of involvement may be used to explain the particularly high rates of psychosocial adjustment problems seen in bully/victims compared to pure victims and pure bullies. Bully/victims appear to maintain the poorest mental health and psychosocial adjustment in comparison to teens that identify as only victims or only bullies. In fact, this finding is consistent across nearly all literature that includes bully/victims as a category of bullying involvement.

The array of symptoms associated with bully/victims is variable and vast. Overall, however, studies indicate that bully/victims' mental health profiles are most similar to that of victims. Nevertheless, some difficulties more frequently associated with teens identifying as bullies have been exhibited by bully/victims as well. Both externalizing symptoms, such as aggression, and internalizing symptoms, such as depression were found among students who identified as bully/victims in an Austrian study of over 750 teens. Bully/victims in this study were found to have the highest risk for poor adjustment out of all study participants (Grandinger et al., 2009).

A larger, American study including over 4,000 students in the state of Maryland, found a wide variety of social adjustment problems in bully/victims as well, noting that teens in this category have the lowest rates of self-control, social competence, and school functioning, in comparison to uninvolved teens and those who are only bullies or victims. Also quite interesting is the finding that bully/victims have a particularly hard time

forming “positive” relationships with peers, (Haynie et al., 2001, p. 44), based on survey questions regarding social competence (Haynie et al., 2001). It is possible that the lack of relationships is the cause of students falling in to the bully/victim category, or it could be because of their bully/victim status that students are not well received by their peers. In fact, a smaller Greek study of just over 370 teens found that indeed, bully/victims are more temperamental than other students, based on mothers’ responses to questions in a modified, parent-report Olweus questionnaire that all relate to child temperament. Moreover, they are also more “different” and more socially isolated (Georgious & Stravinides, 2008). Peer relational problems, coupled with social anxiety were also identified with higher frequency among bully/victims than among other students in a Canadian study of over 5,100 adolescents. In this study, these attributes were found specifically among female indirect bullying bully/victims (Marini et al., 2004), leading to the notion that it is possibly the bullying experiences causing these social problems; indirect bullying specifically targets social relationships and inclusion in social activities and friend groups.

Findings regarding bully/victims are a cause of great concern. Overall, children in the bully/victim category are more likely to be physically bullied than children identifying as only victims or only bullies (Dukes et al., 2009). They are also more socially isolated and temperamental than other students (Georgiou & Stavrinides, 2008), have poorer psychosocial adjustment (Estevez et al., 2009; Gobina et al., 2008; Nansel et al., 2004; Stein et al., 2006; Ybarra & Mitchell, 2004), lower self-control, social competence (Haynie et al., 2001; Marini et al., 2006) and school functioning (Haynie et al., 2001; Nansel et al., 2001 ). Furthermore, they are found to exhibit higher rates of

depression (Gradinger, 2009; Haynie et al., 2001), social isolation (Nansel et al., 2001) somatic symptoms (Gradinger et al., 2009), psychopathology (Kokkinos & Panayiotou, 2004), and physical injury (Stein et al., 2006), and an increased tendency towards alcohol use and weapon use (Nansel et al., 2004) compared to students not involved in any kind of bullying behaviors and/or students who are only victims or only bullies. Research findings reveal that bully/victims are in need of special attention because of their particularly high risk of suffering social, physical, and psychological problems associated with bullying behaviors in the adolescent population.

**Demographic Predictors of Bullying**

As types of experiences in bullying may influence the severity of negative outcomes, gender, race/ethnicity, and SES are is also found to be associated with differences in rates of bullying involvement and in many cases, with differences in outcomes. It is thus important to consider bullying data in light of a variety of demographic differences to better target and further improve bullying intervention efforts.

**Gender.** Gender differences in bullying behavior have been widely reported and include not only differences in levels of involvement, but also differences in types of bullying that are more common among each sex. Additionally, some research suggests gender-based differences in poor outcomes related to bullying involvement.

In one international study, boys reported higher rates of bullying perpetration in all of the 40 countries included, and girls reported higher rates of victimization in over 70% of countries included (Craig et al., 2009). However, two studies conducted with American young adolescents found higher rates of victimization among males than

females (Demaray & Malecki, 2003; Nansel et al., 2001). This higher rate for males was also found in another, recent international research study (Due et al., 2009). Although the gender with the highest victimization rates seems to differ in literature, it appears clear that males are more commonly perpetrators of bullying behavior (Alikasifoglu et al., 2007; Carlyle & Steinman, 2007; Craig et al., 2009; Haynie et al., 2001; Nansel et al., 2001; Nation et al., 2008; Mg & Tsang, 2008; Seals & Young, 2003; Vervoort & Scholte, 2010; Young & Sweeting, 2004). Differences in findings may be due to the specific types of bullying studied, the specific bullying behaviors listed, or the ages of the samples, since victimization seems to decline with age for boys (Craig et al., 2009, Due et al., 2009; Frisen et al., 2007; Wang et al., 2009).

Although overall perpetration rates appear higher in males in nearly all research, there are some cases in which females are the predominant perpetrators. For example, one Canadian study upheld the commonly believed gender-based bullying difference that females are more likely to bully relationally and males are more likely to bully physically (Janssen et al., 2004). This notion was also confirmed in a Swedish study with similar findings (Frisen et al., 2007), although it was contradicted in a study of young teens in Hong Kong, which found that there were no gender differences in relational bullying rates (Ng & Tsang, 2008). Some confusion may be due to different definitions of relational bullying, with some studies including verbal and others not including verbal bullying in their definition. For example, when considering verbal bullying as its own category, rather than lumping it with the relational bullying category, Wang et al.'s (2009) study found that female perpetration of relational bullying was higher than male

perpetration of relational bullying, although male rates of verbal and physical bullying perpetration were higher than female's.

More recently, research has been considering cyber bullying and its differences by gender, with one study of nearly 3,770 American middle school students identifying females as the predominant cyber bully perpetrators and victims (Kowalski & Limber, 2007), although this runs contrary to other work on the topic identifying males as perpetrators slightly more often than females (Li, 2007). Li's (2007) study of cyber bullying, which included 175 seventh grade students in a school in urban Canada, also found that females are more frequently the victims of cyber-attacks than males.

Although bullying-related outcomes are not always considered by gender, some research has noted important differences. For example, Carlyle and Steinman's (2007) study of American adolescents reported that substance abuse and depression were more commonly found among female bullying victims than male victims. Furthermore, a study of nearly 510 Finnish adolescents between the ages of 12-17 years old who were in inpatient psychiatric care, found that females identifying as bully/victims had twice the risk of attempting suicide than other girls who were involved in bullying; for males, there was no association between bullying and suicide risk (Luukkonen et al., 2009). Interestingly, findings concerning gender and mental health outcomes of bullying are not consistent. Whereas, similar to Luukkonen et al., (2009), Ng and Tsang (2008) found that girls in Hong Kong who were victims of bullying suffer significantly more than boys on a variety of mental health measures including depression, anxiety and difficulty with their coping skills, Mesini et al. (2009) found no gender differences in terms of mental health and bullying involvement between genders in their sample of nearly 540 Italian

adolescents spanning the ages of 13-20 years old. Cultural and age differences in the study samples may account in part for differences in findings. That said, the literature on gender differences in bullying behaviors, roles and outcomes is varied and somewhat contradictory, although a few findings, such as males' higher perpetration rates, remain unchallenged and have been found consistently across many studies including samples from a variety of countries, world-wide.

**Race/ethnicity.** In light of attention regarding demographic factors that may influence bullying behaviors, it is important to include race/ethnicity in analyses and take in to consideration any unique findings regarding outcomes and experiences of bullying that may be associated with racial or ethnic differences among adolescents. It is possible that the minority status experienced by children of various races and ethnicities in certain schools may make them a target for bullying behavior, since they stand out as different in some way. Conversely, as a proactive protection mechanism, in recognition of the differences in their appearance and status from the majority race in a school, children identifying as a minority race or ethnicity may become bullying perpetrators. Although race and ethnicity is not considered in many studies on bullying behaviors, some literature considering racial and ethnic differences does exist. Additionally, the HBSC includes questions regarding racially or ethnically-based bullying behaviors.

The role of race and ethnicity in bullying is potentially quite interesting. Research finds that children who are most likely to be bullied are those who are "different" in some way (Frisen et al., 2007; Georgiou & Stavrinides, 2008). This notion lends itself to consideration of the idea that children who belong to a minority race or ethnicity are, in fact, noticeably different than the majority race children surrounding them. They may be

different in terms of appearance, and they may also seem different due to varying customs and traditions to which they adhere.

Surprisingly, only a small amount of identified literature has taken the role of race and ethnicity into consideration in research on the topic of bullying. One possible reason is that much of the identified bullying literature is compiled from countries that do not necessarily maintain a particularly racially diverse population. Europe, particularly Northern Europe, led the way for bullying research studies. Many of these European countries do not reflect the same degree of racial diversity that is found in American schools. Also, as many European countries remain at the forefront of bullying research, and due to the ease at which families may cross borders between countries in Europe, a wide variety of nationalities or ethnicities may regularly be represented in schools. As such, varying ethnicities in the classroom may be considered the norm and ethnic differences may not be noticed or pronounced enough to incite bullying behaviors among students. In fact, Vervoort et al.'s (2010) study on ethnic composition of classrooms and related bullying behaviors in nearly 2,400 students across the Netherlands suggests that although bullying victimization is more common in classrooms with greater ethnic diversity, there is a paucity of advanced research on this topic. Further research is necessary to determine precisely how ethnic diversity may be implicated in bullying rates and behaviors throughout Europe and North America. Similarly, research on racial diversity and bullying rates would be particularly informative as well.

Despite the lack of an extensive body of literature examining the role of race and ethnicity in bullying behaviors, the existing research on the topic sets forth some interesting findings. In one American study with a sample of nearly 79,500 students in

6th through 12th grade, it was found that both bullying and victimization rates were higher among young, male students who were either African American or Native American. This finding was particularly stronger among Native American children. Also, Asian children reported the lowest rates of perpetration and victimization out of the five racial/ethnic categories considered in the study. These findings are particularly interesting in light of the fact that both Native American and Asian students constituted only a small population in the studied schools. Also, African American and White students constituted either majority or large minority status in the sample schools, yet they had disparate rates of bullying behaviors, with African American males experiencing significantly higher bullying and victimization rates than White males (Carlyle & Steinman, 2007). Due to the majority status in the school of both White and African American students, this study leads to the consideration of the possibility that higher rates of bullying experiences among African American males may not be due to minority status in schools. Rather, these higher rates may be linked to a grander, societal level of racism resulting in victimization, and perhaps perpetration in response to victimization, or as a protective practice to shield against further experiences of victimization. Differences in rates found between Asian and Native American students are a bit harder to explain since both are minority races both inside and outside of school, thus both may be subject to societal racism and within-school discrimination. Differences may be due to cultural protective factors, such as parental teachings about conflict, or may be due to differing experiences of oppression. Asian students are often thought of as a "model minority", stereotypically excelling in academic and professional endeavors, whereas the Native American race maintains the stigma of poverty and alcoholism that is largely connected to genocidal

practices and marginalization of the population that is embedded in American history. These vastly different minority histories and stereotyped characteristics may influence the behaviors of children towards Asian or Native American teens.

Various other studies yield surprisingly contradictory results as well. For example, a smaller study of nearly 800 students in the Midwest found that bullies and bully/victims are more commonly "non-White", whereas pure victims were more commonly White than "non-White" (Holt & Espalage, 2007). Other research based on American samples finds that African American teens report significantly lower victimization rates than their White and Hispanic counterparts (Spriggs et al., 2007). These results were echoed by the Wang et al. (2009) study that found that African American teens had lower rates of victimization, yet higher rates of perpetration behaviors. These results run counter to other research in American schools that finds no differences in bullying rates based on race or ethnicity (Demaray & Malecki, 2003; Seals & Young, 2003). In cases in which higher rates of bullying perpetration behaviors among African American teens and lower rates of victimization are found, it may be hypothesized that perpetration may serve as a mode of protection against victimization; other students may be scared of bullying students who are known as fully capable of bullying them in return. Differences in the racial stratification of schools, as well as the racial atmosphere of towns, and the lack or presence of racist attitudes outside of school may also account for the contradictory nature of findings regarding bullying and race across numerous American samples.

Reports on racially and ethnically specific bullying, or verbal bullying specifically targeting race, religion and/or ethnicity, are contradictory as well. A Canadian study of

over 5,700 adolescents found that overweight and obese children had a tendency to bully others verbally, specific to race, color or religion (Janssen et al., 2004), whereas a study of over nearly 15,700 American adolescents found that racially or religiously-based bullying did not occur frequently among children surveyed (Nansel et al., 2001). Of course, this study did not specifically consider overweight and obese youth; perhaps the overweight and obese youth focus on ethnic or racially based bullying tactics as a means of deflecting attention from their own physical differences (Janssen et al., 2004).

**Socio-economic status.** Similarly to race and ethnicity, minimal research on bullying has considered socio-economic status (SES) in relation to bullying behaviors. The few studies that have included SES as a factor have yielded conflicting results. SES is an important variable to consider, however, in that it may also be implicated in creating "differences" among children that may lead to bullying and victimization. Children of a lower SES than their peers may be different in appearance based on their clothing and lack of certain items that are viewed as important status symbols - particularly among adolescents.

One Greek study that considered SES found that indeed, bullying victims tended to be from families of a lower SES than others surveyed (Alikasifoglu et al., 2007). Conversely, however, an American study that included SES in consideration of bully and victims status of nearly 500 middle school students, found that socioeconomic status did not result in a significant differentiation between students who were bullied and those who were victims (Demaray & Malecki, 2003).

A small number of international studies focusing on SES were identified and may be used to help solidify an overall assessment of the impact of SES on bullying

behaviors, as they include a wide variety of children from European and North American countries and a large sample size of over 160,000 young adolescents. Due et al.'s (2009) study, using HBSC 2001-2001 data, which includes an international sample of over 162,300 students aged 11-, 13-, and 15-years old, found that children who are from families with lower incomes reported higher rates of bullying victimization than other children. This is particularly interesting in light of the study's finding that in countries in which socioeconomic disparity is particularly large, the victimization risk for lower-income children is even greater. Interestingly, based on the measure of economic inequality used, the United States had the highest level of economic inequality out of all 35 countries considered (Due et al., 2009). Income inequality in 37 countries was considered in a similar study in the Elgar et al. (2009) study that also found that it correlated with higher rates of bullying. Based on these findings, Elgar et al. hypothesized that parents' attitudes towards people of lower incomes may be passed on to children, who learn to exclude children from a lower SES in social situations. As income disparity grows, the environment in which children are living becomes increasingly difficult to navigate, and bullying may become a more accepted and common behavior. The fact that the United States does not have the highest rates of bullying, despite high income inequality may be due to increased tolerance for differences in SES among American families. It may also be reflective of a lack of income inequality in neighborhood schools, despite income inequality outside of schools (higher SES children may attend private schools more frequently, resulting in public schools with high concentrations of middle- and lower-class children).

## Protective Factors

In light of the recognition that bullying behaviors are associated with poor psychosocial profiles and compromised mental health, it is important to consider factors that may either aid in preventing bullying involvement, or, at least, buffer the effects of bullying involvement. Some consideration of demographic differences that may be predictive of bullying involvement has occurred; specifically, gender, ethnicity and SES have received consideration. Bullying, however, is often intertwined with a variety of other circumstances that intersect in teens' lives. For example, school environment, peer relationships, and family interactions are all important aspects of adolescents' lives. Although extensive, in-depth research into these possible buffers against bullying involvement or the ill effects of bullying involvement is not plentiful, numerous studies have taken these factors into consideration to some extent, with clear findings that a variety of aspects of adolescents' social environments are indeed associated with bullying behaviors and/or related problems.

**Characteristics of individuals.** Baldry and Farrington (2005) considered individual traits displayed by teens that may moderate bullying risk in their study of nearly 680 male, Italian high school students. Findings indicate that coping skills among teens that are emotionally-oriented, in contrast to avoidance or solution oriented modes of coping, increased risk factors for bullying and victimization behaviors. This finding indicates that the emotionally-charged modes of dealing with problems displayed by some teens indeed elevates their risk of bullying involvement. Problem solving-oriented coping skills however, are important in that they may serve as a buffer against the negative impact of emotional coping strategies that are potentially troublesome.

**School and peer-based factors.** More commonly researched moderators of bullying involvement or impact include social atmosphere; specifically, school (which includes consideration of family in some studies) and peer-based experiences. Demaray and Malecki (2003) found that both parental and teacher support were not as available to bullying perpetrators as they were to a comparison group of children who were not involved in bullying. Social support from families and schools was also associated with fewer incidences of bullying in a larger, international study of nearly 67,000 students from 37 different countries (Elgar et al., 2009). Stronger social support was also reported by students who were not involved in bullying in comparison to students who were perpetrators, victims, and bully/victims in Demaray and Malecki's (2003) study of nearly 500 American middle school students. Similarly, the highest levels of peer support were found among teens who were not involved in bullying in Holt and Espelage's (2007) study of over 780 Midwestern youth. It is important to note that it is unclear if it is the lack of support that is a catalyst to the behavior, if support wanes as bullying behaviors occur, or if the presence of support protects against the occurrence of bullying (Elgar et al., 2009). Furthermore, peer support was found to be unrelated to bullying behaviors in other research on the topic (Elgar et al., 2009).

Although research findings are mixed on the role of peer support in the actual involvement in bullying behaviors, research on the role of peer support in buffering against the ill effects of bullying involvement appears to be in agreement. Holt and Espalage's (2007) research found that moderate social support appeared to buffer anxiety and depression symptoms among those identifying as perpetrators, victims and bully/victims. Davidson and Demaray's (2007) consideration of moderators that buffer

against internalizing and externalizing problems experienced by bullying victims found that males and females differed slightly. Teacher, classmate, and school support were all found to moderate internalizing problems typically experienced by male victims; victimized boys with higher levels of these types of support had lower levels of internalized problems. From females, however, close friendships moderated the externalizing distress experienced with victimization in an unexpected manner; "higher perceptions of classmate support for female victims were related to an increase in externalizing distress" (Davidson & Demaray, 2007, p. 400). This unique finding may reflect challenges experienced by female bullying victims who maintain a strong peer-base; perhaps they are embarrassed by the victimization and act out as a result. The girls may also feel empowered by their peer network and exhibit externalizing behaviors in retaliation to the victimization experienced.

**Family-specific factors.** Clear associations have been identified between social and school-based factors and bullying involvement. Families, however, may also play an important role in adolescent bullying involvement. In particular, early adolescents are at a point in life during which they are beginning to explore their independence, yet family remains an integral part of their day-to-day existence. Specifically, pre-teens and early adolescents teeter precariously between independence and family reliance; they have few resources to allow them to stray far from their home environment for extended periods of time. As such, time is typically spent surrounded by families, and various family characteristics may impact adolescents, either in a protective or risk-based manner. Identifying these family characteristics will aid in contributing to the overall

understanding of bullying behaviors and potential buffers to the negative outcomes so frequently experienced by children involved in bullying.

Maternal involvement and support is specifically associated with bullying status according to a few studies that include maternal relationships in their measures. For example, both male and female bully/victims who experienced "indirect" bullying, (such as relational bullying), reported higher rates of alienation from their mothers than other students surveyed in the study. Furthermore, the degree of maternal alienation experienced clearly delineated male bullying victims from non-victims in the study of 5,140 Canadian students (Marini et al., 2006). The maternal relationship is apparently quite relevant to bullying status, as further evidenced by a smaller study of over 780 American students that found that children who are not involved in bullying at all have the highest levels of both peer and maternal support, particularly in relation to children identifying as victims and bully/victims. Maternal support specifically differentiated victims from all other children as they reported the least (Holt & Espelage, 2007). That said, maternal support did not moderate mental health problems resulting from being a victim of bullying in Holt and Espelage's (2007) study of over 780 American middle school and high school students. However, children who were bully/victims and had the lowest levels of maternal support also reported the highest levels of anxiety and depression in their lives of all bully/ victims.

Parental support, such as children feeling understood, loved, assisted and comforted by parents is a particularly popular family factor that is included in analyses of families and bullying. Wang et al. (2009), in the largest U.S. study assessing identified parental support and bullying involvement, based on a sample of over 7,180 11-, 13-, and

15-year olds nation-wide, found that children with more parental support were less likely to be involved in all forms of bullying victimization - physical, verbal, relational and cyber. Additionally, positive parenting was associated with a lower likelihood of bullying perpetration or victimization, regardless of the type of bullying considered. Parental support was also found to be a buffer against distress associated with bullying victimization, for females in a small American study of 355 students. For males, only other social supports - outside of the family - served as buffers against internalized distress from victimization. In terms of decreasing the likelihood of victimization experience, parental support in addition to other social supports, were significantly related for both males and females (Davidson & Demaray, 2007). Victimization was not related to perceived parental support, however, in Demaray and Malecki's (2003) study of nearly 500 American students. In fact, it was only related to bullying perpetrators and bully/victims, who reported lower levels of perceived parental support than other children in the study. Bully/victims reported the lowest levels of parental and social support, overall.

Also, Baldry and Farrington's (2005) study of just over 700 Italian adolescents included parenting style as well as parenting support, in an attempt to determine if they played a role in children's bullying involvement. Findings indicate that two parenting styles that are protective against bullying and victimization are supportive and authoritative. Children who identify as bully perpetrators and bullying victims report having parents who are conflicting and punitive in their parenting styles. Supportive parenting, however, was found to buffer the effect of emotionally-centered coping

strategies, which were personal attributes that are also found to be predictive of victim status.

Feelings of acceptance in the home may also be related to bullying involvement. Victims of bullying who have higher rates of suicidal ideation are also found to feel higher rates of rejection in the home environment (Herba et al., 2008). Additionally, family-related self-concept appears to be linked with bullying perpetration - students with lower levels of family-related self-concept (feelings of disappointing one's family or having unachievable expectations on one's-self), were found to exhibit higher rates of bullying perpetration behaviors (Salmivalli, 1998).

Although bullying research includes the consideration of some family factors that may be relevant to bullying behaviors or the impact of bullying involvement, other family factors that are potentially related to young teens' behavior, such as communication with parents, are rarely included in research on the topic. It has, however, been more frequently studied in general research on adolescent adjustment, often being considered in conjunction with other measures of parental closeness, such as trust and alienation. Studies considering these factors as reported by adolescents and at times their parents as well, find that these factors are indeed relevant to adolescent adjustment and behaviors. For example, Leondari and Kiosseglous's (2000) study of 153 adolescents and young adults (ages 18-24) in Greece, found that subjects reporting higher levels of parental communication and trust and lower levels of parental alienation reported, "higher levels of self-esteem and lower levels of anxiety and loneliness" (p.461). Furthermore, Leondari and Kiosseglous (2000) explained that, "...the co-occurence of individuality and connectedness in family relations contributes to adaptive emotional functioning" (pp.

461-462). Similar findings were reported is Smart, Sanson, and Toumbourou's (2008) study of over 1,800 10th-12th grade students and their parents in Australia. The study also included measures of parental/adolescent communication, trust and alienation and they concluded that, "...adolescents who had high quality relationships with parents tended to be doing better than those with less positive relationships across all areas of life examined: ...personal characteristics, family experiences, peer relationships, school progress and community connectedness" (p. 24). Furthermore, they found that adolescents with closer parent relationships had better social skills and fewer problematic social behaviors.

Positive communication within a family, and supportive relationships with parents overall, were also associated with the growth of social competencies in Hillaker, Brophy-Herb, Villarruel, and Haas's (2008) study of over 9,700 Midwestern sixth, seventh and eighth grade students. Lopez, Olaizola, Ferrer and Ochua (2006) considered over 840 students in Spain, ages 11-16 years old, who were already rejected by peers in school, and found that those who acted aggressively had less parental support and more negative parental communication than those who did not. Another Spanish study of nearly 1,070 11-16 year olds found that positive communication between families and children may protect children from displaying violent behaviors in school (Ochoa, Lopez & Emler, 2008).

All of the positive characteristics of the adolescents with stronger parent relationships in these studies are potentially factors that shield children from involvement in bullying behaviors. The findings that strong and/or positive parental communication and trust with minimal parental alienation are associated with these positive

characteristics indicate that further exploration of these factors specific to bullying involvement may be enlightening.

Among the few studies that did include parental communication and bullying behaviors, specifically, one study considered victimization in relation to measures of parent/adolescent communication, trust and alienation. The study included 204 8th through10th grade students in Australia and found that children were victimized less if they had stronger parent relationships (Earl & Burns, 2009). Another study of over 3,5000 Turkish youth included parental communication and found that it is strained in perpetrators, victims, and bully/victims, who all had difficulties in communicating with their mothers and fathers. The one exception to this pattern was bullies, who only had difficulty in communicating with their mothers. Children identifying as bully/victims had the most difficulty with parental communication, compared to other children in the study (Alikasifoglu et al., 2007).

A large study of over 11,000 American youth that attempted to determine racial differences in family and social factors associated with bullying, revealed that among White students, only bullies reported troubled parental communication; however, among African American students, difficult parental communication was reported by both victims and bullies. Bully/victims identifying as Hispanic reported difficult communication with their parents as well (Spriggs et al., 2007). This suggests that cultural family influences that result in varied communication styles and differ by race may alter the severity and nature of problems associated with bullying involvement.

## Research Gaps

Research on bullying-related issues is starting to flourish in light of the media spotlight on the topic and the newer, more far-reaching problem of cyber bullying. However, despite the growing body of research literature on bullying, a variety of potentially important aspects of teens' lives and families that may be relevant to bullying involvement have yet to be adequately studied. Issues such as life satisfaction and a variety of family issues that may moderate the impact of bullying involvement on teens are in need of more detailed exploration.

**Life satisfaction.** Although mental health and psychosocial adjustment are important to monitor in young teens because of the difficulties that these symptoms and adjustment problems might cause throughout the adolescent years and in to their adulthood, the negative impact on overall happiness and well-being of youth is often merely assumed. As such, measures such as life satisfaction are extremely important to include in research that considers youth well-being. Teens ranking life satisfaction as low may be at a high risk for suicide; they may feel that their life is too unpleasant or not worthwhile enough to continue. If experiences of victimization are related to these feelings, this would be important to determine. Furthermore, it is possible that teens with low life satisfaction may externalize their negative feelings by harming others.

Despite the inherent value in considering life satisfaction in bullying-related research, it is often overlooked. That said, a handful of studies have included it as a measure and have yielded enlightening results. For example, a study of over 1,300 young adolescents in Spain revealed that levels of life satisfaction were low among victims, bullies and bully/victims. Scores on the life satisfaction measure in this study were quite

similar for victims and bully/victims, and only slightly higher for bullies; all were significantly lower than scores for those reporting no involvement in bullying behaviors (Estevez et al., 2009). Bullying victims and bully/victims reported low life satisfaction - although bullies did not - in a study of over 3,400 Latvian and Lithuanian students as well (Gobina et al., 2008). It should be noted that Latvia and Lithuania are countries maintaining the highest rates of bullying in Europe (Craig et al., 2009).

**Family factors included in this study.** Few studies consider a wide array of family factors as moderators of bullying involvement and associated mental health and psychosocial outcomes. The present study will include a number of family factors that have previously been ignored. It will attempt to more clearly determine the role of parental communication, parental involvement, parental closeness, and family relationship satisfaction in relation to life satisfaction, and mental health. By focusing on a broad variety of family factors, this research will aid in determining how families might protect adolescents from the mental health problems and lower life satisfaction related to bullying experiences. The family influence on these issues has been included in bullying research only more recently, and with widely disparate results. By including a broad variety of family factors, a large, nationally representative sample, and some more unique factors - such as parental communication, closeness, involvement, and family relationship satisfaction, the family role in bullying behaviors and related problems may be more clearly defined. Although these family factors may have individual effects on bullying, it is also possible that they may not act independently but as a group represent the quality of family life overall. As described in the methods section, initial factor analysis will be

conducted to determine the psychometrically appropriate way to study these family factors.

**Purpose**

The present study will contribute greatly to a larger understanding of the unique problems related to different types of bullying and the related family factors that may serve to moderate the severity of the impact of these problems, for each of the four main bullying categories - physical, verbal, relational, and cyber, as well as for all types of involved teens - victims, bullies, and bully/victims. It will address the sizable gap in literature regarding specific bullying type relationships by considering physical, verbal, relational and cyber bullying as discrete bullying categories. Results will be reported by bullying type (physical, verbal, relational and cyber), rather than by only bullying category (victim, bully, bully/victim). Furthermore, it will explore the mental health and life satisfaction of young adolescents identifying with the roles of victim, perpetrator, or both.

Moreover, the family factors that may moderate the wellness factors related to bullying among young adolescents are rarely considered in previously conducted research on the topic. Parental closeness to children, parental involvement with children, parent/child communication, and family relationship satisfaction, may all play a large role in determining if certain children are less likely to suffer from the poorer mental health and lower life satisfaction related to bullying than others. The family-based focus of this study is possibly its greatest contribution to research on the topic and may help provide families and clinicians with an enhanced understanding of ways to protect children from suffering undue psychological harm despite their limited ability to

eliminate bullying from their children's lives. Such insight is the type of information that may be used by parents in the future to prevent the horrific acts of homicide and suicide that have been associated with bullying in America in recent years.

**Theory**

Bullying research rarely includes a theoretical compass. Studies that have included a theoretical perspective often do so only briefly, such as Elgar et al.'s (2009) mere reference to Bronfenbrenner's Ecological theory in consideration of income disparities and their relationship to bullying. Other studies do not consider theories that incorporate the family perspective. For example, the more public health-based "Gateway theory," which is not family-centered, is used in Craig et al.'s (2009) discussion on the process of developing bullying behaviors.

Due to the family-focused nature of the present study, a family-based theoretical lens is best applied to bullying behaviors and potential moderating family factors. Family theory is particularly important to employ in guiding the present study because the subjects of the study are young adolescents (11-, 13- and 15- year olds). Young adolescents are poised on the brink of independence, yet remain tightly planted within their families; they are growing in independence in their thoughts and actions, yet they exist firmly in the family context and are potentially highly influenced by the family environment. Application of family-based theory is most appropriate for enhancing understanding of bullying experiences and related problems because family factors are hypothesized to be the influences that may alter adolescents' mental health or poor life satisfaction that is related to bullying experiences. Furthermore, the use of self-report data ensures inclusion of the child's individual perception of the family, thus melding both the

individual and family aspects of young adolescents' lives and behaviors, as well as enhancing understanding of bullying experiences and related difficulties.

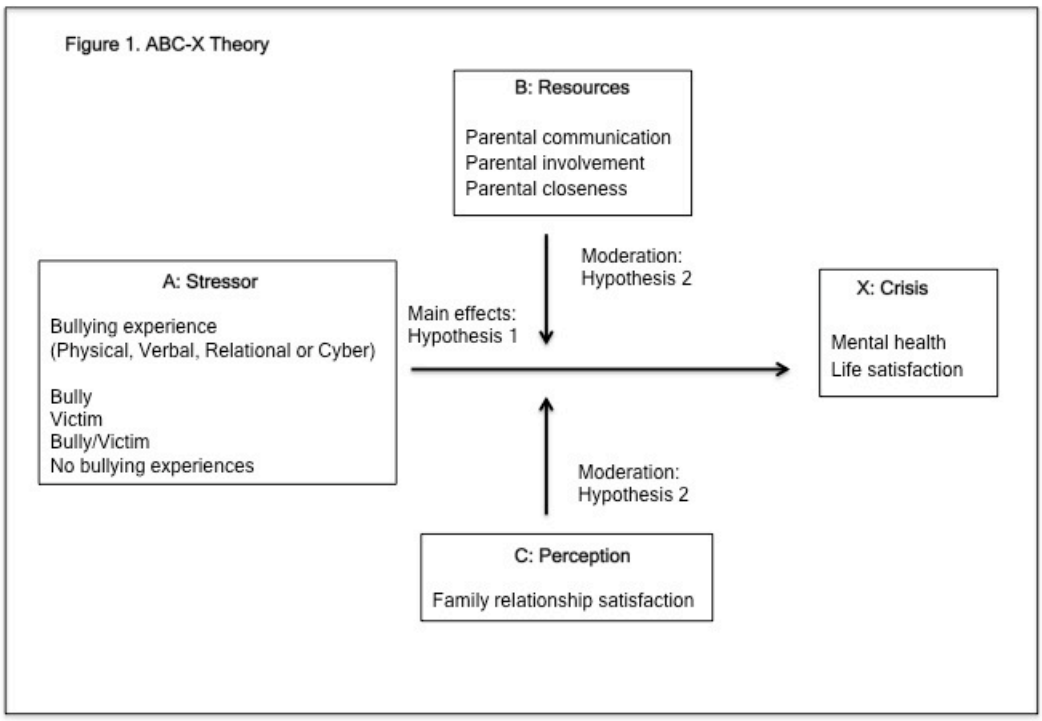
**Family-Stress Theory (ABC-X).** ABC-X theory was first conceptualized by Dr. Reuben Hill as an explanation for some families' abilities, and other families' inabilities, to survive tragic and difficult times; specifically the Great Depression.. Hill noted that there are some common elements that resilient families maintained, which helped them move forward despite the significant stressors with which they were faced (McDonald, Center for Effective Collaboration and Practice, n.d.). Broken down in to its core components, each element of the ABC-X model is described below:

***"A" Initial stressor.*** The "A" in the model is the initial stressor or life event with which a family is attempting to cope. The example of Hill's work highlights the Great Depression as the "A" factor or stressful life event. In the present study, the "A" is the child's experiences with bullying - as a victim, bully or a bully/victim. The stressful situation in the present study also includes all four bullying types considered in this study; physical, verbal, relational and cyber.

***"B" Family resources.*** The "B" in the ABC-X theory is representative of the resources that a family maintains to help them through the stress of the "A" situation. In this case, the resources considered are qualities of the family relationships and include parental involvement, closeness and communication. It should be noted that via factor analysis, a "Quality of Family Relationships" index, based on these elements of parent/child relationships may be created, as further detailed in the "Analysis" section of this document.

***"C" Perception of resources.*** The other aspect of family resiliency recognized by Hill in his conceptualization of the ABC-X model, was the actual perception of the family of their ability to overcome difficult circumstances (McDonald, Center for Effective Collaboration and Practice, n.d.). Despite the presence of a potential multitude of resources, if family members do not recognize family strengths or believe in their ability to overcome the initial stressor, then the resources may not be as utilized to the fullest extent. In the present study, family relationship satisfaction is used as a measure of the child's perception of the family as a resource that offers strong support and assistance through difficult times.

***"X" Outcomes.*** Hill's research on families who survived the Great Depression ("A") and those who did not, focused on the presence or absence of appropriate resources ("B"), the ability of the family to recognize the resources as a strength ("C") and the outcomes of these factors ("X") (McDonald, Center for Effective Collaboration and Practice, n.d.). The "X" is the ultimate "crisis" under consideration. Theoretically, despite the presence of "A", if "B" is sufficiently abundant and the family interprets the resources as such ("C"), then "X" does not occur; there is no ultimate family crisis. If however, "B" is not present; there are not sufficient resources to which the family can turn and/or the family does not recognize its strengths as such or does not interpret supports as useful ("C") then a crisis, or "X" does indeed occur. In the present study, this crisis or "X" is the manifestation of mental health problems and the overall life satisfaction within the children with bullying experiences. A visual depiction of the theory and corresponding concepts that will be used in the present study is provided in Figure 1.




In summary, in the present study, children who identify as experiencing physical, verbal relational or cyber bullying behaviors, as a victim, bully or bully/victim, experience different levels of family resources - parental involvement, closeness and communication. The quality and availability of these resources in addition to their interpretation of these resources, as indicated by their family relationship satisfaction, will influence their overall mental health and life satisfaction.

**Hypotheses**

This study aims to determine if family factors moderate the relationship between bullying and children's mental health/life satisfaction. It is hypothesized that children experiencing bullying from any role, as victims, bullies, or bully/victims of physical, verbal, relational or cyber bullying, would suffer poorer mental health and lower life

satisfaction than children who were not experiencing the same form of bullying. Additionally, based on the ABC-X theory, family relationships were thought to moderate the lower reported mental health and life satisfaction scores related to bullying experiences. It is proposed that parental communication, parental closeness, parental involvement, and family relationship satisfaction worked in line with the ABC-X theory to moderate the relationship between physical bullying experiences and children's mental health or life satisfaction. Physical, verbal, relational and cyber bullying were all considered separately. Specifically, the hypotheses tested in this study are:

1. Children who report bullying experiences in each of the four bullying categories separately (physical, verbal, relational and cyber), will also report poorer mental health and lower life satisfaction than children who report that they have not had any bullying experiences in that category.

    a. Children who report bullying victimization, in each of the four categories individually, will also report poorer mental health and/or life satisfaction compared to children who report no bullying experiences in corresponding categories.

    b. Children who report bullying perpetration, in each of the four categories individually, will also report poorer mental health and/or life satisfaction compared to children who report no bullying experiences in corresponding categories.

    c. Children who report bullying perpetration/bullying victimization, in each of the four categories individually, will also report poorer mental health and/or life satisfaction compared to children who report no bullying experiences in corresponding categories.

The relationship between bullying experiences and both mental health, and life satisfaction will be tested separately for physical, verbal, relational and cyber bullying.

2. The relationships between bullying experiences and reported mental health and life satisfaction, will be moderated by resources found in family relationships, such that the relationship will be weaker for children with high levels of family resources, than for those with low levels.

a. Higher reported levels of parent-child communication will be more beneficial to children with bullying experiences, in each individual category, in terms of mental health and/or life satisfaction, than to children with no bullying experiences in that category.

b. Higher reported levels of parental involvement in their children's lives will be will be more beneficial to children with bullying experiences, in each individual category, in terms of mental health and/or life satisfaction, than to children with no bullying experiences in the tested category.

c. Higher reported levels of parental closeness with the children will be more beneficial to children with bullying experiences, in each individual category, in terms of mental health and/or life satisfaction, than to children with no bullying experiences in the tested category.

d. Higher reported levels of family relationship satisfaction will be more beneficial to children with bullying experiences, in each individual category, in terms of mental health and/or life satisfaction, than to children with no bullying experiences in the tested category.

The moderating effect of family factors on mental health and life satisfaction in the presence of bullying experiences will be tested individually for four types of bullying - physical, verbal, relational and cyber.

# Chapter 3: Methodology

The purpose of this study was to determine family factors that may moderate the relationship between bullying experiences and the mental health and life satisfaction of youth. The study used previously collected data from the U.S. sample of the International Health Behavior of School Aged Children (HBSC) 2005/2006 survey. Survey results are available via a public use dataset. Access to the data is controlled by one person assigned in each country to oversee data usage. Permission to use the HBSC 2005/2006 U.S. data for the present study was granted by Dr. Ron Iannotti of the National Institutes of Child and Human Development (NICHD).

**Materials and Procedures**

Over time, a growing focus on the "determinants of adolescent health" has developed. The HBSC serves to provide insight in to adolescent health and health behaviors. Decisions regarding topics of interest for the HBSC occur via a collaborative effort involving an international research team. Together, members "collaborate to develop the conceptual underpinnings of the study, identify research questions, decide the methods and measurements to be employed and work on data analyses and the dissemination of findings" (WHO, 2008, p.6). Questionnaires are created in English and translated as necessary. Research procedure is disseminated with surveys for each country (WHO, 2008).

The most recent, publicly available HBSC survey includes questions covering a wide variety of topics, in addition to bullying. Appendix A contains a comprehensive list of HBSC 2005/2006 topics and measures of adolescent health, as well as indicators of the family and peer context in which these behaviors and experiences occur.

Questions for each survey cycle are piloted and pre-tested both nationally and internationally before the survey is widely disseminated. All countries' questionnaires include items that are mandatory for all participating nations. Additional, nation-specific items may be added to survey questionnaires as well (WHO, 2008).

HBSC data are self-report; gathered from students while they are in school, in their classrooms (HBSC, 2002). "Administration of the questionnaire in schools is conducted according to standard guidelines from the survey protocol. It is carried out by school teachers in some countries and by professional fieldworkers or members of school health teams in others" (WHO, 2008, p. 12). The U.S. HBSC 2005/2006 data was collected in schools from January through May 2006 (WHO, 2008).

Data are centralized via submission to the "HBSC Data Bank at the University of Bergen, Norway. They are then cleaned and compiled into an international data file by the Norwegian Social Science Data Services (NSD) under the guidance of the study's Data Bank Manager." (HBSC, 2002). Collected data are translated back in to English (WHO, 2008). Data are then merged into files that are dispersed to principal investigators for each participating country. Permission to use data externally is only granted three years following the survey cycle and the release of the cleaned datasets (HBSC, 2002).

For the U.S. sample, census-based divisions were used to create "Primary Sampling Units" (PSUs) within different regions throughout the United States. Consideration of rural and urban schools occurred, as well as differentiation of PSUs based on school size. Overall, "[t]he total sample of 100 PSUs was allocated to each Census division in proportion to the total enrollment in the Census division" (R. J. Iannotti, personal communication a., November 3, 2010, p.2). The process of school

selection was randomized and occurred in stages. "The three stages were school districts, schools and school classes. Stratification was conducted by nine strata of census regions and three strata of grades within each census region" (Wang et al., 2009, p. 369). In total, 230 schools across the United States participated in the HBSC 2005/2006 U.S. survey.

**Sample**

The Health Behavior of School Aged Children (HBSC) study, which occurs in collaboration with the European division of the World Health Organization, is conducted internationally, every four years (HBSC, 2002). The most recently published HBSC data, at the time of the initiation of this study, the 2005/2006 data, includes information culled from children in 41 different, mainly European, countries (HBSC, n.d.).

Students who complete the HBSC survey are primarily 11-, 13-, and 15- years old. These age groups are surveyed specifically because they are facing challenging, yet important points in their lives; they typically remain firmly planted in a family context, yet are experiencing growth in their autonomy and making more independent decisions and choices in their behaviors and lifestyles. An average of 1,500 students from each of the three age groups completes the survey in each country. As such, a total of 4,500 student participants' responses are typically recorded for each participating country in each round of HBSC data collection. HBSC student participants are believed to be a "nationally representative sample" of children from each participating country. However, the 2005/2006 U.S. dataset is an exception as it includes a larger sample because of an intentional effort to oversample minority populations (HBSC, 2002). The additional sample of nearly 5,400 minority students required a sample of 200 classes. Additionally, some schools were designated for sampling from a specific grade, such as 6th grade,

which included shorter questionnaires for some students (R. J. Iannotti, personal communication a., November 3, 2010).

**U.S. Dataset.** The 2005/2006 U.S. dataset is unique from that of other countries in a number of ways. First of all, the total sample size is in fact quite large - in full, it contains data from 9,227 students. The unusually large sample, however, includes students who did not all have the same version of the HBSC questionnaire. The survey for the 6th grade students was determined to be a bit long, based on feedback from pilot testing. As such, certain extended questioning sections, such as the section on bullying, were not included in the questionnaire distributed to all sixth grade students. Therefore, although over 9,000 students participated in the U.S. HBSC 2005/2006 survey data collection effort, only 7,508 students provided responses to questions regarding bullying (R. J. Iannotti, personal communication b., November 3, 2010).

"The U.S. surveys also includes larger, nationally representative samples of ages 11 through 15 with an over-sampling of African-American and Hispanic children" (Assistant Secretary for Planning and Evaluation, [ASPE], n. d.). Overall, "[t]he target population for the HBSC is all students in public, private and catholic schools in the 50 states and the District of Columbia" (R. J. Iannotti, personal communication a., November 3, 2010, p.1). Initially, no oversampling occurred in the first round of sample selection. The second round included an additional sample of minority students, specifically African American and Hispanic (R. J. Iannotti, personal communication a., November 3, 2010).

## Measures

The HBSC 2005/2006 dataset of information collected from U.S. school children includes a total of 24 topic areas. A variety of scales and measures comprise the survey data. For the purposes of the present study, questions regarding different types of involvement in bullying, different types of bullying behaviors, mental health, life satisfaction, and parental communication, parental involvement, parental closeness, and family relationship satisfaction were directly considered in analyses. However, once the factor analysis of family variables was conducted (see description below) one family variable was dropped from analyses. The precise questions and response options for each topic considered for inclusion are detailed below.

**Control variables – Demographic characteristics.** As previously noted, a variety of factors, such as gender, socio-economic status, race, ethnicity, and age, may play a role in bullying involvement. For the purposes of this study, which is focused on family factors moderating bullying experiences, rather than demographic factors related to bullying experiences, a number of these factors were entered as control variables for the analyses.

***Gender measure.*** Children are asked simply, "Are you a boy [1] or girl [2]?" (HBSC, 2005, p. 2). They then choose one option.

***Grade.*** Although questions regarding the birth date of children taking the survey are provided, determining the exact date of survey completion is difficult, thus complicating the derivation of the child's age category. As such, the grade that the child is in was held constant. This data is found in the questions, "What grade are you in?" and

is coded as “Sixth [1], Seventh [2], Eighth [3], Ninth [4], and Tenth [5]” (HBSC, 2005, p. 2).

***Race and ethnicity measures.*** One question in the HBSC 2005/2006 U.S. survey is dedicated to ethnicity, with a focus on Latino or Hispanic origin. The survey asks children, “What do you consider your ethnicity to be?” (HBSC, 2005, p. 2). Children choose between, “Hispanic or Latino” or “Not Hispanic or Latino” (HBSC, 2005, p. 2).

Race is measured by the following question: “What do you consider your race to be? (*Mark all that apply*)” (HBSC, 2005, p. 1) . Children may choose from, “Black or African American, White, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Other [write in]” (HBSC, 2005, p. 1).

Race and ethnicity are complex variables because of the two different questions that are used to determine race and ethnicity, and the option for students to write in responses, as well as the option for them to mark numerous options. As such, race/ethnicity categories were created to ease the interpretation of data. Students that reported that they were African American for race, regardless of any other chosen race or ethnicity as well, were designated to be African American. Children who identified as Hispanic on the ethnicity question, regardless of identified race (with the exception of African American), were designated to be Hispanic. Children who marked only White were considered White if they chose no other race. All other children were considered “Other,” whether they marked Asian, American Indian, Alaska Native, Native Hawaiian, Other Pacifica Islander, Other, or a combination of races that did not include African American as a race or Hispanic as an ethnicity.

***Family Affluence Scale (FAS), socio-economic status measure.*** Four questions comprise the FAS, which has been proven as an appropriate method of determining a child's family's affluence (Boyce, et al., 2006) and is a scale developed especially for the HBSC (Wang et al., 2009). FAS questions are regarding computer ownership, "How many computers does you family own?" (HBSC, 2005, p. 3) to which children respond either: "None [1], One [2], Two [3], or More than two [4]"; (HBSC, 2005, p. 3). Children are also asked about personal space in the home, "Do you have your own bedroom for yourself?" (HBSC, 2005, p. 3). To which children respond with a yes - scored as 2, or no - scored as 1. Vehicle ownership is also assessed - "Does your family own a car, van or truck?" (HBSC, 2005, p. 3) to which children respond, "No [1], Yes, one [2], Yes, two or more [3]" (HBSC, 2005, p. 3). Finally, the frequency of family vacations is assessed, "During the past 12 months, how many times did you travel away on vacation with your family (HBSC, 2005, p. 3) to which children choose, "Not at all [1], Once [2], Twice[3], More than twice [4]". (HBSC, 2005, p. 3). As such, family affluence ranged from 4 indicating the lowest possible level of family affluence to 13, indicating the highest level of family affluence. Based on precedent set in prior studies (Wang et al., 2009) FAS responses were summed and then standardaized via means centering and division by the standard deviation of the collected data.

***U.S. Sample control variable specifics.*** A breakdown of the HBSC 2005/2006 U.S. sample, including gender, grade, and race/ethnicity is provided in Table 1.

Table 1

*Gender, Grade and Race of the HBSC 2005/2006 U.S. Sample*

| Gender | | Grade | | Race/Ethnicity | |
|---|---|---|---|---|---|
| Male | 4,456 | 6th[a] | 2,404 | Caucasian | 3,806 |
| Female | 4,742 | 7th | 1,880 | Black | 2,017 |
| | | 8th | 1,830 | Hispanic | 2,146 |
| | | 9th | 1,486 | Other | 1,189 |
| | | 10th | 1,627 | | |

[a]Not all 6th grade participants received the bullying questions in the HBSC 2005/2006 Survey.

Additionally, based on composite FAS scores that break samples in to groups of low, medium, and high affluence, as cited by Currie et al. (2008), 13% of the U.S. sample appeared to be of a lower socioeconomic status, 37% were identified as maintaining mid-level affluence, and 50% of the U.S. sample appeared to be part of families with higher levels of affluence.

**Independent variables – Bullying experiences.** Questions regarding bullying experiences are prefaced with the following definition of bullying, which emphasizes the distinct inclusion of power or control in behaviors, to delineate between students fighting - in which equal power is displayed, and children bullying - in which an unequal display of power is displayed:

> Here are some questions about bullying. We say a student is BEING BULLIED when another student, or a group of students say or do nasty and unpleasant things to him or her. It is also bullying when a student is teased repeatedly in a way he or she does not like or when he or she is deliberately left out of things. But it is NOT BULLYING when two students of about the same strength or power argue or

fight. It is also not bullying when a student is teased in a friendly or playful way. (HBSC, 2005, p. 9)

***Victim experience and type of victimization experienced.*** Types of bullying victimization were determined by responses to the question, "How often have you been bullied at school in the past couple of months in the ways listed below?" (HBSC, 2005, p.10). The following bullying behavior relevant to physical victimization is then listed.

"... I was hit, kicked, pushed, shoved around, or locked indoors. " (HBSC, 2005, p. 10)

For verbal victimization, the following items are listed:

"I was called mean names, was made fun of, or teased in a hurtful way...

I was bullied with mean names and comments about my race or color.

I was bullied with mean names and comments about my religion.

Other students made sexual jokes, comments, or gestures to me." (HBSC, 2005, p. 10)

For relational victimization, the following items are listed:

"...Other students left me out of things on purpose, excluded me from their group of friends, or completely ignored me...

Other students told lies or spread false rumors about me and tried to make others dislike me." (HBSC, 2005, p. 10)

Finally, for cyber victimization, the following items are listed:

" ...I was bullied using a computer or e-mail messages or pictures.

I was bullied using a cell phone" (HBSC, 2005, p. 10)

After each behavior, students mark the frequency with which it occurred. "I have not been bullied in this way in the past couple of months [1], Only once or twice [2], 2 or

3 times a month [3], About once a week [4], Several times a week [5]" (HBSC, 2005, p.10).

For physical victimization scores ranged from 1-5; for verbal victimization, scores ranged from 4-20; for relational victimization, scores ranged from 2-10; and for cyber victimization scores ranged from 2-10.

***Bullying perpetration and type of bullying perpetrated.*** Types of bullying behaviors were determined by responses to the question, "How often have you bullied another student(s) at school in the past couple of months in the ways listed below?" (HBSC, 2005, p. 10). The following bullying behavior relevant to physical bullying is then listed.

"... I hit, kicked, pushed, shoved around, or locked another student(s) indoors." (HBSC, 2005, p. 10)

For verbal bullying, the following items are listed:

"I called another student(s) mean names, and made fun of, or teased him or her in a hurtful way...

I bullied another student(s) with mean names and comments about his or her race or color.

I bullied another student(s) with mean names and comments about his or her religion.

I made sexual jokes, comments, or gestures to another student(s)." (HBSC, 2005, p. 10)

For relational bullying, the following items are listed:

"...I kept another student(s) out of things on purpose, excluded him or her from my group of friends, or completely ignored him or her...

I spread false rumors about another student(s) and tried to make others dislike him or her." (HBSC, 2005, p. 10)

Finally, for cyber bullying, the following items are listed

"I...bullied using a computer or e-mail messages or pictures.

I bullied another student(s) using a cell phone" (HBSC, 2005, p. 10)

After each behavior, students mark the frequency with which it occurred. "I have not bullied another student in this way in the past couple of months [1], Only once or twice [2], 2 or 3 times a month [3], About once a week, [4] Several times a week [5]" (HBSC, 2005, p. 10).

Scores for each type of bullying vary based on the number of items for that type of bullying. Therefore, possible scores are as follows: physical bullying, scores ranged from 1-5; verbal bullying, scores ranged from 4-20; relational bullying, scores ranged from 2-10; and cyber bullying scores ranged from 2-10.

***Bully/victim experience.*** The HBSC 2005/2006 U.S. data do not maintain questions specific to the bully/victim experience. Rather, children report their experiences of bullying perpetration and victimization separately, by category, as previously detailed. Because bullying and victimization experiences were considered individually for each type of bullying or victimization (physical, verbal, relational or cyber), bully/victim experiences were considered by types of bullying/victimization experienced as well. Cross-categories of bully/victimization (e.g cyber bully but physical victim) were not considered because it would further complicate analyses.

The creation of the bully/victim variable will be detailed in the section explaining the creation of the categorical bullying experience variable. Ultimately, an equation was

devised, which is explained below, that allowed for children to fall in to one of four categories (No Experience, Victim, Bully, or Bully/Victim) for each of the four types of bullying considered.

***Creation of categorical bullying experience variable.*** Operationalizing bullying experience was met with two challenges, the first being the distribution of the sample. Initially, bullying experience was conceptualized as a continuous variable. However, a preliminary examination of the distribution of scores revealed that the sample is not evenly distributed in terms of children's experiences with bullying victimization or perpetration. A very small number of children reported encountering each type of bullying experience with great frequency. For example, no experience of physical bullying victimization in the past two months was reported by over 85% of the sample, about 10% had experienced a few incidents in the past couple of months, and just over 4% had experienced physical bullying victimization on a weekly basis. Similarly, no experience of physical bullying perpetration in the past two months was reported by over 85% of the sample as well. About 11% had perpetrated a few incidents in the past couple of months, and under 4% had perpetrated physical bullying victimization on a weekly basis. It was thus recognized that the number of students who are frequently victims or frequently perpetrators was relatively small, given the sample size.

Furthermore, bully/victim experience is not a category specifically designated within the HBSC 2005/2006 data. Creation of the variable, based on responses to bullying victimization and bullying perpetration reports was thus warranted. Creating the bully/victim variable from a continuous variable of victimization or perpetration experiences would have resulted in a variable that was difficult to interpret, since ranges

of experience for two different variables would be merged. For example, a score of 4 could have been obtained by having a score of 2 on both victimization and perpetration, a score of 1 on victimization and 3 on perpetration, or a score of 3 on victimization and 1 on perpetration.

In light of the uneven distribution of experiences and the need to create a bully/victim variable that was appropriately interpretable, it was determined that bullying experiences would be best represented as a categorical variable. Thus, the creation of the four categories - No Experience (referent group), Victim, Bully, or Bully/Victim, for each of the four types of bullying was considered.

***Coding bullying experience.*** The creation of the bullying experience variable first warranted dichotomization of each experience:

- Not a victim of X type of bullying (0) / Victim of X type of bullying (1)
- Not a perpetrator of X type of bullying (0) / Perpetrator of X type of bullying (1)

An equation was then used to create the categorical bullying experience variable for each type of bullying; physical, verbal, relational or cyber. This equation was used separately for each type of bullying examined in this study. Experiences were coded by multiplying bullying perpetration experiences times two and summing the result with victimization experiences: [Victimization experience for type X + 2(Bullying perpetration experience for type X)] = Overall bullying experience for type X. Using physical bullying experience as an example, a child who was not a physical bullying perpetrator was coded as 0, as previously detailed. The same child who was not a victim of physical bullying was coded as 0 as well. This child's resulting score, using the above equation equals 0: {Victimization experience for physical bullying [0] + 2(Bullying

perpetration experience for physical bullying [0])} = 0, overall bullying experience for physical bullying. These children thus serve as the reference category.

For a child who has had some experience as a physical bullying victim, but no experience as a physical bullying perpetrator, the equation is as follows: {Victimization experience for physical bullying [1] + 2(Bullying perpetration experience for physical bullying [0])} = 1, overall bullying experience for physical bullying. These children were identified as physical bullying victims.

For a child who has had some experience as a physical bullying perpetrator, but no experience as a physical bullying victim, the equation is as follows: {Victimization experience for physical bullying [0] + 2(Bullying perpetration experience for physical bullying) [1]}= 2, overall bullying experience for physical bullying. These children were identified as physical bullying perpetrators.

Finally, for a child who has had some experience as a physical bullying perpetrator, and also experience as a physical bullying victim, the equation is as follows: {Victimization experience for physical bullying [1] + 2(Bullying perpetration experience for physical bullying [1]) = 3, overall bullying experience for physical bullying. These children were identified as physical bully/victims.

**Dependent variables - mental health and life satisfaction.** A variety of mental health symptoms are measured in the HBSC 2005/2006 U.S. survey. The combination of these symptoms composed the variable "mental health." Also, life satisfaction is measured in the HBSC 2005/2006 U.S. survey with a simple scale.

***Mental health measure.*** Children are asked about the frequency with which they had certain feelings or experiences: "Think about how you have been feeling over the last

30 days. Mark the number that goes with how often you have felt or done each of these" (HBSC, 2005, p. 7).

"Were you very sad?

Were you grouchy or irritable, or in a bad mood?

Did you feel hopeless about the future?

Did you feel like not eating or eating more than usual?

Did you sleep a lot more or a lot less than usual?

Did you have difficulty concentrating on your school work?" (HBSC, 2005, p. 7).

The following options for frequency of each of these symptoms are offered: "Always[1], Often [2], Sometimes [3], Seldom [4], Never [5]" (HBSC, 2005, p. 7).

Frequency scores for each question regarding mental health were summed resulting in a range of mental health scores from 6 (poorest mental health) to 30 (optimal mental health). This variable is continuous in nature.

***Life satisfaction.*** As a measure of life satisfaction, children completing the HBSC 2005/2006 U.S. survey responded to the following survey item,; "Here is a picture of a ladder. The top of the ladder '10' is the best life for you and the bottom '0' is the worst possible life for you. In general, where do you feel you stand at the moment?" (HBSC, 2005, p. 2).

Life satisfaction was operationalized on a continuous scale with 0 representing the lowest level of life satisfaction and 10 representing the highest level of life satisfaction.

**Moderator variables – Quality of family relationships.** A number of family issues are measured in the HBSC 2005/2006 U.S. dataset, including ease of parental

communication, parental closeness, and parental involvement, and family relationship satisfaction.

***Parental communication measure.*** As a measure of parental communication, children are asked: "How easy is it for you to talk to the following persons about things that really bother you?" (HBSC, 2005, p. 8). Note that questions regarding mother and father communication are separate. As such, two scores are recorded for each child. The choices given for each listed family member are: "Don't have or see this person [5], Very difficult [4], Difficult [3], Easy [2], Very easy [1]" (HBSC, 2005, p. 8). Parental communication was treated as a continuous variable in the present study. However, the scoring of "Don't have or see this person" as a 5, as well as the initial direction of the coding leads to complicated interpretation of this category when it is considered on a continuous scale. This is because on a continuous scale, the highest score (5) does not indicate the highest level of communication, but instead indicate that this person is not active in the child's life. In the recoded scoring scheme, initial responses of 5 were coded as missing. Due to the relatively large size of the dataset, the coding of these responses as missing was considered a small sacrifice in relation to the potential misinterpretation of results if these cases were considered in the model. Other responses were reverse coded so that higher scores indicate better communication. Thus, the coding scheme in the present study is as follows: "Don't have or see this person [missing], Very difficult [1], Difficult [2], Easy [3], Very easy [4]."

The separation of questions regarding parents in to two distinct questions resulted in challenges in interpretation and calculation because other family variables, such as parental closeness and family relationship satisfaction, were not separated by parent. As

such, one parental communication score was devised. Mere summing of results would not be adequate for a variable considered on a continuous scale, because children with responses for both parents would possibly have higher scores than children with responses for one parent, although their communication may have, in fact, been poorer. Thus, for children with responses of 1-4 for both parents, scores were summed and divided by 2. Child with a score of "missing" for one parent and a score of 1-4 for the other parent maintained only the score for the parent for whom a 1-4 response was provided. Children with both parents reported as missing were not considered in this study because they did not have a complete set of data on the set of family variables. Children with the lowest interpretable score of 1 were considered those with the poorest parental communication, and those with the highest interpretable score of 4 were considered those with the best parental communication.

Although siblings, and friends are included in the family members listed in this survey item, for the purposes of the present study, only responses regarding parents were included in analyses. Furthermore, it is important to note that questions regarding step-parent communication are present in the survey as well, but were not included in analyses. The decision to not include step-parents was made after careful and thorough deliberation. Although it was recognized that step-parents play an important role in children's lives, wording on other included family variables did not distinguish between parents and step-parents. For example, as described below, the parental involvement variable includes either the father or male guardian of the child, as well as either the mother or female guardian of the child in its question set. Also, the parental closeness questions are based on responses regarding the child's "parent/guardian." As such,

responses regarding parents and responses regarding step-parents are grouped together in these other family variables. Moreover, the family relationship satisfaction variable measures only family relationship satisfaction as a whole. Distinguishing between parents and step-parents in only one family variable would result in difficulty interpreting findings. Finally, calculation of the parental communication score would have been further complicated by including step-parents in the present study. Children would have been reporting information for anywhere from 0-4 parents, which would have rendered calculation and interpretation of responses, in relation to the other variables, far too complex. For ease of interpretation, the decision was made to include only parental communication in the present study.

***Parental involvement measure.*** Maternal (or female guardian's) and paternal (or male guardian's) involvement are measured separately but with shared questions and options. The only difference is the subject of the question. As a measure of parental involvement, the HBSC 2005/2006 U.S. survey asks children, "How much does your mother or female guardian (father or male guardian) really know about...." "Who your friends are, How you spend your money, Where you are after school, Where you go at night, What you do with your free time" (HBSC, 2005,, p. 8). Children may choose one of the following options for each item: "Don't have/see mother/guardian [father/guardian] [4], S[/]he doesn't know anything [3], S[/]he knows a little [2], S[h]e knows a lot [1]" (HBSC, 2005, p. 8).

Parental involvement was treated as a continuous variable in the present study. However, the scoring of "Don't have or see this person" as a 4, as well as the initial

direction of the coding leads to complicated interpretation of this category when it is considered on a continuous scale.

In the recoded scoring scheme, initial responses of 4 were coded as missing, eliminating consideration of the parent for those cases in which a child provided a response of indicating that they do not have or see that parent, while also eliminating ambiguity in interpretation in that case. Due to the relatively large size of the dataset, the coding of these responses as missing was considered a small sacrifice in relation to the potential misinterpretation of results if these cases were considered in the model. Other responses were reverse coded so that higher scores indicate more parental involvement. Thus, the coding scheme in the present study is as follows: "Don't have or see this person [missing], S/he doesn't know anything [1], S/he knows a little [2], S/he knows a lot [3]."

The separation of questions regarding parents in to two distinct questions resulted in challenges in interpretation and calculation because other family variables, such as parental closeness and family relationship satisfaction, are not separated by parent. As such, one parental involvement score was devised. Similar to the situation explained in the parental communication section, mere summing of results would not be adequate, since some respondents had two parents and some had one. It was thus decided that children with responses of 1-3 on all questions for both parents would have their scores summed and divided by 2. A child with a score of "missing" for one parent and a score of 1-3 for the other parent maintained only the score for the parent for whom a 1-3 response was provided on the involvement questions.

Although similar solutions to the problems of separate parental questions and parents who are not seen or not present were implemented for both parental involvement

and parental communication, parental involvement posed an additional set of challenges. Parental communication was measured with only one question, as such, inconsistent reporting of parental presence was not a problem. Parental involvement, however, as described above, was measured with five questions for mothers and five questions for fathers. As a result, there were some cases in which children skipped one question on the scale, which was coded as missing data, or responded that the parent was not present or not seen for at least one of the five questions, but went on to provide responses for at least one other question regarding that parent. This posed a challenge - how should these scores be interpreted if a child either skips a question and is thus labeled as having missing data, or if a child has missing data for at least one questions on the scale, but provides responses for other questions on the scale? Children were found to fit in to one of nine categories and all options were accounted for in analyses as either missing or included and adjusted for appropriately.

Overall, children with both parents reported as missing were not considered in this study because they did not have a complete set of data on the set of family variables. Given the relatively large sample size, it was determined that it data was missing or if a question was skipped for any of the five items, then the responses would be coded as missing, rather than the common practice of inserting a mean as a placeholder for the skipped question or missing data. Children with the lowest interpretable score of 5 for one parent were considered those with the poorest parental involvement, while those with the highest interpretable score of 15 for one parent were considered those with the best parental involvement. Children with responses for both parents had scores divided by 2

so that they were interpretable on the same scale as children who provided responses for only one parent.

***Parental closeness measure.*** Children's relationships with their parents are measured by a question listing out a variety of behaviors with choices regarding the frequency of their occurrence. Specifically, children respond to the following, "My parent/guardian, Helps me as much as I need, Lets me do the things I like doing, Is loving, Understands my problems and worries, Like me to make my own decisions, Tries to control everything I do, Treats me like a baby, Makes me feel better when I am upset" (Currie et al., 2008, p. 8). Three choices for frequency are offered, "Almost always [1] , Sometimes [2], Almost never [3]" (HBSC, 2005, p. 8).

Parental closeness was measured on a continuous scale. Items were reverse coded so that higher scores indicated greater parental closeness. Note that the items, "Tries to control everything I do" and "Treats me like a baby" were not reverse coded, as they are negative experiences rather than positive experiences of closeness. Thus, the coding scheme for the present study was "Almost always [3], Sometimes [2], Almost never [1]" for all but the two questions regarding negative experiences, for which the original coding scheme was maintained. After appropriate items were reverse coded, a measure of parental closeness was constructed, by summing responses. Scores ultimately range from 8-24.

***Family relationship satisfaction.*** Finally, students are asked to rate on a simple scale of 0 ("We have very bad relationships in our family" to 10 ("We have very good relationships in our family") (HBSC, 2005, p. 8), their degree of family relationship

satisfaction, based on the following question, " In general how satisfied are you with the relationships in your family?" (HBSC, 2005, p. 8).

Family relationship satisfaction was operationalized on a continuous scale; those with the lowest score on this question (0) were deemed those with the lowest level of family relationship satisfaction while with the highest score (10) were deemed those with the highest level of family relationship satisfaction.

As a result of missing values on several of the parent variables and because of missing data elsewhere, the sample size for the various models used in analyses varied. The largest sample was 6,975 and the smallest was 6,840. The total sample of children with responses to bullying questions was 7,508; thus the range of missing data was 7%-9%, of the total sample.

**Preliminary Analysis**

**Determination of moderator variables**. Moderator variables in the present study are all based on family characteristics. It was suspected, however, that three specific characteristics; parental communication, parental involvement, and parental closeness with the child may be inter-related. For example, parents who maintain high levels of communication with their children may also be highly involved with, and maintain relatively close relationships with their children. While family relationship satisfaction may also be related to these three family characteristics; theoretically family relationship satisfaction must be retained in the final model, as it was the only variable representing the "C" in the ABC-X theory. That said, the three variables representing the "B" portion of the model (communication, involvement, closeness) were investigated further to determine if any of the three should be dropped or combined to avoid duplication or over-

representation in the analysis. As such, correlations and factor analyses were run on parental communication, involvement, and closeness to determine if they were indeed related and whether or not each measure provided any new information in the model.

Correlations (see Appendix B) revealed that parental closeness was most highly correlated with family relationship satisfaction (r =.602). Also, parental closeness and parental communication were highly correlated at .482. The lowest correlation was between parental involvement and parental communication,(r =.376). Decisions regarding the maintenance of family variables, however, were made on additional information garnered from a factor analysis.

A factor analysis was run (see Appendix C) with all questions comprising parental communication, parental involvement and parental closeness, using Varimax Rotation and Kaiser Normalization. Results indicated four factors with eigenvalues greater than one, which together explained 56.4% of the variance across all variables. The two strongest factors, which together accounted for 35.2% of the variance, are detailed.

The first factor on the rotated component matrix included questions on father communication and father involvement all loading at .49 or higher. Although this factor explained the most variance of the four, 17.9%, it was determined that this factor merely considered paternal relationships and was likely heavily influenced by absent fathers, in many cases. In other words, this factor was really an assessment of those who reported father data and those who did not. Thus, this factor was not considered in the process of collapsing family factors in to one variable.

The second factor accounted for 17.3% of variance, and included mother and father communication, with one question regarding maternal involvement, and all but two

questions regarding parental closeness, loading at the .41 level or higher. It is important to note that the two parental closeness questions that loaded at a lower level were worded differently from other questions, as they assessed negative parental behaviors. Further examination led to the assumption that these questions, despite reverse coding, were not loading with other questions in factor two, because of their negative wording. As such, it is believed that children completing the survey may not have recognized the altered wording and perhaps responded to them incorrectly. Overall, it appeared that factor two was composed of parental closeness and communication, but did not significantly draw from parental involvement.

The pattern of results from the correlations and factor analysis seemed to suggest that communication and closeness were tapping into the same dimension of family relationships. These two variables were highly correlated and loaded on the same factor. A decision was made, therefore, to drop one of the measures. It was determined that the parental closeness variable was adding the least amount of unique information to the model. It was the measure most highly correlated with family relationship satisfaction. Additionally, parental involvement and parental communication were the least highly correlated measures. Thus, they were determined to be less redundant than other variable combinations. As such, it was decided that parental involvement and parental communication would be retained in the model and parental closeness would not be included.

**Assessment of overlap in bullying experience.** In final analyses, children were divided into experiences (or lack thereof) of physical, verbal, relational and cyber bullying, separately. This does not mean, however, that children who experienced one

type of bullying did not experience another. In 2010, Wang, Iannotti, Luk, and Nansel conducted a study using the U.S. HBSC 2005/2006 data that focused specifically on co-occurrence of victimization experiences. The study found that three clusters of experiences can be identified in the data. The first cluster of children experienced all five subtypes of bullying that were identified by the authors; traditional, physical, verbal, exclusion and rumor. The second cluster were victims of mostly verbal and relational bullying. Finally, the third cluster experienced only minimal victimization, overall. Findings revealed that depression and nervousness, were greatest among the children in the first cluster, lowest for those in the last (Wang, Iannotti, Luk, & Nansel, 2010). Based on the recognition that children may experience numerous co-occuring forms of bullying, with varying related mental health problems, overlap in the data was explored, to provide context for analyses. Table 2 provides information on the percentage of children in this study who experience at least one other type of bullying, in addition to the one that was the primary focus of analysis in each model. Despite marked co-occurrence for many children in the dataset, it was ultimately decided that categories of experiences would remain separate in this study, to increase understanding of the role of families in moderating the effects of each type of bullying.

Table 2

*Percentage of Children with Bullying Experiences Across Bullying Types*

| Bullying Type | Victims[a] | Bullies[b] | Bully/Victims[c] |
|---|---|---|---|
| Physical | 71 | 61 | 85 |
| Relational | 52 | 62 | 67 |
| Verbal | 61 | 50 | 53 |
| Cyber | 70 | 72 | 93 |

[a] Percentage with at least one additional victimization type
[b] Percentage with at least one additional perpetration type
[c] Percentage with at least one additional bully/victimization type

# Chapter 4: Results

This study aimed to determine if family factors moderated the relationship between bullying and children's mental health/life satisfaction. It was hypothesized that children experiencing bullying from any role, as victims, bullies, or bully/victims of physical, verbal, relational or cyber bullying, would suffer poorer mental health and lower life satisfaction than children who did not have the same bullying experiences. Additionally, based on the ABC-X theory, family relationships were thought to moderate the lower reported mental health and life satisfaction scores related to bullying experiences. Analyses were run to determine if parental communication, parental involvement, and family relationship satisfaction worked in line with the ABC-X theory to moderate the relationship between bullying experiences and children's mental health or life satisfaction. Physical, verbal, relational and cyber bullying were all considered separately. Specifically, the hypotheses tested in this study were:

1. Children who report bullying experiences in each of the four bullying categories separately (physical, verbal, relational and cyber), will also report poorer mental health and lower life satisfaction than children who report that they have not had any bullying experiences in that category.

    a. Children who report bullying victimization, in each of the four categories individually, will also report poorer mental health and/or life satisfaction compared to children who report no bullying experiences in corresponding categories.

    b. Children who report bullying perpetration, in each of the four categories individually, will also report poorer mental health and/or life satisfaction compared to children who report no bullying experiences in corresponding categories.

c. Children who report bullying perpetration/bullying victimization, in each of the four categories individually, will also report poorer mental health and/or life satisfaction compared to children who report no bullying experiences in corresponding categories.

The relationship between bullying experiences and both mental health, and life satisfaction will be tested separately for physical, verbal, relational and cyber bullying.

2. The relationships between bullying experiences and reported mental health and life satisfaction, will be moderated by resources found in family relationships, such that the relationship will be weaker for children with high levels of family resources than for those with low levels.

a. Higher reported levels of parent-child communication will be more beneficial to children with bullying experiences, in each individual category, in terms of mental health and/or life satisfaction, than to children with no bullying experiences in that category.

b. Higher reported levels of parental involvement in their children's lives will be will be more beneficial to children with bullying experiences, in each individual category, in terms of mental health and/or life satisfaction, than to children with no bullying experiences in the tested category.[1]

c. Higher reported levels of family relationship satisfaction will be more beneficial to children with bullying experiences, in each individual category, in terms of mental health and/or life satisfaction, than to children with no bullying experiences in the tested category.

[1] The original hypothesis concerning closeness was dropped based on the preliminary analysis, which found variable overlap.

The moderating effect of family factors on mental health and life satisfaction in the presence of bullying experiences was tested individually for four types of bullying - physical, verbal, relational and cyber.

**Model Construction**

Hierarchical stepwise regression was used to test each of the hypotheses, to determine if family factors moderated the relationship between children's mental health and/or life satisfaction and their bullying experiences. A total of eight models are discussed. Each model was built in the following manner:

Step 1: The first step taken was to add all control variables, (Gender, Grade, FAS, and Race) to the model. Dummy coding was used for both gender and race.

Step 2: Bullying experiences were added to the model in Step 2. Physical bullying victimization, perpetration, and dual bully/victim experiences were all included with no bullying experiences in the tested category being the referent group. Bullying experience is the "A" in the ABC-X model; the stressor.

Note that different types of bullying experiences were tested in each of the eight models. For each of the four bullying type there are two models, one that tests the dependent variable of mental health and one that tests the dependent variable of life satisfaction. As such, physical bullying experiences related to mental health were tested in model 1 and physical bullying experiences related to life satisfaction were tested in model 2. Likewise, verbal bullying experiences related to mental health were tested in model 3, and verbal bullying experiences related to life satisfaction were tested in model 4. In model 5, relational bullying was examined in relation to mental health, and in model

6 in relation to life satisfaction. Finally, for models 7 and 8, cyber bullying is the bullying type analyzed, in relation to mental health and life satisfaction, respectively.

Step 3: In Step 3, family factors (parental involvement and parental communication) were added to the model. These family factors constitute the "B", resources, in the ABC-X model and are an important piece of the theory. The interaction of family factors and children's bullying experiences were hypothesized to moderate the relationship between bullying experiences and mental health, as well as life satisfaction, in this study.

Step 4: Step 4 was a pivotal step in each model as it is the step in which interaction terms were included. These interaction terms are the key to testing for moderation. Each interaction term is the product of different types of bullying experiences multiplied by a different family factor. For each model, six interaction terms were included in this step. Each type of bullying experience (victim, bully, and bully/victim) was multiplied by each of the two family factors separately. For example, the interaction terms for models 1 and 2 are as follows:

- Physical victim X parental communication
- Physical bully X parental communication
- Physical bully/victim X parental communication
- Physical victim X parental involvement
- Physical bully X parental involvement
- Physical bully/victim X parental involvement

In each model, the general approach to interaction terms remained the same, with only the bullying experiences changing.

If a significant interaction was found, the direction of the interaction was examined further via an examination of group means and the creation of a plot. In order to do this, score distributions for parental communication and parental involvement were examined, and high/low splits were created. The high and low group consisted of the top and bottom third of the respondents on each of the two variables. Two by two interaction tables were then generated to look at the group means on either mental health or life satisfaction. Plots were then generated, that visually demonstrated the means from the two by two table.

Step 5: Step 5 of the model is the step in which family relationship satisfaction was added. This variable served as the "C" in the ABC-X theory; the child's interpretation of "B", family resources. Family relationship satisfaction must also be included when considering whether or not family factors moderate children's mental health or life satisfaction in relation to their bullying experiences. As such, interaction terms for family relationship satisfaction were created as well.

Step 6: In step 6, the final set of interaction terms were added to the models. Similar to step 4, these interaction terms were the product of each type of bullying multiplied by the variable for which moderation is being tested, in this case, family relationship satisfaction. As such, three interaction terms are added at this step, into each of the models. For models 1 and 2, for example, the interaction terms are as follows:

- Physical victim X family relationship satisfaction
- Physical bully X family relationship satisfaction
- Physical bully/victim X family relationship satisfaction.

If a significant interaction was found, the direction of the interaction was explored further via an examination of group means and the creation of a plot. In order to do this, score distributions for family relationship satisfaction was examined, and high/low splits were created. Due to the distribution of the responses for the family relationship satisfaction variable, it was determined that the data were best divided into top and bottom quartiles, with the top and bottom quartile retained for interaction plots and means investigation. Two by two interaction tables were then generated to look at the group means on either mental health or life satisfaction. Plots were then generated, that visually demonstrated the means from the two by two table.

In summary, below is a list of the dependent variables and bullying types for each model. Control variables and family factors were included in all models:

Model 1: Mental health is regressed on physical bullying experiences (no experiences, physical victim, physical perpetrator, and physical bully/victim).

Model 2: Life satisfaction is regressed on physical bullying experiences (no experiences, physical victim, physical perpetrator, and physical bully/victim).

Model 3: Mental health is regressed on verbal bullying experiences (no experiences, verbal victim, verbal perpetrator, and verbal bully/victim).

Model 4: Life satisfaction is regressed on verbal bullying experiences (no experiences, verbal victim, verbal perpetrator, and verbal bully/victim).

Model 5: Mental health is regressed on relational bullying experiences (no experiences, relational victim, relational perpetrator, and relational bully/victim).

Model 6: Life satisfaction is regressed on relational bullying experiences (no experiences, relational victim, relational perpetrator, and relational bully /victim).

Model 7: Mental health is regressed on cyber bullying experiences (no experiences, cyber victim, cyber perpetrator, and cyber bully /victim).

Model 8: Life satisfaction is regressed on cyber bullying experiences (no experiences, cyber victim, cyber perpetrator, and cyber bully /victim).

It is important to note that moderator variables were mean centered to aid in interpretation of results. Note also that all reported findings are based on the model after all six steps had been added. Reporting the changes in the model as each step was added would be quite cumbersome. That said, standardized Beta coefficients for Steps 1-5 of each model are available in Appendix D.

**Findings**

**Model 1 - Physical bullying.** The dependent variable in Model 1 was mental health. Model 1 included the control variables (race, socio-economic status, gender, and grade*),* as well as physical bullying experiences. It also included the family factors of parental communication and parental involvement, as well as interaction terms with these variables. Additionally, it included family relationship satisfaction and relevant interaction terms. The complete model was significant $F(21, 6912) = 137.87$, $p \leq .001$ and accounted for 29% ($R^2 = .29$) of the variance in children's mental health. However, the test of the hypotheses for this study was not the overall model, but in the individual steps described below.

In Step 1 for Model 1, only control variables were in the analyses. The step was significant ($\Delta F = 91.96$, $p \leq .001$).

In Step 2 for Model 1, bullying experiences were added to the model. The step was significant ($\Delta F = 101.06$, $p \leq .001$). Furthermore, bullying experiences were

significant ($p \leq .001$) for all forms of bullying. Results for the individual forms of bullying experiences indicated a significant effect for being a bullying victim ($t = -8.21$, $p \leq .001$), a bullying perpetrator *(*$t = -6.89$, $p \leq .001$), and a bully/victim *(*$t = -8.77$, $p \leq .001$). As such, mental health is indeed poorer for children with physical bullying experiences of any type, as predicted in Hypothesis 1, which posits that children who report bullying experiences will also report poorer mental health than those who report no bullying experiences, (physical, in this model).

In Step 3 for Model 1, parental factors of communication and involvement were added. The step was significant, ($\Delta F = 546.76$, $p \leq .001$). An examination of the individual t test for each variable indicates that children with higher parental communication ($t = 9.38$, $p \leq .001$), and higher parental involvement ($t = 8.82$, $p \leq .001$), have better mental health than children with lower parental communication and involvement.

In Step 4 of Model 1, the interaction terms for each type of physical bullying experience and both parental communication and parental involvement (separately), were added to the model. The overall step was significant ($\Delta F = 3.10$, $p = .005$). However, few of the interaction terms were significant at the $p < .05$ level (see Table 5). The interaction between physical bullying/victims and parental communication did display significance ($t = -2.26$, $p = .02$). Additionally, a significant interaction was found for physical bully/victims and parental involvement ($t = 2.08$, $p = .04$).

In order to better understand the nature of the interaction, the means on mental health were examined and plotted for physical bully/victims and those with no physical bullying experiences, in the high and low parental communication and parental

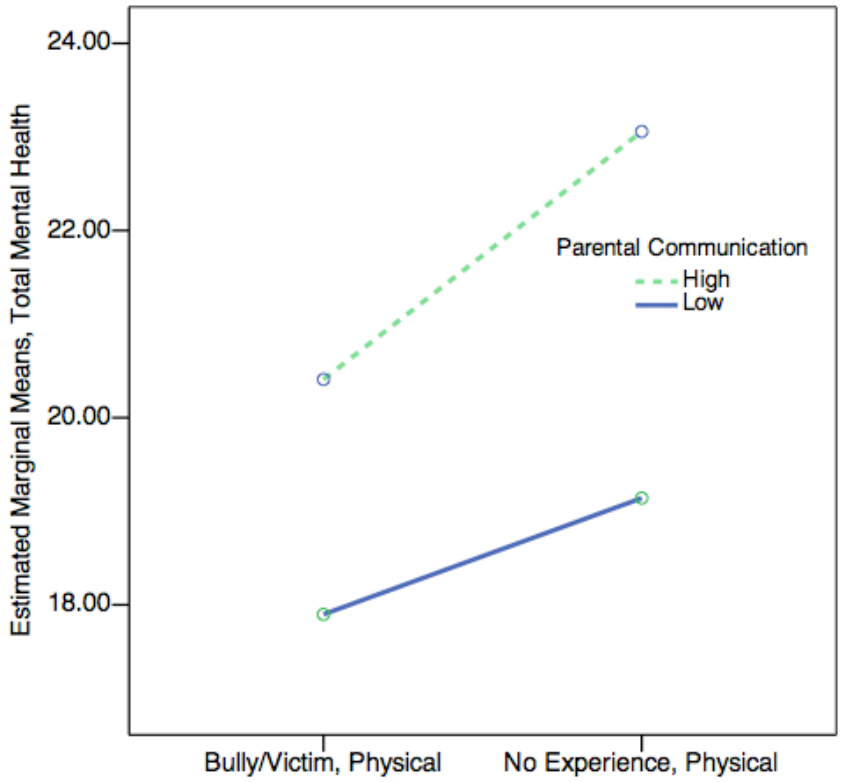
involvement groups. Details for parental communication and physical bully/victims are provided in Table 3 and Figure 2.

Table 3

*Children's Reported Mental Health Means in Relation to Parental Communication and Physical Bully/Victim Status*

| | Bully/Victim, Physical | No Experience, Physical |
|---|---|---|
| High level of parental communication | 20.41 | 23.06 |
| Low level of parental communication | 17.90 | 19.14 |

Figure 2. Estimated Marginal Means of Total Mental Health, Model 1 (Parental Communication)



As can be seen from Table 3 and Figure 2, the nature of the interaction was that high communication was related to better mental health for both groups; however, it had a larger effect for the children with no physical bullying experiences. As such, Hypothesis 2a, which posits that the relationship between bullying experiences and mental health will be moderated by parental communication was not supported. Although there was moderation, it was not in the direction predicted. The difference in mental health between the high and low groups was greater for those with no physical bullying experiences than the physical bully/victims. In other words, adolescents without physical bullying experiences benefited from high levels of parental communication more than those with physical bullying experiences (in this case, physical bully/victims).

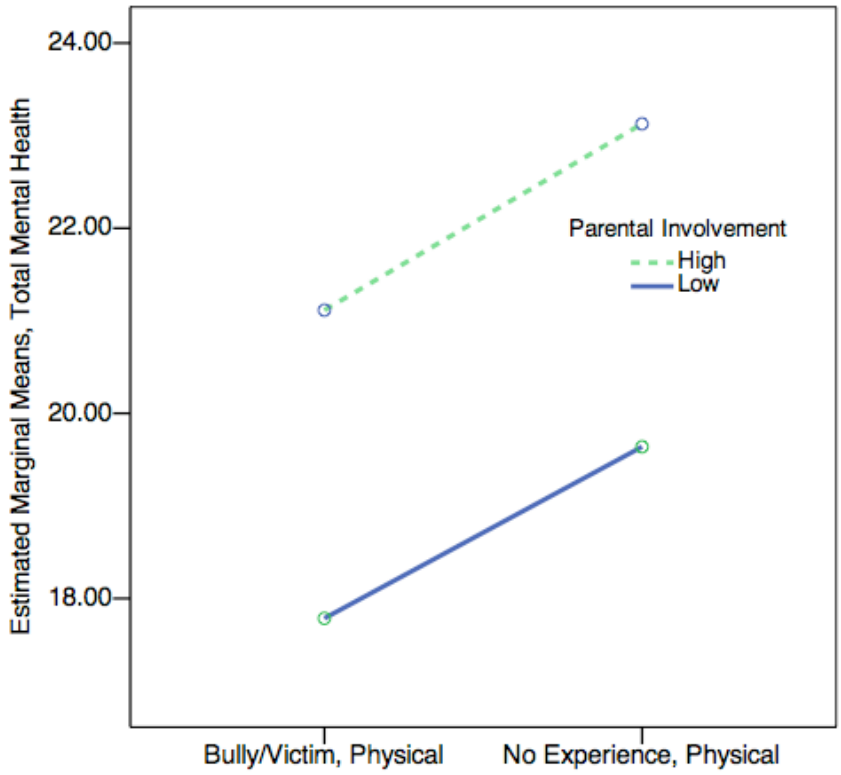
Regarding the significant interactions between physical bully/victim experiences and parental involvement, the mental health means for children who identify as physical bully/victims, as well as those who do not, in relation to high and low levels of parental involvement, are displayed in Table 4 and Figure 3.

Table 4

*Children's Reported Mental Health Means in Relation to Parental Involvement and Physical Bully/Victim Status*

| | Bully/Victim, Physical | No Experience, Physical |
|---|---|---|
| High level of parental involvement | 21.11 | 23.13 |
| Low level of parental involvement | 17.79 | 19.64 |

Figure 3. Estimated Marginal Means of Total Mental Health, Model 1 (Parental Involvement)




As can be seen from Table 4 and the Figure 3, the nature of the interaction was that high parental involvement was related to better mental health for both groups; however, the lines appear parallel, making it difficult to see an interaction. Consideration of the means reported in the table indicate relatively small differences between the means of the two groups, with the difference in the mental health scores between high and low involvement groups being .17 higher for those with no physical bullying experiences than for physical bully/victims. This indicated that parental involvement was slightly more beneficial to children with no physical bullying experiences than to physical bully/victims. This interaction was statistically significant, but not necessarily practically meaningful. Hypothesis 2b, which predicts that the relationship between bullying experiences and reported mental health will be moderated by parental involvement was

not supported in the direction predicted. The benefits of high levels of parental involvement were greater for children with no physical bullying experiences than for those who were physical bully/victims.

Step 5 of Model 1 added family relationship satisfaction to the analyses. Family relationship satisfaction was a significant variable addition. The step was significant at the $p < .001$ level, ($\Delta F = 582.42$). Children with better family relationship satisfaction also experienced better mental health.

Finally, in Step 6 of Model 1, the last interaction term (testing the interaction between family relationship satisfaction and each form of bullying experience) was added. This final step of the model was not significant, ($\Delta F = .36$, $p = .78$). Furthermore, none of the individual interactions between each type of bullying experience and family relationship satisfaction were significant at the $p < .05$ level (see Table 5). This means that Hypothesis 2, predicting that the relationship between bullying experiences and reported mental health will be moderated by resources found in family relationships, was not proven to be true for physical bullying experiences. Table 5, provides final information for Model 1.

Table 5

*Final Hierarchical Regression Model for Mental Health Regressed on Physical Bullying Experiences; Testing Moderation of Family Resources*

| | β | $R^2$ | Δ $R^2$ | ΔF(df) |
|---|---|---|---|---|
| Step 1 | | .07 | .07 | 91.96 (6,6927)*** |
| Control variables[a] | | | | |
| Step 2 | | .11 | .04 | 101.06 (3,6924)*** |
| Victim | -0.09*** | | | |
| Bully | -0.08*** | | | |
| Bully/victim | -0.09*** | | | |
| Step 3 | | .23 | .12 | 546.76 (2,6922)*** |
| Parental communication[b] | 0.13*** | | | |
| Parental involvement[b] | 0.12*** | | | |
| Step 4 | | .24 | .00 | 3.10( 6,6916)** |
| Victim X Parental Communication | -0.01 | | | |
| Victim X Parental Involvement | 0.00 | | | |
| Bully X Parental Communication | -0.02 | | | |
| Bully X Parental Involvement | -0.02 | | | |
| Bully/Victim, X Parental Communication | -0.03* | | | |
| Bully/Victim, X Parental Involvement | 0.03* | | | |
| Step 5 | | .30 | .06 | 582.42 (1,6915)*** |
| Family Relationship Satisfaction[b] | 0.30*** | | | |
| Step 6 | | .30 | .00 | .36 (3,6912) |
| Victim X Family Relationship Satisfaction | 0.01 | | | |
| Bully X Family Relationship Satisfaction | 0.01 | | | |
| Bully/Victim X Family Relationship Satisfaction | -0.01 | | | |

[a]Control variables included: Gender, Grade, FAS (Standardized), Black, Other race, Hispanic

[b]Mean centered

≤.05 = *, ≤.01 = **, ≤ .001 = ***

**Model 2 – Physical bullying.** The dependent variable in Model 2 was life satisfaction. Model 2 included the control variables (race, socio-economic status, gender, and grade*),* as well as physical bullying victims, physical bullying perpetrators, and physical bully/victims. It also included the family factors of parental communication and parental involvement, as well as interaction terms with these variables. Additionally, it included family relationship satisfaction and relevant interaction terms. The completed model was significant $F(21, 6952) = 160.03$, $p \leq .001$ and accounted for 32% ($R^2 = .32$) of the variance in children's life satisfaction. However, the test of the hypotheses for this study is not the overall model, but in the individual steps, described below.

In Step 1 for Model 2, only control variables were in the analyses. The step was significant ($\Delta F = 48.52$, $p \leq .001$).

In Step 2 for Model 2, bullying experiences were added to the model. The step was significant ($\Delta F = 44.69$, $p \leq .001$). Furthermore, bullying experiences were significant for all forms of bullying. Results for the individual forms of bullying experience indicate a significant effect for being a bullying victim ($t = -4.41$, $p \leq .001$), for being a bullying perpetrator ($t = -2.16$, $p = .03$), and for being a bully/victim ($t = -4.29$, $p \leq .001$). As such, life satisfaction is indeed poorer for children who experience physical bullying in any role, as predicted in Hypothesis 1, (parts a, b, and c), which states that children who report bullying experience will also report lower life satisfaction than those who report no bullying experience, (physical, in this model).

In Step 3 for Model 2 parental factors of communication and involvement were added. The step was significant, ($\Delta F = 443.87$, $p \leq .001$). An examination of the individual *t* for each variable indicates that children with higher parental communication

($t = 3.68$, $p \leq .001$), and higher parental involvement ($t = 2.93$, $p \leq .01$ ), have better life satisfaction than children with lower parental communication and involvement.

In Step 4 of Model 2, the interaction terms for each type of physical bullying experience and both parental communication and parental involvement (separately), were added to the model. The overall step was not significant ($\Delta F = 1.42$, $p = .20$). Furthermore, only the parental communication interaction term for physical bully/victims displayed significance in this step ($t = -2.11$, $p = .04$).

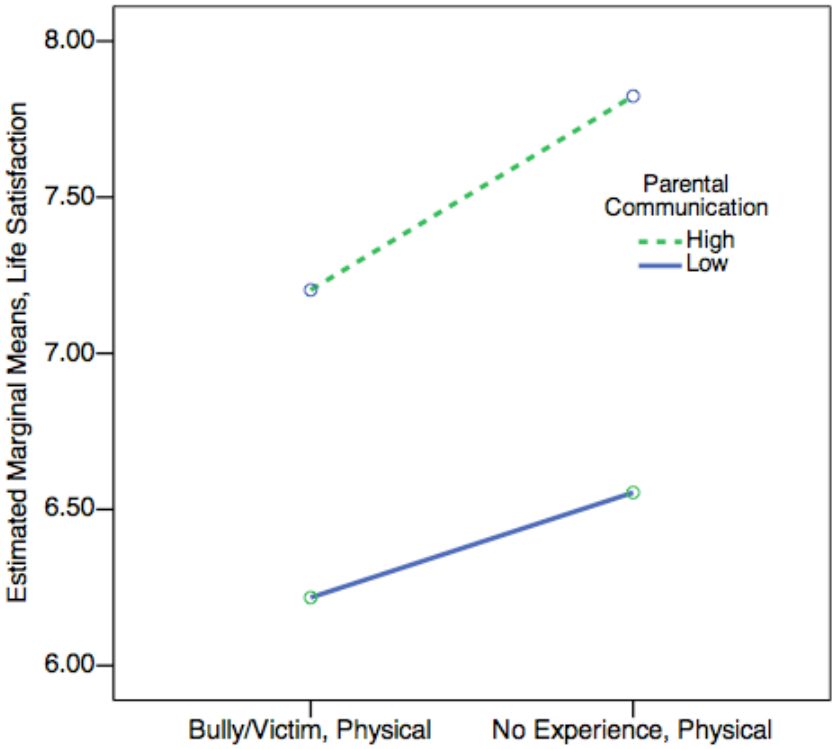
In order to better understand the nature of the interaction the means on life satisfaction were examined and plotted for physical bully/victims and those with no physical bullying experiences, in the high and low parental communication group, as detailed in Table 6 and Figure 4.

Table 6

*Children's Reported Life Satisfaction Means in Relation to Parental Communication and Physical Bully/Victim Status*

| | Bully/Victim, Physical | No Experience, Physical |
|---|---|---|
| High level of parental communication | 7.20 | 7.82 |
| Low level of parental communication | 6.22 | 6.55 |

Figure 4. Estimated Marginal Means of Life Satisfaction, Model 2 (Parental Communication)




As can be seen from Table 6 and Figure 4, the nature of the interaction was that high communication was related to better life satisfaction for both groups; however, it had a larger effect for the children with no physical bullying experiences. As such, Hypothesis 2a, which predicts that the relationship between bullying experiences and life

satisfaction will be moderated by parental communication was not supported. Although there was moderation, it was not in the direction predicted. The difference in life satisfaction between the high and low groups was greater for those with no physical bullying experiences than the physical bully/victims. In other words, adolescents without physical bullying experiences benefited from high levels of parental communication more than those with physical bullying experiences (in this case, physical bully/victims).

Step 5 of Model 2 added family relationship satisfaction to the analyses. Family relationship satisfaction was a significant variable addition, and the step was significant at the $p \leq .001$ level, ($\Delta F = 1643.73$). Children with better family relationship satisfaction also experience better life satisfaction.

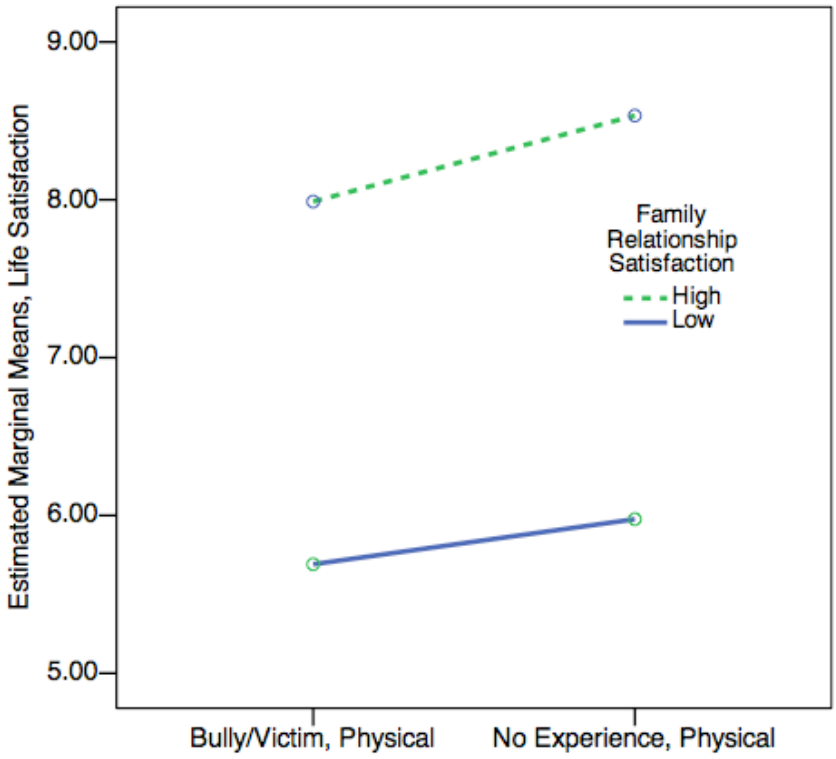
Finally, in Step 6 of Model 2, the last interaction term (testing the interaction between family relationship satisfaction and each form of bullying experience) was added. This final step of the model was not significant, ($\Delta F = 2.20$, $p = .09$). That said, the interaction between physical bully/victims and family relationship satisfaction, were significant ($t = 2.53$, $p < .012$). The means on life satisfaction were examined and plotted for physical bully/victims and children with no physical bullying experiences in the high and low family relationship satisfaction group, in order to better understand the nature of the interaction.

Table 7

*Children's Reported Life Satisfaction Means in Relation to Family Relationship Satisfaction and Physical Bully/Victim Experience*

| | Bully/Victim, Physical | No Experience, Physical |
|---|---|---|
| High level of family relationship satisfaction | 7.99 | 8.53 |
| Low level of family relationship satisfaction | 5.69 | 5.98 |

Figure 5. Estimated Marginal Means of Life Satisfaction, Model 2 (Family Relationship Satisfaction)




As can be seen from Table 7 and Figure 5, the nature of the interaction was that high scores for family relationship satisfaction were related to better life satisfaction for both groups; however, it had a slightly larger effect for children with no physical bullying

experiences. As such, Hypothesis 2c, which predicts that the relationship between bullying experiences and reported levels of life satisfaction will be moderated by family relationship satisfaction was not supported. The difference in life satisfaction between high and low levels of family relationship satisfaction was greater for the children with no bullying experiences than for the physical bully/victim group. In other words, adolescents without physical bullying experiences benefitted from high levels of family relationship satisfaction more than those with physical bullying experiences (in this case, physical bully/victims.)

Table 8

*Final Hierarchical Regression Model for Life Satisfaction Regressed on Physical Bullying Experiences; Testing Moderation of Family Resources*

| | β | $R^2$ | Δ $R^2$ | ΔF(df) |
|---|---|---|---|---|
| Step 1 | | .04 | .04 | 48.52 (6, 6967)*** |
| Control variables[a] | | | | |
| Step 2 | | .06 | .02 | 44.69 (3, 6964)*** |
| Victim | -0.05*** | | | |
| Bully | -0.02* | | | |
| Bully/victim | -0.05*** | | | |
| Step 3 | | .17 | .11 | 443.87 (2, 6962)*** |
| Parental communication[b] | 0.05*** | | | |
| Parental involvement[b] | 0.04* | | | |
| Step 4 | | .17 | .001 | 1.42 (6, 6956) |
| Victim X Parental Communication | 0.01 | | | |
| Victim X Parental Involvement | 0.01 | | | |
| Bully X Parental Communication | -0.02 | | | |
| Bully X Parental Involvement | 0.01 | | | |
| Bully/Victim, X Parental Communication | -0.03* | | | |
| Bully/Victim, X Parental Involvement | -0.01 | | | |
| Step 5 | | .33 | .16 | 1643.73 (1, 6955)*** |
| Family Relationship Satisfaction[b] | 0.49*** | | | |
| Step 6 | | .33 | .001 | 2.20 (3, 6952) |
| Victim X Family Relationship Satisfaction | 0.01 | | | |
| Bully X Family Relationship Satisfaction | -0.002 | | | |
| Bully/Victim X Family Relationship Satisfaction | 0.03* | | | |

[a]Control variables included: Gender, Grade, FAS (Standardized), Black, Other race, Hispanic

[b]Mean centered

$\leq$.05 = *, $\leq$.01 = **, $\leq$ .001 = ***

**Model 3 – Verbal bullying.** The dependent variable in Model 3 was mental health. Model 3 included the control variables (race, socio-economic status, gender, and grade), as well as verbal bullying experiences. It also included the family factors of parental communication and parental involvement, as well as interaction terms with these variables. Additionally, it included family relationship satisfaction and relevant interaction terms. The completed model was significant $F(21, 6818)=151.91$, $p \leq .001$ and accounted for 32% ($R^2=.32$) of the variance in children's mental health. However, the test of the hypotheses for this study is not the overall model, but in the individual steps, described below.

In Step 1 for Model 3, only control variables were in the analyses. The step was significant ($\Delta F =90.92$, $p \leq .001$).

In Step 2 for Model 3, the three forms of bullying experiences were added to the model. The step was significant ($\Delta F =.233.87$, $p \leq .001$). Furthermore, bullying experience was significant for all forms of bullying. Results for the individual forms of bullying experiences indicate a significant effect for being a verbal bullying victim ($t = -12.76$, $p \leq .001$), a verbal bullying perpetrator ($t = -5.88$, $p \leq .001$), and for being a verbal bully/victim ($t = -18.31$, $p \leq .001$). As such, mental health is indeed poorer for children who have verbal bullying experiences of any type, as predicted in Hypothesis 1, (parts a, b, and c), which states that children who report bullying experiences will also report poorer mental health than those who do not report bullying experiences, (verbal, in this model).

In Step 3 for Model 3, parental factors of communication and involvement were added. The step was significant, ($\Delta F =478.17$, $p \leq .001$). An examination of the

individual t for each variable indicates that children with higher parental communication ($t = 7.10$, $p \leq .001$), and higher parental involvement ($t = 4.07$, $p \leq .001$), have better mental health than children with lower levels of parental communication and involvement.

In Step 4 of Model 3, the interaction terms for each type of verbal bullying experience and both parental communication and parental involvement (separately), were added to the model. The overall step was significant ($\Delta F = 3.71$, $p \leq .01$). Furthermore, a number of the interaction terms for this step displayed significance. Interaction terms for parental involvement and both verbal bullying victims and verbal bully/victims were significant ($t = 2.29$, $p = .02$ and $t = 2.60$, $p = .01$, respectively). Additionally, the interaction term for parental communication and verbal bully/victims was significant ($t = -3.28$, $p \leq .01$).

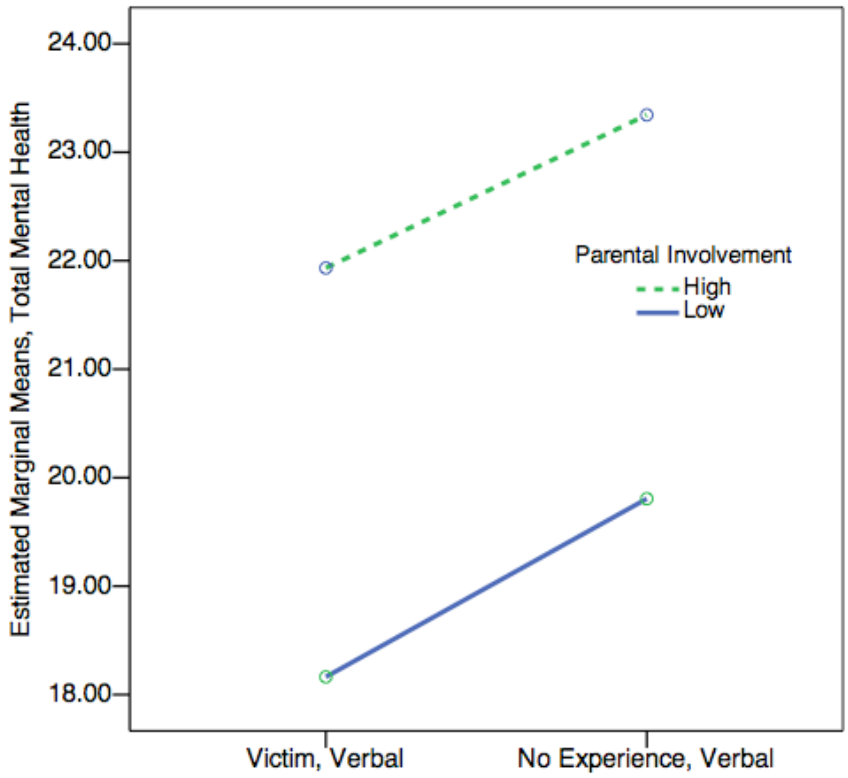
In order to better understand the nature of the interactions, the means on mental health were examined and plotted for verbal bullying victims and children with no verbal bullying experiences, in the high and low parental involvement group. Details are provided in Table 9 and Figure 6. Means were also examined and plotted for verbal bully/victims and children with no verbal bullying experiences in the high and low parental communication and parental involvement groups. Details are provided in Table 10 and Figure 7.

Table 9

*Children's Reported Mental Health Means in Relation to Parental Involvement and Verbal Victim Status*

| | Victim, Verbal | No Experience, Verbal |
|---|---|---|
| High level of parental involvement | 21.93 | 23.34 |
| Low level of parental involvement | 18.16 | 19.81 |

Figure 6. Estimated Marginal Means of Total Mental Health, Model 3 (Parental Involvement)




As can be seen from Table 9 and Figure 6, the nature of the interaction was that high scores for parental involvement are related to better mental health for both groups; however, there was a slightly larger effect for the verbal victims. Thus, Hypothesis 2b,

which predicts that the relationship between bullying experiences and reported mental health will be moderated by parental involvement was supported. In other words, the difference between the high parental involvement group and the low parental involvement group was greater for those with verbal bullying victimization experiences than for those without. Thus, while high parental involvement benefitted everyone, it appeared to be more beneficial for verbal bullying victims than for those with no verbal bullying experience. This is an important finding in that it indicates support for Hypothesis 2b and the moderation of parental involvement on the mental health of children who are victims of verbal bullying.

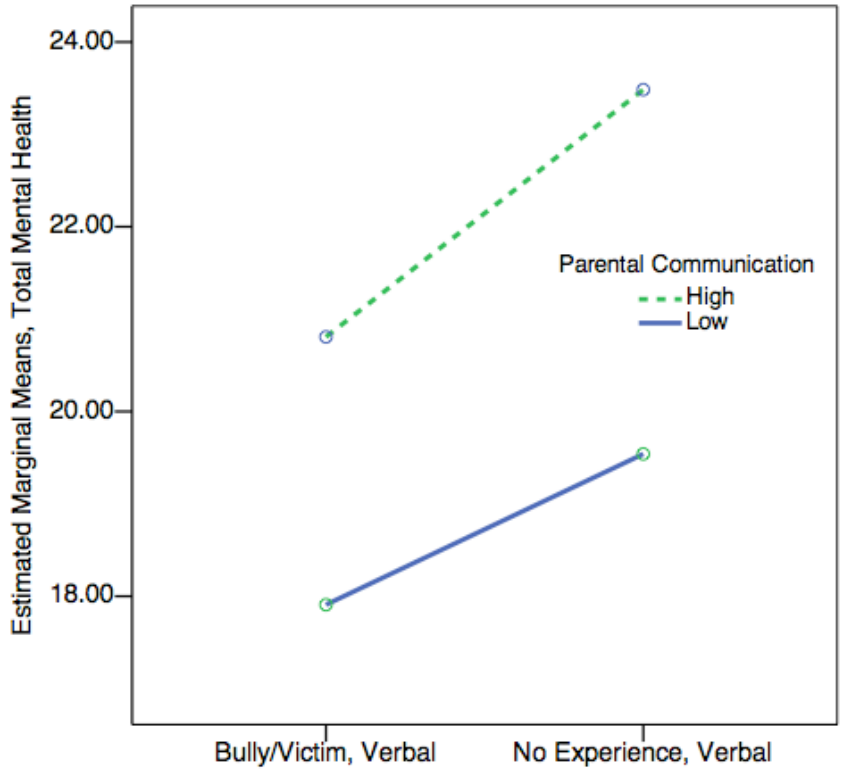
Regarding the significant interactions between verbal bully/victim experience and parental communication, the means of reported mental health for children who identify as verbal bully/victims, as well as those who have no verbal bullying experiences, in relation to high and low levels of parental communication, are displayed in Table 10 and Figure 7.

Table 10

*Children's Reported Mental Health Means in Relation to Parental Communication and Verbal Bully/Victim Status*

| | Bully/Victim, Verbal | No Experience, Verbal |
|---|---|---|
| High level of parental communication | 20.81 | 23.48 |
| Low level of parental communication | 17.91 | 19.54 |

Figure 7. Estimated Marginal Means of Total Mental Health, Model 3 (Parental Communication)




As can be seen from Table 10 and Figure 7, the nature of the interaction was that high scores for parental communication were related to better mental health for both groups; however, it had a larger effect for the children with no verbal bullying experiences. As such, Hypothesis 2a, which posits that the relationship between bullying experiences and reported mental health will be moderated by parental communication was not supported. Although there was moderation, it was not in the direction predicted. The difference in mental health between the high and low groups was greater for those with no verbal bullying experiences than the verbal bully/victims. In other words, adolescents without verbal bullying experiences benefited from high levels of parental communication more than those with verbal bullying experiences (in this case, verbal bully/victims).

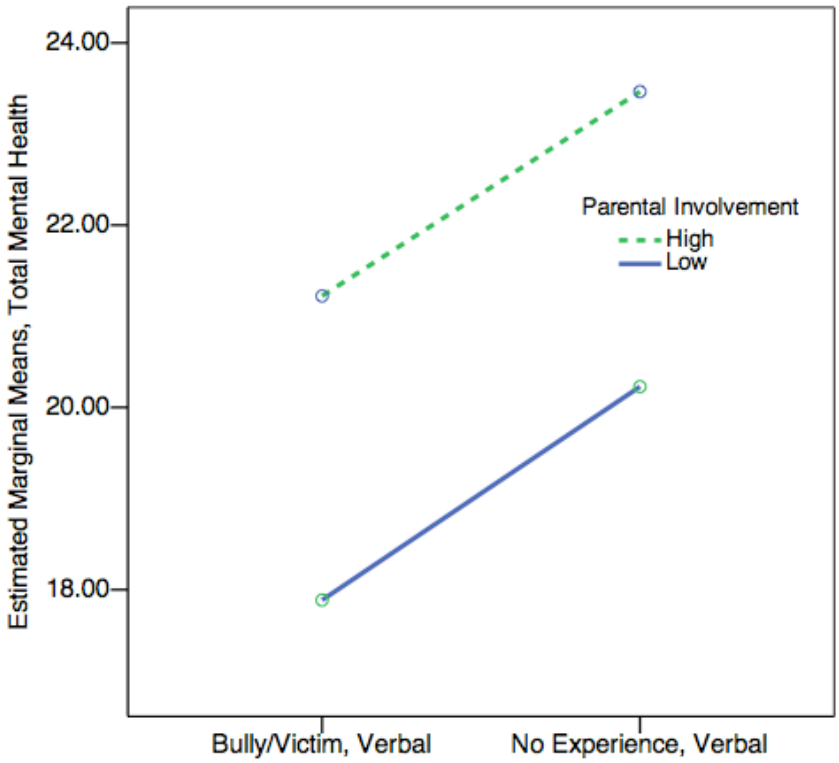
Regarding the significant interactions between verbal bully/victim status and parental involvement, the means of mental health for children who identify as verbal bully/victims, as well as those have no verbal bullying experiences, in relation to high and low levels of parental involvement, are displayed in Table 11 and Figure 8.

Table 11

*Children's Reported Mental Health Means in Relation to Parental Involvement and Verbal Bully/Victim Status*

| | Bully/Victim, Verbal | No Experience, Verbal |
|---|---|---|
| High level of parental involvement | 21.22 | 23.47 |
| Low level of parental involvement | 17.89 | 20.23 |

Figure 8. Estimated Marginal Means of Total Mental Health, Model 3 (Parental Involvement)




As can be seen from Table 11 and Figure 8, the nature of the interaction was that high parental involvement is related to better mental health for both groups; however, the lines appear parallel making it difficult to see an interaction. Consideration of the means reported in the table indicate relatively small differences between the means of the two groups, with the difference in the mental health scores between high and low involvement groups being .09 higher for verbal bully/victims than for those without verbal bullying experiences. This indicated that parental involvement was slightly more beneficial to children who are verbal bully/victims than for those without verbal bullying experiences. This interaction was statistically significant, but not necessarily practically meaningful. Thus, Hypothesis 2b, which predicts that the relationship between bullying experiences

and reported mental health will be moderated by parental involvement was supported. In other words, the difference between the high parental involvement group and the low parental involvement group was greater for those who are verbal bully/victims than for those without verbal bullying experiences. Thus, while high parental involvement benefitted everyone, it appeared to be more beneficial for verbal bully/victims than for those with no verbal bullying experience. This finding indicates support for Hypothesis 2b and the moderation of parental involvement on the mental health of children who are verbal bully/victims.

Step 5 of Model 3 added family relationship satisfaction to the analyses. The step was significant at the $p \leq .001$ level, ($\Delta F = 530.25$). Children with better family relationship satisfaction also experienced better mental health.

Finally, in Step 6 of Model 3, the last interaction term (testing the interaction between family relationship satisfaction and each form of bullying experience) was added. This final step of the model was not significant ($\Delta F = .07$, $p = .98$). In addition, none of the individual interactions were significant. This means that Hypothesis 2, predicting that the relationship between bullying experiences and reported mental health will be moderated by resources found in the parent-child relationship, was not supported for verbal bullying experiences. Table 12 provides final information for Model 3.

Table 12

*Final Hierarchical Regression Model for Mental Health Regressed on Verbal Bullying Experiences; Testing Moderation of Family Resources*

| | β | $R^2$ | Δ $R^2$ | ΔF(df) |
|---|---|---|---|---|
| Step 1 | | .07 | .07 | 90.92 (6, 6833)*** |
| Control variables[a] | | | | |
| Step 2 | | .16 | .09 | 233.87 (3, 6830)*** |
| Victim | -0.14*** | | | |
| Bully | -0.07*** | | | |
| Bully/victim | -0.21*** | | | |
| Step 3 | | .26 | .10 | 478.17 (2, 6828)*** |
| Parental communication[b] | 0.13*** | | | |
| Parental involvement[b] | 0.08*** | | | |
| Step 4 | | .27 | .002 | 3.71 (6, 6822)** |
| Victim X Parental Communication | -0.003 | | | |
| Victim X Parental Involvement | 0.03* | | | |
| Bully X Parental Communication | -0.01 | | | |
| Bully X Parental Involvement | 0.01 | | | |
| Bully/Victim, X Parental Communication | -0.05** | | | |
| Bully/Victim, X Parental Involvement | 0.04** | | | |
| Step 5 | | .32 | .05 | 530.25 (1, 6821)*** |
| Family Relationship Satisfaction[b] | 0.29*** | | | |
| Step 6 | | .32 | .00 | .07 (3, 6818) |
| Victim X Family Relationship Satisfaction | 0.00 | | | |
| Bully X Family Relationship Satisfaction | -0.002 | | | |
| Bully/Victim X Family Relationship Satisfaction | 0.01 | | | |

[a]Control variables included: Gender, Grade, FAS (Standardized), Black, Other race, Hispanic

[b]Mean centered

$\leq$.05 = *, $\leq$.01 = **, $\leq$ .001 = ***

**Model 4 – Verbal bullying.** The dependent variable in Model 4 was life satisfaction. Model 4 included the control variables (race, socio-economic status, gender, and grade*),* as well as verbal bullying victims, verbal bullying perpetrators, and verbal bully/victims. It also included the family factors of parental communication and parental involvement, as well as interaction terms with these variables. Additionally, it included family relationship satisfaction and relevant interaction terms. The completed model was significant $F(21, 6858) = 158.81$, $p \leq .001$ and accounted for 33% ($R^2 = .33$) of the variance in children's life satisfaction. However, the test of the hypotheses for this study is not the overall model, but in the individual steps, described below.

In Step 1 for Model 4, only control variables are in the analyses. The step was significant ($\Delta F = 50.31$, $p \leq .001$).

In Step 2 for Model 4, bullying experiences were added to the model. The step was significant ($\Delta F = 78.80$, $p \leq .001$). Furthermore, bullying experiences were significant for all forms of bullying. Results for the individual types of bullying experience indicated a significant effect for being a bullying victim ($t = -4.73$, $p \leq .001$), a bullying perpetrator ($t = -2.29$, $p = .02$), and for being a bully/victim ($t = -5.68$, $p \leq .001$). As such, life satisfaction is indeed poorer for children who are experience verbal bullying of any type, as predicted in Hypothesis 1, (parts a, b, and c), children who report bullying experience will also report poorer life satisfaction than those who report no bullying experience, (verbal, in this model).

In Step 3 for Model 4, parental factors of communication and involvement were added. This step was significant, ($\Delta F = 407.24$, $p \leq .001$). An examination of the individual t for each variable indicates that children with higher parental communication

($t = 2.74,\ p \leq .01$ ) have higher levels of life satisfaction than children with lower levels of parental communication. Parental involvement was not a significant family factor in this model.

In Step 4 of Model 4, the interaction terms for each type of verbal bullying experience and both parental communication and parental involvement (separately), were added to the model. The overall step was not significant ($\Delta F = 1.26$, $p = .27$) and none of the interaction terms for this step displayed significance. Thus, it appears that there is no support for Hypothesis 2b, in that the relationship between bullying experiences and life satisfaction appears to not be moderated by parental communication or involvement.

Step 5 of Model 4 adds family relationship satisfaction to the analyses. Family relationship satisfaction was a significant variable addition, and the step was significant at the $p \leq .001$ level, ($\Delta F = 1562.21$). Children with higher family relationship satisfaction also experienced better life satisfaction.

Finally, in Step 6 of Model 4, the last interaction term (testing the interaction between family relationship satisfaction and each type of bullying experience) was added. This final step of the model was significant, ($\Delta F = 2.70$, $p = .04$). In addition, the interaction between verbal bully/victims and family relationship satisfaction was significant ($t = 2.65$, $p = .01$). This means that Hypothesis 2, predicting that the relationship between bullying experience and reported life satisfaction will be moderated by resources found in the parent-child relationship, was found to be significant for verbal bully/victims.

In order to better understand the nature of the interactions, the means on life satisfaction were examined and plotted for verbal bully/victims and children with no

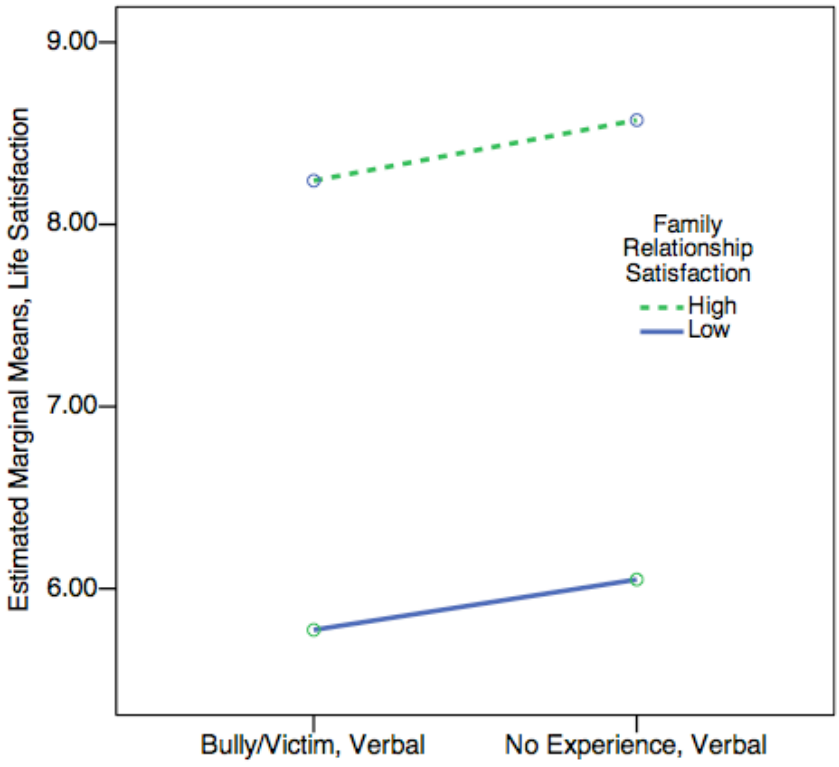
verbal bullying experiences, in the high and low family relationship satisfaction group, as detailed in Table 13 and Figure 9.

Table 13

*Children's Reported Life Satisfaction Means in Relation to Family Relationship Satisfaction and Verbal Bully/Victim Status*

| | Bully/Victim, Verbal | No Experience, Verbal |
|---|---|---|
| High level of family relationship satisfaction | 8.24 | 8.57 |
| Low level of family relationship satisfaction | 5.77 | 6.05 |

Figure 9. Estimated Marginal Means of Life Satisfaction, Model 4 (Family Relationship Satisfaction)



As can be seen from Table 13 and Figure 9, the nature of the interaction was that high family relationship satisfaction was related to better life satisfaction for both groups; however, the lines appear parallel making it difficult to see an interaction. Consideration of the means reported in the table indicate relatively small differences between the means of the two groups, with the difference in the life satisfaction scores between the high and low family relationship satisfaction group being .05 higher for those with no verbal bullying experiences that for verbal bully/victims. Even this small difference indicates, however, that family relationship satisfaction is slightly more beneficial to children with no verbal bullying experiences than to verbal bully/victims. This interaction was statistically significant, but not necessarily practically meaningful. Hypothesis 2c, which posits that the relationship between bullying experiences and reported life satisfaction will be moderated by family relationship satisfaction; the relationship between verbal bully/victim experience and life satisfaction was not supported in the direction predicted. The benefits of high levels of family relationship satisfaction were greater for children with no verbal bullying experiences than for those who were verbal bully/victims.

Table 14 provides final information for Model 4.

Table 14

*Final Hierarchical Regression Model for Life Satisfaction Regressed on Verbal Bullying Experiences; Testing Moderation of Family Resources*

| | β | $R^2$ | Δ $R^2$ | ΔF(df) |
|---|---|---|---|---|
| Step 1 | | .04 | .04 | 50.31 (6, 6873)*** |
| Control variables[a] | | | | |
| Step 2 | | .07 | .03 | 78.80 (3, 6870)*** |
| Victim | -0.05*** | | | |
| Bully | -0.03* | | | |
| Bully/victim | -0.065*** | | | |
| Step 3 | | .17 | .10 | 407.24 (2, 6868)*** |
| Parental communication[b] | 0.05* | | | |
| Parental involvement[b] | 0.04 | | | |
| Step 4 | | .17 | .001 | 1.26 (6, 6862) |
| Victim X Parental Communication | 0.01 | | | |
| Victim X Parental Involvement | -0.01 | | | |
| Bully X Parental Communication | -0.01 | | | |
| Bully X Parental Involvement | 0.02 | | | |
| Bully/Victim, X Parental Communication | -0.03 | | | |
| Bully/Victim, X Parental Involvement | 0.01 | | | |
| Step 5 | | .33 | .15 | 1562.21 (1, 6861)*** |
| Family Relationship Satisfaction[b] | 0.46*** | | | |
| Step 6 | | .33 | .001 | 2.70 (3, 6858)* |
| Victim X Family Relationship Satisfaction | 0.02 | | | |
| Bully X Family Relationship Satisfaction | 0.001 | | | |
| Bully/Victim X Family Relationship Satisfaction | 0.04* | | | |

[a]Control variables included: Gender, Grade, FAS (Standardized), Black, Other race, Hispanic

[b]Mean centered

≤.05 = *, ≤.01 = **, ≤ .001 = ***

**Model 5 – Relational bullying.** The dependent variable in Model 5 was mental health. Model 5 included the control variables (race, socio-economic status, gender, and grade*),* as well as relational bullying victims, relational bullying perpetrators, and relational bully/victims. It also included the family factors of parental communication and parental involvement, as well as interaction terms with these variables. Additionally, it included family relationship satisfaction and relevant interaction terms. The completed model was significant $F(21, 6915)=157.74$, $p \leq .001$ and accounted for 32% ($R^2 = .32$) of the variance in children's mental health. However, the test of the hypotheses for this study is not the overall model, but in the individual steps, described below.

In Step 1 for Model 5 only control variables were in the analyses. The step was significant ($\Delta F = 91.84$, $p \leq .001$).

In Step 2 for Model 5, bullying experiences are added to the model. The step was significant ($\Delta F = 260.82$, $p \leq .001$). Furthermore, bullying experience was significant for all forms of bullying. Results for the individual forms of bullying indicated a significant effect for being a bullying victim ($t = -15.91$, $p \leq .001$), a bullying perpetrator ($t = -8.02$, $p \leq .001$), and for being a bully/victim ($t = -18.282$, $p \leq .001$). As such, mental health is indeed poorer for children who experience relational bullying in any way, as predicted in Hypothesis 1, (parts a, b, and c) , stating that children who report bullying experiences will also report poorer mental health than those who report no bullying experiences, (relational, in this model).

In Step 3 for Model 5 parental factors of communication and involvement were added. This step was significant, ($\Delta F = 477.65$, $p \leq .001$). An examination of the individual t for each variable indicates that children with higher parental communication

($t = 7.24$, $p \leq .001$), and higher parental involvement ($t = 5.29$, $p \leq .001$) have better mental health than children with lower levels of parental communication and involvement.

In Step 4 of Model 5, the interaction terms for each type of relational bullying experience and both parental communication and parental involvement (separately), were added to the model. The overall step was significant, ($\Delta F = 4.49$, $p \leq .001$); however, only some of the interaction terms for this step displayed significance. Interaction terms for parental involvement and both victims of relational bullying and relational bully/victims were significant ($t = 2.03$, $p = .04$ and $t = 2.78$, $p \leq .01$, respectively). Additionally, the interaction term for relational bully/victims and parental communication was significant ($t = -3.72$, $p \leq .001$).

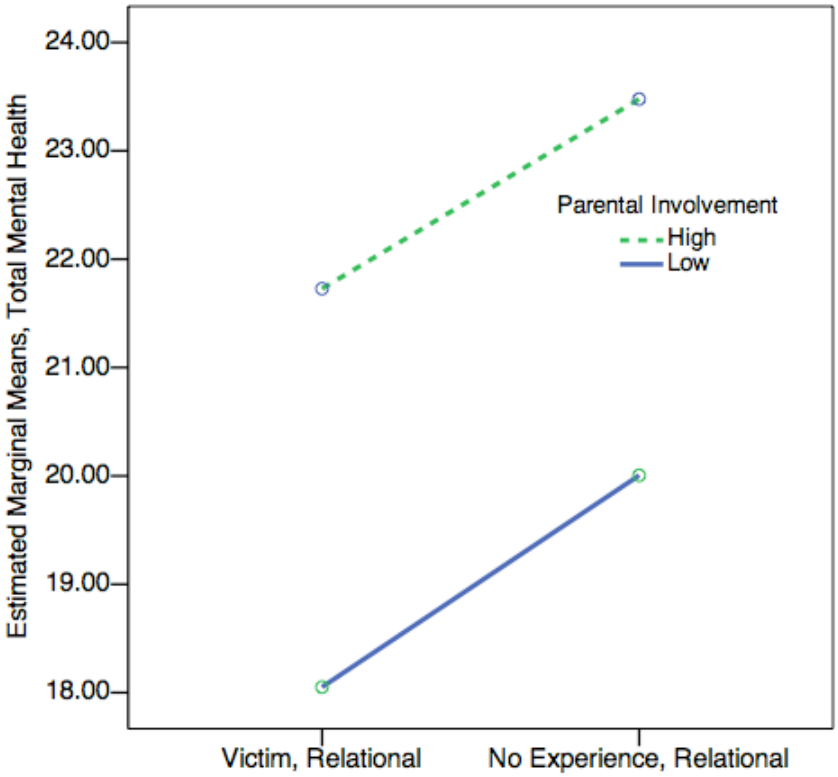
In order to better understand the nature of the interactions, the means on mental health were examined and plotted for relational bullying victims and children with no bullying experiences (relational) in the high and low parental involvement group. Details are provided in Table 15 and Figure 10. Means were also examined and plotted for relational bully/victims and children with no bullying experiences (verbal) in the high and low parental communication and parental involvement groups, as detailed in Table 16 and Figure 11.

Table 15

*Children's Reported Mental Health Means in Relation to Parental Involvement and Relational Victim Status*

| | Victim, Relational | No Experience, Relational |
|---|---|---|
| High level of parental involvement | 21.73 | 23.48 |
| Low level of parental involvement | 18.05 | 20.01 |

Figure 10. Estimated Marginal Means of Total Mental Health, Model 5 (Parental Involvement)



As can be seen from Table 15 and Figure 10, the nature of the interaction was that high scores for parental involvement were related to better mental health for both groups; however, the lines appear parallel making it difficult to see an interaction. Consideration of the means reported in the table indicated relatively small differences between the means of the two groups, with the difference in the mental health scores of high and low involvement groups being .21 higher for relational victims than for those with no relational bullying experiences. This difference indicated that parental involvement is slightly more beneficial to relational bullying victims than to children with no relational bullying experiences. This interaction was statistically significant, but not necessarily practically meaningful. Thus, Hypothesis 2b, which predicts that the relationship between bullying experiences and reported mental health will be moderated by parental involvement was supported. In other words, the difference between the high and low parental involvement groups is greater for those with relational victimization experiences than for those with no relational bullying experiences. Thus, while high parental involvement benefitted everyone, it appeared to be more beneficial for relational bullying victims than for those with no relational bullying experiences. This finding indicates support for Hypothesis 2b and the moderation of parental involvement on the mental health of children who are relational bullying victims.

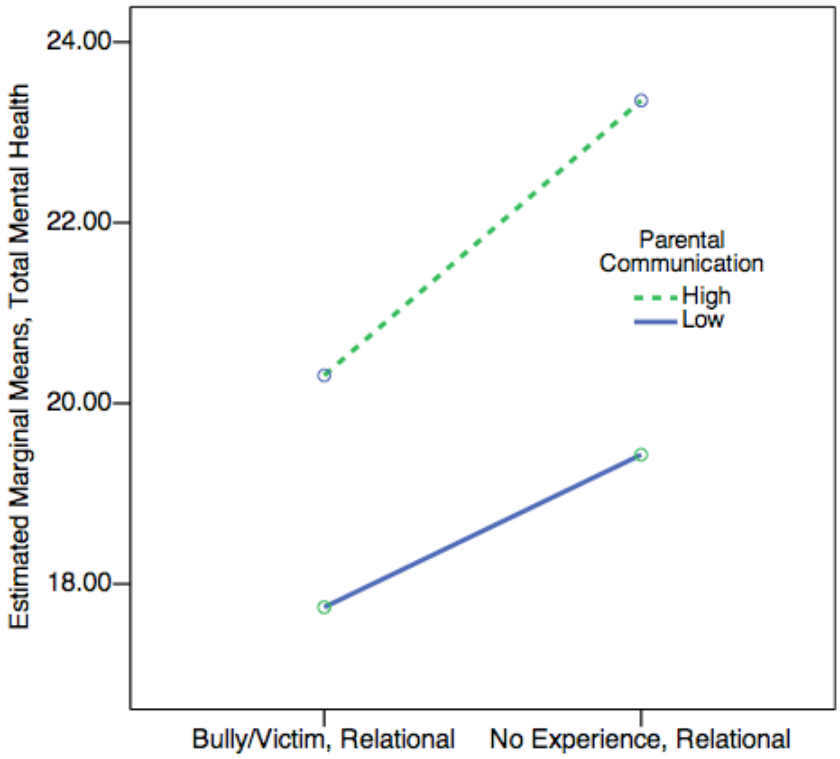
Regarding the significant interactions between relational bully/victim status and parental communication, the means of reported mental health for children who identify as relational bully/victims, as well as those who have no relational bullying experiences, in relation to high and low levels of parental communication, are displayed in Table 16 and Figure 11.

Table 16

*Children's Reported Mental Health Means in Relation to Parental Communication and Relational Bully/Victim Status*

| | Bully/Victim, Relational | No Experience, Relational |
|---|---|---|
| High level of parental communication | 20.31 | 23.53 |
| Low level of parental communication | 17.74 | 19.43 |

Figure 11. Estimated Marginal Means of Total Mental Health, Model 5 (Parental Communication)



As can be seen from Table 16 and Figure 11, the nature of the interaction was that high communication was related to better mental health for both groups; however, there was a larger effect for the children with no relational bullying experiences. As such, Hypothesis 2a, which posits that the relationship between bullying experiences and mental health will be moderated by parental communication was not supported. Although there was moderation, it was not in the direction predicted. The difference in mental health between the high and low groups was greater for those with no physical bullying experiences than the physical bully/victims. In other words, adolescents without relational bullying experiences benefitted from high levels of parental communication more than those with relational bullying experiences (in this case, relational bully/victims).

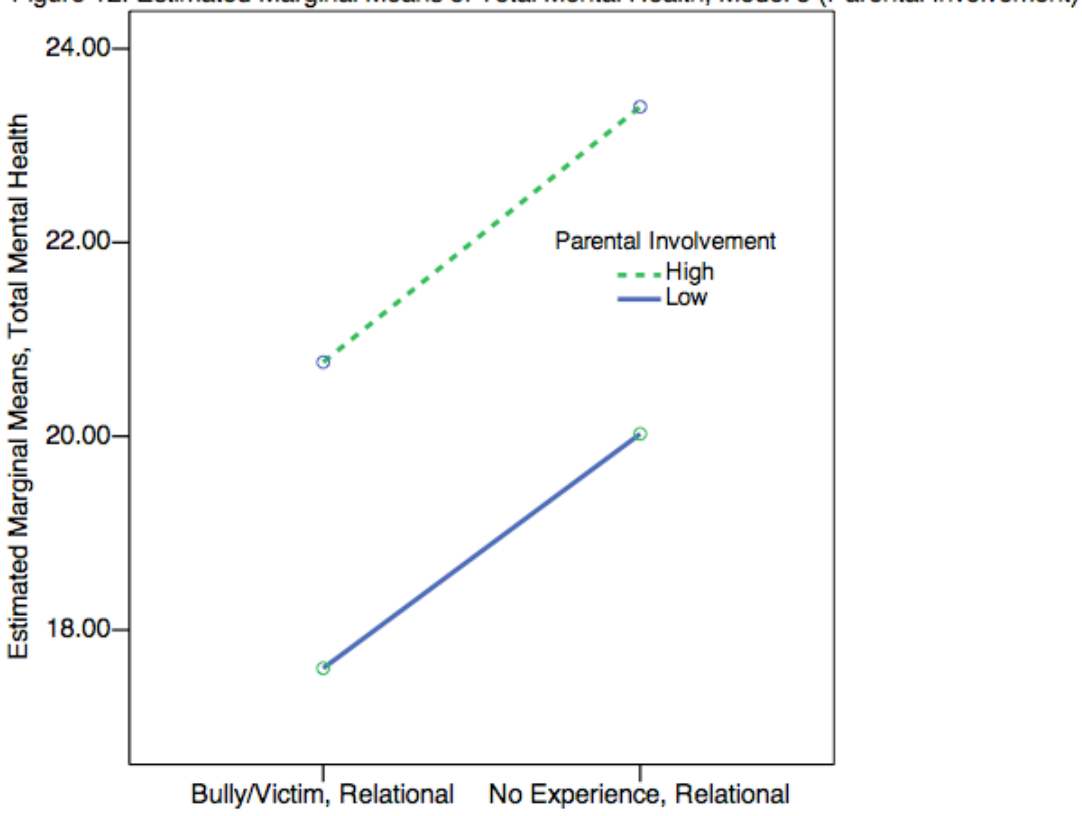
Regarding the significant interactions between relational bully/victim status and parental involvement, the means of reported mental health for children who identify as relational bully/victims, as well as those with no relational bullying experiences, in relation to high and low levels of parental involvement, are displayed in Table 17 and Figure 12.

Table 17

*Children's Reported Mental Health Means in Relation to Parental Involvement and Relational Bully/Victim Status*

| | Bully/Victim, Relational | No Experience, Relational |
|---|---|---|
| High level of parental involvement | 20.77 | 23.40 |
| Low level of parental involvement | 17.61 | 20.03 |

Figure 12. Estimated Marginal Means of Total Mental Health, Model 5 (Parental Involvement)




As can be seen from Table 17 and Figure 12, the nature of the interaction was that high parental involvement was related to better mental health for both groups; however,

the lines appear parallel making it difficult to see an interaction. Consideration of the means reported in the table indicate relatively small differences between the means of the two groups, with the difference in the mental health scores of high and low involvement groups being .21 higher for those with no relational bullying experiences than for the relational bully/victims. Hypothesis 2b, which predicts that the relationship between bullying experiences and reported mental health will be moderated by parental involvement was not supported in the direction predicted. This interaction was statistically significant, but not necessarily practically meaningful. The benefits of high levels of parental involvement were greater for children with no relational bullying experiences than for those who were relational bully/victims.

Step 5 of Model 5 added family relationship satisfaction to the analyses. Family relationship satisfaction was a significant variable addition, and the step was significant at the $p \leq .001$ level, ($\Delta F = 536.91$). Children with better family relationship satisfaction also experienced better mental health.

Finally, in Step 6 of Model 5, the last interaction term (testing the interaction between family relationship satisfaction and each form of bullying experience) was added. This final step of the model was not significant ($\Delta F = .03$, $p = .99$). In addition, none of the individual interactions were significant. This means that Hypothesis 2, which predicts that the relationship between bullying experience and reported mental health will be moderated by resources found in the parent-child relationship, was not supported for relational bullying experiences of any sort. Table 18 provides final information for Model 5.

Table 18

*Final Hierarchical Regression Model for Mental Health Regressed on Relational Bullying Experiences; Testing Moderation of Family Resources*

| | β | $R^2$ | Δ $R^2$ | ΔF(df) |
|---|---|---|---|---|
| Step 1 | | .07 | .07 | 91.84 (6, 6930)*** |
| Control variables[a] | | | | |
| Step 2 | | .17 | .09 | 260.82 (3, 6927)*** |
| Victim | -0.17*** | | | |
| Bully | -0.09*** | | | |
| Bully/victim | -0.20*** | | | |
| Step 3 | | .27 | .10 | 477.65 (2, 6925)*** |
| Parental communication[b] | 0.12*** | | | |
| Parental involvement[b] | 0.09*** | | | |
| Step 4 | | .27 | .003 | 4.49 (6, 6919)*** |
| Victim X Parental Communication | -0.004 | | | |
| Victim X Parental Involvement | 0.03 | | | |
| Bully X Parental Communication | -0.01 | | | |
| Bully X Parental Involvement | -0.01 | | | |
| Bully/Victim, X Parental Communication | -0.05*** | | | |
| Bully/Victim, X Parental Involvement | 0.04** | | | |
| Step 5 | | .32 | .05 | 536.91 (1, 6918)*** |
| Family Relationship Satisfaction[b] | 0.29*** | | | |
| Step 6 | | .32 | .00 | .03 (3, 6915) |
| Victim X Family Relationship Satisfaction | -0.003 | | | |
| Bully X Family Relationship Satisfaction | 0.001 | | | |
| Bully/Victim X Family Relationship Satisfaction | 0.002 | | | |

[a]Control variables included: Gender, Grade, FAS (Standardized), Black, Other race, Hispanic

[b]Mean centered

$\leq$.05 = *, $\leq$.01 = **, $\leq$ .001 = ***

**Model 6 – Relational bullying.** The dependent variable in Model 6 was life satisfaction. Model 6 included the control variables (race, socio-economic status, gender, and grade*),* as well as relational bullying victims, relational bullying perpetrators, and relational bully/victims. It also included the family factors of parental communication and parental involvement, as well as interaction terms with these variables. Additionally, it included family relationship satisfaction and relevant interaction terms. The completed model was significant F(21, 6953), $p \leq .001$ =158.29 and accounted for 32% ($R^2$ =.32) of the variance in children's life satisfaction. However, the test of the hypotheses for this study is not the overall model, but in the individual steps, as described below.

In Step 1 for Model 6, only control variables were in the analyses. The step was significant ($\Delta F$ =48.52, $p \leq .001$).

In Step 2 for Model 6, bullying experiences were added to the model. The step was significant ($\Delta F$ = 63.44, $p \leq .001$). Furthermore, bullying experiences were significant for two forms of bullying. Results for the individual forms of bullying status indicated a significant effect for being a relational bullying victim ($t$ = -4.83, $p \leq .001$), for being a relational bully/victim ($t$ = -3.76, $p \leq .001$). As such, life satisfaction is indeed lower for children who experience relational bullying as a victim or bully/victim, but not as a perpetrator. Therefore, only partial support for Hypothesis 1, (parts a, b, and c), predicting that children who report bullying experiences will also report lower life satisfaction, was found in this model.

In Step 3 for Model 6, parental factors of communication and involvement were added. This step was significant, ($\Delta F$ = 410.30, $p \leq .001$). An examination of the individual $t$ for each variable indicated that children with higher parental communication

($t = 2.42$, $p = .02$), and higher parental involvement ($t = 2.87$, $p \leq .01$), have higher levels of life satisfaction than children with lower levels of parental communication and involvement.

In Step 4 of Model 6, the interaction terms for each form of relational bullying experience and both parental communication and parental involvement (separately), were added to the model. The overall step was not significant ($\Delta F = .53$, $p = .79$), and none of the interaction terms for this step displayed significance. The support for Hypotheses 2a and 2b, regarding the moderation of parental communication and parental involvement on life satisfaction for children experiencing relational bullying, was not found.

Step 5 of Model 6 added family relationship satisfaction to the analyses. Family relationship satisfaction was a significant variable addition, and the step was significant at the $p \leq .001$ level, ($\Delta F = 1629.32$). Children with better family relationship satisfaction also experienced higher reported levels of life satisfaction.

Finally, in Step 6 of Model 6, the last interaction term (testing the interaction between family relationship satisfaction and each type of bullying experience) was added. This final step of the model was not significant ($\Delta F = 1.24$, $p = .29$). In addition, none of the individual interactions between relational bullying experiences and family relationship satisfaction were significant. This means that Hypothesis 2, which predicts that the relationship between bullying experiences and reported life satisfaction will be moderated by resources found in the parent-child relationship, was not proven to be true for relational bullying experiences of any sort. Table 19 provides final information for Model 6.

Table 19

*Final Hierarchical Regression Model for Life Satisfaction Regressed on Relational Bullying Experiences; Testing Moderation of Family Resources*

| | β | $R^2$ | Δ $R^2$ | ΔF(df) |
|---|---|---|---|---|
| Step 1 | | .04 | .04 | 48.52 (6, 6968)*** |
| Control variables[a] | | | | |
| Step 2 | | .07 | .03 | 63.44 (3, 6965)*** |
| Victim | -0.05*** | | | |
| Bully | -0.01 | | | |
| Bully/victim,\ | -0.04*** | | | |
| Step 3 | | .16 | .10 | 410.30 (2, 6963)*** |
| Parental communication[b] | 0.04* | | | |
| Parental involvement[b] | 0.05** | | | |
| Step 4 | | .17 | .00 | .53 (6, 6957) |
| Victim X Parental Communication | 0.01 | | | |
| Victim X Parental Involvement | 0.02 | | | |
| Bully X Parental Communication | -0.002 | | | |
| Bully X Parental Involvement | -0.002 | | | |
| Bully/Victim, X Parental Communication | -0.02 | | | |
| Bully/Victim, X Parental Involvement | 0.003 | | | |
| Step 5 | | .32 | .16 | 1629.32 (1, 6956)*** |
| Family Relationship Satisfaction[b] | 0.49*** | | | |
| Step 6 | | .32 | .00 | 1.24 (3, 6953) |
| Victim X Family Relationship Satisfaction | -0.01 | | | |
| Bully X Family Relationship Satisfaction | 0.01 | | | |
| Bully/Victim X Family Relationship Satisfaction | 0.02 | | | |

[a]Control variables included: Gender, Grade, FAS (Standardized), Black, Other race, Hispanic

[b]Mean centered

≤.05 = *, ≤.01 = **, ≤ .001 = ***

**Model 7 – Cyber bullying.** The dependent variable in Model 7 was mental health. Model 7 included the control variables (race, socio-economic status, gender, and grade*),* as well as cyber bullying victims, cyber bullying perpetrators, and cyber bully/victims. It also included the family factors of parental communication and parental involvement, as well as interaction terms with these variables. Additionally, it included family relationship satisfaction and relevant interaction terms. The completed model was significant $F(21, 6885) = 135.24$, $p \leq .001$ and accounted for 29% ($R^2 = .29$) of the variance in children's mental health. However, the test of the hypotheses for this study is not the overall model, but in the individual steps, described below.

In Step 1 for Model 7, only control variables were in the analyses. The step was significant ($\Delta F = 92.06$, $p \leq .001$).

In Step 2 for Model 7, the three types of bullying experiences were added to the model. The step was significant ($\Delta F = 70.34$, $p \leq .001$). Furthermore, bullying experiences were significant for all forms of bullying. Results for the individual forms of bullying experiences indicated a significant effect for being a cyber bullying victim ($t = -7.06$, $p \leq .001$), a cyber bullying perpetrator ($t = -3.94$, $p \leq .001$), and for being a cyber bully/victim ($t = -6.80$, $p \leq .001$). Mental health is indeed poorer for children with cyber bullying experiences as a victim, perpetrator, or bully/victim. Therefore, support for Hypothesis 1, (parts a, b, and c), predicting that children who report bullying experience will also report poorer mental health, was found for cyber bullying.

In Step 3 for Model 7 parental factors of communication and involvement were added. This step was significant, ($\Delta F = 569.57$, $p \leq .001$). An examination of the individual t for each variable indicates that children with higher parental communication

($t = 9.83$, $p \leq .001$), and higher parental involvement ($t = 9.83$, $p \leq .001$), have better mental health than children with lower levels of parental communication and involvement.

In Step 4 of Model 7, the interaction terms for each form of cyber bullying experience and both parental communication and parental involvement (separately), were added to the model. The overall step was significant,($\Delta F = 2.86$, $p \leq .01$) although only one of the interaction terms for this step displayed significance - that for cyber bully/victims and the interaction term for parental communication ($t = -2.78$, $p \leq .01$).

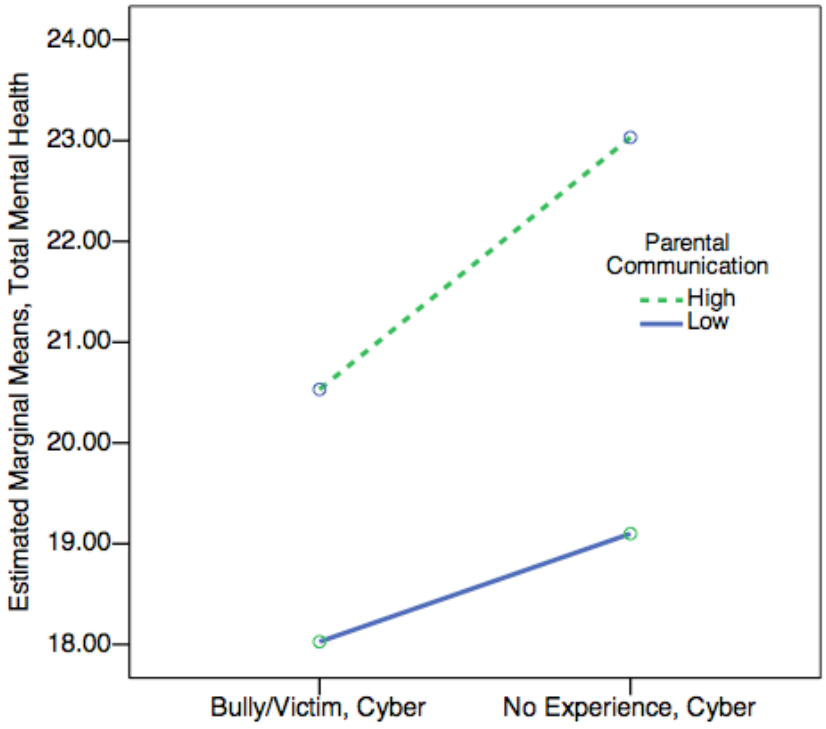
In order to better understand the nature of the interactions, the means on mental health were examined and plotted for cyber bully/victims and children with no cyber bullying experiences in the high and low parental communication group, as detailed in Table 20 and Figure 13.

Table 20

*Children's Reported Mental Health Means in Relation to Parental Communication and Cyber Bully/Victim Status*

| | Bully/Victim, Cyber | No Experience, Cyber |
|---|---|---|
| High level of parental communication | 20.53 | 23.03 |
| Low level of parental communication | 18.03 | 19.10 |

Figure 13. Estimated Marginal Means of Total Mental Health, Model 7 (Parental Communication)




As can be seen from Table 20 and Figure 13, the nature of the interaction was that high scores for parental communication are related to better mental health for both groups; however, there was a larger effect for children with no cyber bullying experiences. As such, Hypotheses 2a, which posits that the relationship between bullying experiences and mental health will be moderated by parental communication was not supported. Although there was moderation, it was not in the direction predicted. The difference in mental health between the high and low groups was greater for those with no cyber bullying experiences than the cyber bully/victims. In other words, adolescents without cyber bullying experiences benefited from high levels of parental communication more than those with cyber bullying experiences (in this case, cyber bully/victims).

Step 5 of Model 7 added family relationship satisfaction to the analyses. Family relationship satisfaction was a significant variable addition, and the step was significant at the $p \leq .001$ level, ($\Delta F = 593.30$). Children with higher family relationship satisfaction also experienced better mental health.

Finally, in Step 6 of Model 7, the last interaction term (testing the interaction between family relationship satisfaction and each type of bullying experience) was added. This final step of the model was not significant ($\Delta F = .46$, $p$ .71). In addition, none of the individual interactions between cyber bullying experiences and family relationship satisfaction were significant. This means that Hypothesis 2, predicting that the relationship between bullying experiences and reported mental health will be moderated by resources found in the parent-child relationship, was not supported for cyber bullying experiences of any sort. Table 21 provides final information for Model 7.

Table 21

*Final Hierarchical Regression Model for Mental Health Regressed on Cyber Bullying Experiences; Testing Moderation of Family Resources*

| | β | $R^2$ | Δ $R^2$ | ΔF(df) |
|---|---|---|---|---|
| Step 1 | | .07 | .07 | 92.06 (6, 6900)*** |
| Control variables[a] | | | | |
| Step 2 | | .10 | .03 | 70.34 (3, 6897)*** |
| Victim | -0.08*** | | | |
| Bully | -0.04*** | | | |
| Bully/victim,\ | -0.08*** | | | |
| Step 3 | | .23 | .13 | 569.57 (2, 6895)*** |
| Parental communication[b] | 0.13*** | | | |
| Parental involvement[b] | 0.13*** | | | |
| Step 4 | | .23 | .00 | 2.86 (6, 6889)** |
| Victim X Parental Communication | 0.002 | | | |
| Victim X Parental Involvement | -0.002 | | | |
| Bully X Parental Communication | -0.02 | | | |
| Bully X Parental Involvement | -0.02 | | | |
| Bully/Victim, X Parental Communication | -0.03** | | | |
| Bully/Victim, X Parental Involvement | 0.002 | | | |
| Step 5 | | .29 | .06 | 593.3 (1, 888)*** |
| Family Relationship Satisfaction[b] | 0.30*** | | | |
| Step 6 | | .29 | .00 | .46 (3, 6885) |
| Victim X Family Relationship Satisfaction | 0.02 | | | |
| Bully X Family Relationship Satisfaction | 0.01 | | | |
| Bully/Victim X Family Relationship Satisfaction | 0.00 | | | |

[a]Control variables included: Gender, Grade, FAS (Standardized), Black, Other race, Hispanic

[b]Mean centered

≤.05 = *, ≤.01 = **, ≤ .001 = ***

**Model 8 – Cyber bullying.** The dependent variable in Model 8 was life satisfaction. Model 8 included the control variables (race, socio-economic status, gender, and grade*),* as well as cyber bullying victims, cyber bullying perpetrators, and cyber bully/victims. It also included the family factors of parental communication and parental involvement, as well as interaction terms with these variables. Additionally, it included family relationship satisfaction and relevant interaction terms. The completed model was significant $F(21, 6923) = 159.28$, $p \leq .001$ and accounted for 32% ( $R^2 = .32$) of the variance in children's life satisfaction. However, the test of the hypotheses for this study is not the overall model, but in the individual steps, described below.

In Step 1 for Model 8, only control variables were in the analyses. The step was significant ($\Delta F = 48.97$, $p \leq .001$).

In Step 2 for Model 8, bullying experiences were added to the model. The step was significant ($\Delta F = 29.51$, $p \leq .001$). Furthermore, bullying experience was significant for two forms of bullying. Results for the individual forms of bullying experiences indicated a significant affect for being a cyber bullying victim ($t = -3.47$, $p \leq .001$) and for being a cyber bully/victim ($t = -3.89$, $p \leq .001$). Life satisfaction is indeed lower for children who experience cyber bullying as a victim or bully/victim, but not as a perpetrator. Therefore, Hypothesis 1, (parts a, b, and c), predicting that children who report bullying experiences will also report lower life satisfaction, was partially supported for cyber bullying.

In Step 3 for Model 8, parental factors of communication and involvement were added. This step was significant, ($\Delta F = 447.21$, $p \leq .001$). An examination of the individual t for each variable indicated that children with higher parental communication

(t = 3.95, $p \leq .001$), and higher parental involvement (t = 3.03, $p \leq .01$ ), have better life satisfaction than children with lower levels of parental communication and involvement.

In Step 4 of Model 8, the interaction terms for each form of cyber bullying experience and both parental communication and parental involvement (separately), were added to the model. The overall step was significant,( $\Delta F = 3.32$, $p \leq .01$), although only the interaction terms for parental communication displayed significance for this step, for cyber bullying perpetrators and cyber bullying bully/victims ($t = -2.44$, $p \leq .05$, $t = -3.36$, $p \leq .01$, respectively).

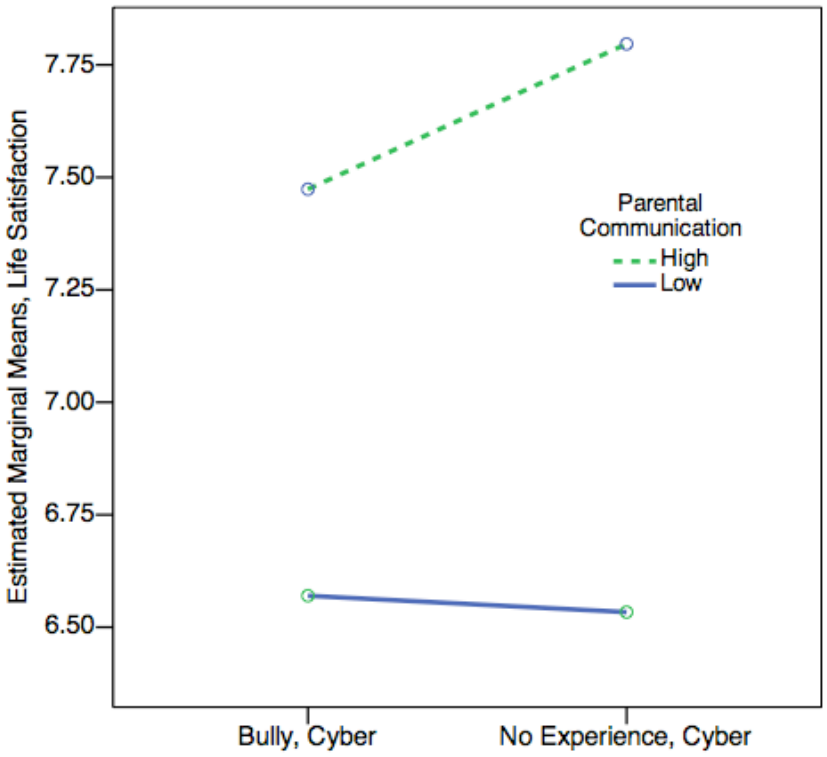
In order to better understand the nature of the interactions, the means on life satisfaction were examined and plotted for cyber bullying perpetrators and children with no cyber bullying experiences, as well as cyber bully/victims and children with no cyber bullying experiences in the high and low parental communication group. Table 22 and Figure 14 provide information for cyber bullying perpetrators and children with no cyber bullying experiences. Table 23 and Figure 15 provide information for cyber bully/victims and children with no cyber bullying experiences.

Table 22

*Children's Reported Life Satisfaction Means in Relation to Parental Communication and Cyber Bully Status*

| | Bullying Perpetrator, Cyber | No Experience, Cyber |
|---|---|---|
| High level of parental communication | 7.47 | 7.80 |
| Low level of parental communication | 6.57 | 6.53 |

Figure 14. Estimated Marginal Means of Life Satisfaction, Model 8 (Parental Communication)




Interestingly, cyber bullying perpetrators average slightly higher life satisfaction than children with no cyber bullying experiences, at low levels of parental communication. That said, as can be seen from Table 22 and Figure 14, the nature of the interaction was that high parental communication was related to better life satisfaction for both groups. Hypothesis 2a posits that the relationship between bullying experiences and life satisfaction will be moderated by parental communication was not supported. The difference in life satisfaction between the high and low groups was greater for those with no cyber bullying experiences than the cyber bullying perpetrators. In other words, adolescents without cyber bullying experiences benefited from high levels of parental

communication more than those with cyber bullying experiences (in this case, cyber bullying perpetrators).

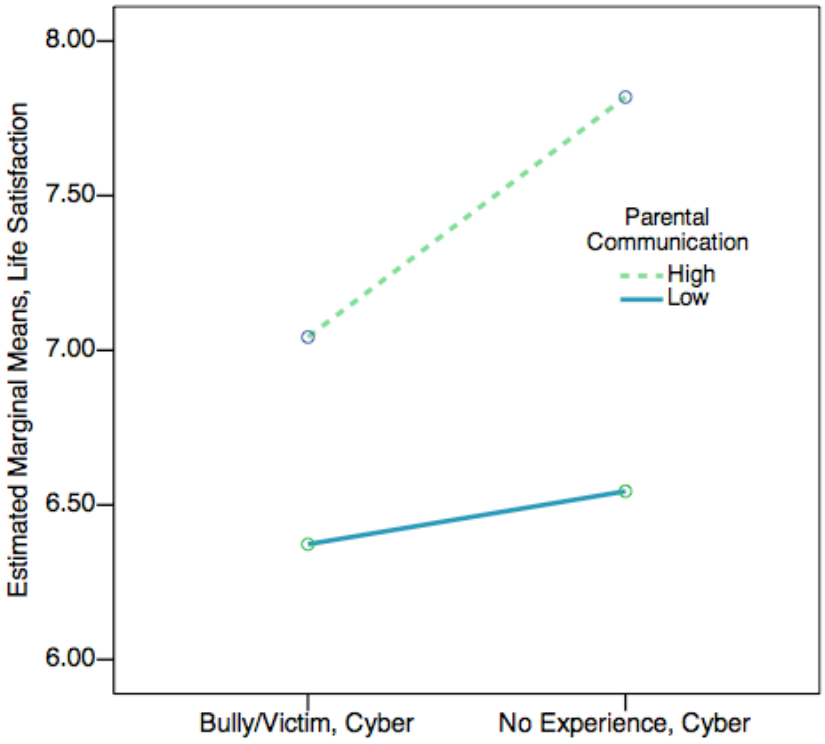
Regarding the significant interactions between cyber bully/victim experience and parental communication, the means of reported life satisfaction for children who identify as cyber bully/victims, as well as those who do not have cyber bullying experiences, in relation to high and low levels of parental communication are displayed in Table 23 and Figure 15.

Table 23

*Children's Reported Life Satisfaction Means in Relation to Parental Communication and Cyber Bully/Victim Status*

| | Bully/Victim, Cyber | No Experience, Cyber |
|---|---|---|
| High level of parental communication | 7.04 | 7.82 |
| Low level of parental communication | 6.37 | 6.54 |

Figure 15. Estimated Marginal Means of Life Satisfaction, Model 8 (Parental Communication)




As can be seen from Table 23 and Figure 15, the nature of the interaction was that high levels of parental communication were related to better life satisfaction for both groups; however, it had a larger effect for the children with no cyber bullying experiences. As such, Hypothesis 2a, which posits that the relationship between bullying experiences and life satisfaction will be moderated by parental communication was not supported. Although there was moderation, it was not in the direction predicted. The difference in life satisfaction between the high and low groups was greater for those with no cyber bullying experiences than the cyber bully/victims. In other words, adolescents without cyber bullying experiences benefited from high levels of parental communication more than those with cyber bullying experiences (in this case, cyber bully/victims).

Step 5 of Model 8 added family relationship satisfaction to the analyses. Family relationship satisfaction was a significant variable addition, and the step was significant at the $p \leq .001$ level, ($\Delta F = 1664.83$). Children with better family relationship satisfaction also had better life satisfaction.

Finally, in Step 6 of Model 8, the last interaction term (testing the interaction between family relationship satisfaction and each form of bullying experience) was added. This final step of the model was not significant ($\Delta F = .88$, $p = .45$). In addition, none of the individual interactions between cyber bullying experiences and family relationship satisfaction, were significant. This means that Hypothesis 2, predicting that the relationship between bullying experiences and reported mental health will be moderated by resources found in the parent-child relationship, was not proven to be true for cyber bullying experiences of any sort. Table 24 provides final information for Model 8.

Table 24

*Final Hierarchical Regression Model for Life Satisfaction Regressed on Cyber Bullying Experiences; Testing Moderation of Family Resources*

| | β | $R^2$ | Δ $R^2$ | ΔF(df) |
|---|---|---|---|---|
| Step 1 | | .04 | .04 | 48.97 (6, 6938)*** |
| Control variables[a] | | | | |
| Step 2 | | .05 | .01 | 29.51 (3, 6935)*** |
| Victim | -0.04** | | | |
| Bully | -0.001 | | | |
| Bully/victim,\ | -0.04*** | | | |
| Step 3 | | .16 | .11 | 447.21 (2, 6933)*** |
| Parental communication[b] | 0.05*** | | | |
| Parental involvement[b] | 0.04** | | | |
| Step 4 | | .16 | .00 | 3.32 (6, 6927)** |
| Victim X Parental Communication | 0.01 | | | |
| Victim X Parental Involvement | -0.01 | | | |
| Bully X Parental Communication | -0.03* | | | |
| Bully X Parental Involvement | -0.02 | | | |
| Bully/Victim, X Parental Communication | -0.04** | | | |
| Bully/Victim, X Parental Involvement | -0.01 | | | |
| Step 5 | | .33 | .16 | 1664.83 (1, 6926)*** |
| Family Relationship Satisfaction[b] | 0.50*** | | | |
| Step 6 | | .33 | .00 | .88 (3, 6923) |
| Victim X Family Relationship Satisfaction | -0.01 | | | |
| Bully X Family Relationship Satisfaction | 0.002 | | | |
| Bully/Victim X Family Relationship Satisfaction | 0.02 | | | |

[a]Control variables included: Gender, Grade, FAS (Standardized), Black, Other race, Hispanic

[b]Mean centered

≤.05 = *, ≤.01 = **, ≤ .001 = ***

# Chapter 5: Discussion

The purpose of the current study was to test the applicability of the ABC-X, or Family Stress Theory model, as it relates to experiences of bullying. Specifically, utilizing the HBSC dataset, eight models were run and tested, to ultimately determine if family factors moderated the relationship between bullying experiences and both mental health and life satisfaction. The findings of these models are detailed in the Results section of this study. As such, the Discussion section will focus only on the findings in each model that are worthy of note and further consideration. Some of the most salient findings are those of the main effects tested in the models; those of the relationship between bullying experiences and the dependent variables of mental health and life satisfaction. Also, the relationship between family factors and mental health and life satisfaction was enlightening. Additionally, the crux of the research study, which was the moderating effect of family factors on children's mental well-being, in relation to their bullying experiences, revealed surprising results.

## Interpretation of Findings

**Hypothesis 1.** Hypothesis 1 posits that bullying experiences are related to poorer mental health and lower life satisfaction in adolescents. In nearly all situations, this was supported. Two exceptions, discussed later, run counter to the hypothesis. That said, the overarching belief that bullying, whether it be as a victim, perpetrator, or bully/victim is related to poor mental health and life satisfaction is supported. In general, this relationship holds regardless of whether the bullying is physical, verbal, relational, or cyber. These findings are important in the current study because if they were not proven to be true, then the moderating effects of family factors on mental health and life

satisfaction, for children with bullying experiences, would be irrelevant, because their mental health and/or life satisfaction would not be compromised. Thus, further consideration of ways of mitigating the relationship between the bullying experiences and the dependent variables of mental health and life satisfaction would not be warranted.

Beyond the relevance of these findings for the current study, the relationship between bullying experience and child well-being is of immense importance. Recent headlines have illustrated the potential fatal consequences of bullying victimization. The perpetrators of the bullying, in these unfortunate cases, are faced with an altered life trajectory due to their experience, as well. The well-being of bullying perpetrators does not frequently receive media attention, but may be an important point of consideration when exploring modes of bullying intervention or attempted elimination of bullying in schools.

Additionally, children may play both the roles of bullies and victims. Literature finds that those fitting this hybrid experience fare worse than those who are only victims or perpetrators of bullying behaviors. Recognizing the level of impairment in the mental well-being and happiness of these children who have dual-sided bullying involvement is vital to completing the full portrait of the mental health and wellness of those with bullying experiences.

It should be noted at the outset that causality is not tested in this research study. It cannot be assumed that poorer mental health and lower life satisfaction are the result of bullying victimization, bullying perpetration, or bully/victim experiences for any of the bullying types considered. Rather, it is possible that children who have poorer mental health and/or lower life satisfaction are more prone to have bullying experience. The

relationship may also point in both directions; children with poorer mental health and/or lower life satisfaction may be more likely to experience bullying in some way than those with better mental health and higher life satisfaction. Children with bullying experiences may also have poorer mental health and lower life satisfaction as a result of the bullying. Any one of these three directions of causality is possible in any type of bullying and any form of bullying experience considered.

It is particularly important to note that there is a strong possibility that children who are bullying perpetrators are acting out based on their own mental health challenges or in an effort to improve their life satisfaction. As detailed later in this section, perpetration of cyber and relational bullying was associated with higher life satisfaction in this study. This finding may potentially support the notion that bullying perpetration may serve as a means of attempting to ultimately improve life satisfaction by securing social power via bullying others.

Based on a social learning perspective, children who perpetrate bullying may be modeling behaviors experienced at home. Children whose families display bullying-type behaviors towards them are very likely to suffer poor mental health in connection to these experiences. As such, if children are perpetrating bullying behaviors based on modeled behaviors, there is a strong possibility that they are experiencing poor mental health as well. That said, longitudinal studies of bullying and mental health are not readily available; as such, conclusive determination of a causal link tying mental health to bullying perpetration, with poor mental health as a precursor to perpetration, is difficult to identify.

Although causality is never examined, the linkage between mental health and life satisfaction with bullying experiences is clearly proven in these analyses. As mentioned earlier, two exceptions to the linkage between bullying experiences and dependent variables were found. For Model 6, which includes relational bullying and life satisfaction, it was found that relational bullying perpetrators do not display low life satisfaction compared to children who are not experiencing bullying at all. Additionally, in Model 8, cyber bullying perpetrators did not have lower life satisfaction than those not experiencing cyber bullying. Both of these models are ones in which life satisfaction is the dependent variable, and in both cases it is the bullying perpetrators who are not faring worse than their counterparts who are not experiencing bullying. The variable that sets these two models apart is the type of bullying that the children who do not fit the predicted outcomes are perpetrating. For Model 6, it is relational bullying, and for Model 8, it is cyber bullying. These types of bullying may be unique for a number of reasons.

One factor that is worthy of consideration is the method in which these types of bullying may occur. For both relational and cyber bullying, in contrast to physical and verbal bullying, the perpetration may be less direct. For example, if a child is physically or verbally abusive, he or she is likely perpetrating the bullying behaviors in a transparent and personal manner; directly engaging with the victim. It is clear which child is the perpetrator, and he or she is thus not able to hide from his or her role in perpetration (Wang, Iannotti, & Nansel, 2009). In contrast, relational bullying may be more subtle in its perpetration (Frisen, Jonsson, & Persson, 2007). Furthermore, relational bullying may actually occur as a group. As such, the perpetrating children may be hiding behind others. Also, relational bullying may also be bullying by exclusion (Frisen, Jonsson, & Persson,

2007); “passive aggressive” bullying is thus possible among relational bullying perpetrators. For example, bullying may take the form of specific exclusion of a child from a social group or gathering. Therefore, it is less direct, and the perpetrator may not be as easily identified.

Similarly, perpetrators of cyber bullying, which occurs on-line or via cell phones, may be able to engage in bullying in a less personal, and even anonymous manner (Drogin & Young, 2008; Li, 2007). Cyber bullying allows for a shield of anonymity, as perpetrators may take on screen names that make them difficult to identify, may adopt pretend personas, and may even send bullying e-mails from accounts that are not connected with their names in any way. Similarly to relational bullying, with cyber bullying, there is less transparency and the identity of the perpetrator may be masked (Drogin & Young, 2008; Li, 2007).

As noted, the causality of the relationships between mental health and life satisfaction, in relation to bullying experiences, is not tested in this study. That said, the unique findings of Model 6 and Model 8 are interesting in that life satisfaction is not negatively related to bullying perpetration in cases in which the perpetrator can more easily hide his or her identity or blend in with a group. Perhaps the blatant and direct responsibility for the bullying is relevant to a child’s life satisfaction. Also worthy of consideration is that perpetrators consistently reported lower mental health, even though life satisfaction was not lower with relational and cyber bullying perpetrators. Although one’s life satisfaction may not be lower when perpetrating some of the less direct forms of bullying, perpetrators’ mental health remains poorer than for those who are not experiencing bullying at all. Although the reason for the ties between mental health and

perpetration remaining despite bullying type are unknown for certain, one consideration could be that life satisfaction is actually unaffected by the perpetration - perhaps due to a feeling of power or enjoyment that the perpetrator feels. In fact, a research study of over 250 children in Canadian middle and high schools found that approximately 63% of children believed that cyber bullying was perpetrated for fun (Li, 2010). Students appear to believe that there is indeed pleasure involved in cyber bullying perpetration.

Furthermore, as discussed, perpetrators of relational or cyber bullying have the ability to bully anonymously; however, they may choose to not exercise that option. Hurting or "putting down" peers may actually be a means of securing social power and climbing adolescent social ranks. Relational and cyber bullying may be the ideal means of building social power at the expense of others because they may not carry the same consequences as verbal or physical bullying perpetration (for example, school suspension or expulsion). Interestingly, a recent study cited retaliation as the top reason for cyber bullying perpetration (Mark & Ratliffe, 2011). This is an interesting finding in that a child who hits of insults another may be immediately hit or verbally insulted back by the victim. The initial perpetrator thus does not only fail in securing more social power, but may lose some as well. On the other hand, with relational and cyber bullying such immediate and obvious "counter attacks" are more difficult to wage. Thus, these modes of bullying may be a better mode or obtaining social power and possibly increasing life satisfaction as a result, since peer acceptance and social clout are likely important components of adolescent happiness. It may even be seen as an "innocent" path towards these means, as children may not even see it as having a negative impact on others (Li, 2010).

**Hypothesis 2.** Hypothesis 2 considers the moderating effect of the tested family factors (parental involvement and communication) on mental health and life satisfaction. Main effects of the family factors of parental involvement and communication in relation to the dependent variables of mental health and life satisfaction were particularly interesting, even though they are not explicitly part of Hypothesis 2. Not surprisingly, children who reported better parental communication also reported better mental health and higher life satisfaction than those with lower parental communication in all eight models that were tested. The same was true for the family factor of parental involvement, with only one exception - Model 4, in which parental involvement did not appear to have a significant relationship with life satisfaction. Model 4 specifically included verbal bullying experiences.

The realization that family factors of parental communication and involvement are nearly always related to better mental health and higher life satisfaction is important in that if the family factors were not related to the dependent variables, then it is unlikely that they would have a moderating effect in light of bullying experiences. Of course, the main effects relationship does not guarantee a moderating relationship, as discussed below. Furthermore, causality is once again not explored. As such, it is possible that children with better mental health and/or higher life satisfaction are simply more involved and communicative with their parents. Furthermore, the relationship can be bi-directional; children with better mental health and/or better life satisfaction may have better parental involvement and/or communication, and their mental health and life satisfaction may flourish because of this interaction with parents. Any one of these three options for causality are possible for any one of the eight tested models, and any

combination of family factors and dependent variables. That said, findings of a main effect relationship are helpful, in that families that are concerned about their children's mental and emotional well-being may have a clear indication that maintaining strong communication and involvement is vital; even if causality if not definite, the relationship is clear.

Although it was informative to find that family factors are related to children's mental health and life satisfaction, the moderating effect of the factors was the crux of this research project. It was predicted that the family factors would moderate the link between bullying experience and measures of well-being, such that these factors would have a greater protective effect on those with bullying experience than those without. In other words, although high scores on communication and involvement with parents is beneficial for all adolescents, it was hypothesized to be particularly beneficial for those experiencing bullying. When taken as a group, the tests for interactions revealed only scattered support for the moderating effects of tested family factors on the mental health and life satisfaction of children with bullying experience. They did not reveal that there is a consistent difference in the protective value of parental involvement, communication, or family relationship satisfaction for those experiencing bullying, *when compared to children who are not experiencing bullying.*

Additionally, further examination of the significant interactions that were found suggested that in all but three cases it was those not experiencing bullying who benefitted the most from strong family relationships. In the majority of cases, the increase in mental health and life satisfaction scores for those with high parental communication or involvement was greater for the group of children not experiencing bullying than for the

children who had bullying experiences. In other words, outside of the three situations discussed below, the moderated relationship between mental health/life satisfaction and bullying experiences rarely played out as anticipated. Instead, the enhanced benefit of strong family relationships for those not experiencing bullying at all, were uncovered.

Examination of the three unique situations that reveal a protective property of family factors for those with bullying experiences finds some interesting similarities in the models. In the interactions in which the family factors were more beneficial for those with bullying experiences than for those without, the dependent variable was mental health, the family factor was parental involvement, and the bullying experiences were of either victimization or bullying/victimization. In two of these unique situations, the bullying type was verbal (Model 3), and in the other case, the bullying type was relational (Model 5). Interestingly, the difference between the models may be minimal; reviewed literature does not always distinguish between relational and verbal bullying. Often, verbal bullying may overlap with relational bullying in that the social isolation that children may experience and interpret as relational bullying may stem from or be fueled by verbal bullying experiences as well. Additionally, relational and verbal bullying are noted to be more common among females (Wang et al., 2009), and to bare less evidence of their occurrence. For example, physical bullying may leave actual bruises or injuries as proof of its infliction, and cyber bullying leaves a trail of digital pictures, texts, voice mails, emails, or messages on social networking sites, as evidence of its occurrence. In contrast, verbal and relational bullying may be perpetrated in more covert or untraceable ways that do not lend themselves to clear proof of their occurrence.

Although similarities between the two aforementioned interactions may be simple to recognize, the reason for the unique outcomes for these similar situations is far more difficult to determine. One potential explanation for the enhanced moderating effect of parental involvement on mental health for both relational and verbal bullying victims, as well as verbal bully/victims, is that the parental involvement items on the survey deal largely with maternal and paternal awareness of children's whereabouts, friends, and interests. Perhaps parental knowledge of these more social situations is helpful for children who are being victimized in ways that are more social as well. Specifically, parents who are familiar with a child's friends may be able to help the child work through ways to digest or handle confrontations or exclusion. They may also be able to encourage their children to spend more time with other friends, or to do other activities that they know that the child enjoys. There may even be some space for the parents to intervene, since they are possibly familiar with the offending parties. Any one, or a combination, of these factors may explain the moderating power of parental involvement in terms of its ability to moderate the relationship between verbal and relational victimization, as well as verbal bully/victimization and a child's overall mental health.

The potential interplay of the variables and their relevance to children's lives is one way of extracting meaning from the three significant interactions in which the difference in mental health of the low and high parental involvement group was greater for those with bullying experiences than those without. Another method of extrapolating meaning from these findings is an examination of the properties of the variables. In particular, it is important to note that the samples of children experiencing verbal and relational victimization in the HSBC 2005/2006 dataset were far larger than those

reporting experiences of physical and cyber victimization. Similarly, the sample of children who were found to be verbal bully/victims was larger than that of other bully/victims. In total, over 7,500 respondents comprised each victimization category. In all, 20.2% of respondents reported experiences of verbal bullying victimization, and 25.4% reported experiences of relational victimization, whereas 8.3% of respondents reported experiences of physical victimization, and only 5.3% reported experiences of cyber bullying victimization. It is, therefore, possible that the results for these two groups are not unique at all, rather they were simply easier to identify due to the larger sample of children experiencing these forms of bullying.

Similarly, the sample of children who were identified as verbal bully/victims, was the largest bully/victim group out of all four bullying types. For verbal bullying/victimization, 25% of the sample of over 7,500 children was positively identified. In contrast, 17.7% were identified as relational bully/victims, only 6.1% were identified as physical bully/victims and just 4.7% were found to be cyber bully/victims.

Reasons that a moderating effect of family resources was not found in the majority of situations analyzed are worthy of consideration as well. One key factor in the lack of more significant findings in analyses conducted on the moderating effect of family resources may be an overall absence of parental knowledge of bullying incidents. It is difficult to benefit from family resources if the possibility for parental intervention does not exist. This is often the case, as children who experience bullying are very possibly not even sharing their experiences with their parents. In fact, numerous recent studies on cyber bullying found that children are actually not likely to notify parents of its occurrence. Only about half of children in Holfeld and Grabe's (2012) study shared their

victimization experiences with parents; more told peers. Furthermore, in Goebert et al.'s (2011) study only 1 in 3 reported that they shared information regarding cyber bullying victimization with their parents. Additionally, Li's (2010) found far lower numbers; only one in 10 children in that study stated that they would tell an adult if they were cyber bullied.

Children not even telling their parents about their victimization experiences may be particularly unique to cyber bullying in that children may fear loss of freedom to use the internet or technology if their parents (Goebert, et al., 2011) or other adults (Li, 2010) knew about their experiences. In Mark and Ratliffe's (2011) study, 80% of children reported that they did not think that their parents would even stop cyber bullying if they were aware of it. Parents were also found to be no more useful than peers in halting cyber bullying perpetration in Holfeld and Grabe's (2012) study. These are clearly reason that children may not bother to share their victimization experiences with parents, particularly if there is the potential to lose freedoms to use technology. Finally, children may not expect their parents to even have knowledge of the technology used in perpetration, as new "apps" and websites that may be used to perpetrate behaviors may be more familiar to youth than to adults.

**Theoretical Application of Findings**

The ABC-X or Family Stress Theory was utilized in the development of this study. As detailed in the "Theory" section, the "A" in the model was the bullying experience, the "B" was the resources, or in this case, the family factors that theoretically serve to be protective to children experiencing bullying in some manner, the "C" is the variable of family relationship satisfaction, which served to measure the children's

assessment of the resources available to them to help work through the bullying experiences, and the "X" in the theory was the related mental health or life satisfaction that the children experienced, in light of their experiences of the stressor, their family resources and their interpretation of these resources.

In an effort to test the statistical models from a theoretical perspective, data were entered in a step-by-step method for each model. The first step contained all variables that were held constant in the study, to ensure that factors such as gender, grade level, race or socio-economic status did not figure in to results. The next step contained the bullying experiences of children, or "A," theoretically. "B" then came in to the model - the family factors of parental communication and parental involvement. Moderation of the family factors, prior to the addition of the "C" piece of the theory, were tested in Step 4 of each model. Step 5 then contained the "C" in the theory; family relationship satisfaction, and Step 6, the final step of each model, tested for potential moderation of "C," after all other factors had been taken in to account. As such, steps 2, 4, and 6 would all need to be significant in a model, in order for the ABC-X theory to be supported, as these are the steps that actually test each piece of the theory.

Ultimately, none of the eight models tested were found to adhere to the ABC-X framework. In fact, Step 6 was only significant for one of the models tested. For others, Step 2 was consistently significant, and Step 4 was often significant as well, but not in the direction predicted. In no models, however, were all three steps that align with the ABC-X model significant. Theoretically, all components must work together appropriately, in order for the Family Stress theory to be adequately applied to a concept. Determination of

reasons for the analyses not adhering to the Family Stress Theory, as posited, should be explored.

The lack of findings supporting the theoretical construct from which this study stems may be the result of a variety of factors. First of all, it is possible that the variables used to fulfill the components of the theory did not actually fit. "A" and "B" were always significant; however, the benefit was most commonly greater for those without bullying experiences than those with bullying experiences. This means that in reality, the "A", or the stressor of experiencing bullying, did not work with the other variables, in terms of moderation, as expected. To expand, children who experienced bullying in some way (A), did not have greater benefits to their overall mental health or life satisfaction (X), based on their family resources (B), and the interpretation of those resources (C), than those without the stressor of bullying experiences (A).

Consideration of the other variable in the study - the interpretation of the family resources (C), may help make sense of the surprising findings. The best available option in the HBSC 2005/2006 dataset for a "C," or measure of the child's perception of available resources, was that of family relationship satisfaction. Measurement of the satisfaction with the specific family factors measured as the "B" component was not available. The use of a question in the dataset that employs a 1-10 scale to signify "Family Relationship Satisfaction" served as a general proxy, but may not have captured the specific areas in which a child is satisfied or dissatisfied with his or her family, or if the children perceive engagement with parents as a resource they can utilize. Also, children may have expanded the notion of "Family Relationship Satisfaction" to encompass extended families, step-parents, and even siblings, as such, children may have

factored in their satisfaction with family members beyond their parents when determining their levels of satisfaction with their families. The measurement may then have not accurately reflected the child's assessment of the "B" component of the theory, which was very specifically parental communication and involvement. The assumption that the "Family Relationship Satisfaction" variable would serve as an appropriate proxy for the child's assessment of parental communication and parental involvement was perhaps erroneous. That said, it was the best choice of measurement of these components, given the available data.

The application of the ABC-X Model that was employed in this study may have been problematic as well. Although the "C" serving as an interpretation of resources ("B"), is an accepted understanding of the theory (University of Akron, n.d.), it is not the only one. Commonly the "C" is defined as the meaning give to "A" or the presenting problem (Weber, 2011). Variables relevant to this theoretical application were not available in the dataset, however. As such, the alternate understanding of "C" was used to guide analyses. That said, findings may have differed greatly with different theoretical interpretation.

Finally, as detailed towards the beginning of this section, although the theory was applied in a manner that did not include proof of causality – due to the cross-sectional nature of data, it is possible that the relationships between the mental health, life satisfaction and bullying did not fit merely in the manner fitting the ABC-X model. Findings of this study point to the potential that the "X" or "crisis" that is related to the problems or stressor ("A"), may actually be more of a cause than an effect. Children may experience poor mental health or life satisfaction and bully others as a result; as discussed

in this section in the consideration of social power, life satisfaction and relational and cyber bullying. In other words, children may experience poor mental health or life satisfaction and bully others as a result. This, in effect, reverses the "X" and the "A" in the ABC-X theory as it is applied in this study. One option to avoid potential challenges posed by the possibility that the "A"- stressor and "X" – crisis, are reversed in the cases of bullying perpetration, would be to pull perpetrators from analyses. The lack of longitudinal research supporting this arguably logical causal relationship, however, did not support such a decision. That said, had only victims and bully-victims been used in analyses, results may have actually supported the application of the ABC-X theory to this study.

Theory helps drive research in the field of Family Science, and family-based theories lend themselves to the exploration of vast and varying phenomena. That said, when working with data that are not collected for the sole purpose of one study, researchers are forced to identify variables that best measure theoretical concepts. At times, the available data may not be the best data to explore the chosen theory. This is very possibly the case in this research project.

**Limitations**

A number of limitations may account for the ultimate findings of minimal support for Hypothesis 2 and a lack of supporting evidence for the theoretical framework on which the study was based. One important consideration is that, overall, a relatively small number of children even reported bullying experiences. In fact, early incarnations of this research project anticipated that bullying would be studied as a continuous variable, or that the sample would be broken into three levels of bullying experience frequency; high,

medium and low. This was believed to be important because it was posited that children with frequent bullying experiences likely have far different mental health or life satisfaction than those with only occasional, or even lone bullying experiences. However, the sample was ultimately broken into only those with any bullying experiences and those with none at all because of the small sample size of children reporting any bullying experiences, particularly beyond a minimal amount. For example, the percentage of respondents indicating they had perpetrating bullying more than the minimal response ("once or twice") from a high of only 6.4% for relational bullying to a low of 3.0% for cyber bullying. Victimization rates, higher than the minimal response, ranged from a high of 11.4% for relational victims to only 3.0% for cyber victims. Finally, a high of 25% of the sample were identified as bully/victims for the verbal bullying category, whereas a low of only 4.7% of the sample were found to be cyber bully/victims. As such, the relatively low number of children reporting relatively frequent bullying experience resulted in an inability to analyze the sample based on experience frequency (high, medium, low) as initially anticipated, Furthermore, the relatively low number of children with any bullying experiences may have contributed to results that seemed similar for each bullying type. As each type of bullying and bullying experience was considered separately, it is possible that the same few children with bullying experiences were captured in the study, and despite the large sample size, in reality, only a small sample was repeatedly represented in each model.

Questions concerning the validity of collected data may arise in light of the realization that the majority of students surveyed had no bullying experiences at all, for each of the bullying types. Media coverage of bullying, attempts to enact bullying

legislation, government-sponsored anti-bullying programs, and celebrity endorsed anti-bullying campaigns, all point to the assumption that bullying is an enormous and prevalent problem that children face almost daily. How does the most recent HBSC survey find otherwise? One possible explanation for the low frequency of bullying experiences reported in the survey is that children merely under-reported their bullying encounters. They may have feared repercussions, if they were perpetrators, or may have not wanted to label themselves as victims, due to social stigma. Another potential explanation is that children did not recognize all of the bullying encounters that they have had. They may have chosen to disregard and try to forget about experiences that upset them. Also, this HBSC survey, which was administered in 2005, is the first to include cyber bullying. Although the phenomenon now garners significant attention in the public eye, it may have not yet been as popular or prevalent as it is now that social networking sites and smartphones are more regularly used and more widely available to America's youth. In fact, in 2006 (the earliest year for which data were found), only 27% of teens were using text messaging daily, compared to 54% in 2009. Social networking site usage as a daily point of contact between teens was only at 21% in 2006 as well (Pew Research Center, 2010). These numbers may help explain what appear to be surprisingly low rates of cyber bullying reported in the HBSC 2005 data.

The emphasis on bullying as a public health threat has been propelled by horrific stories of teen and pre-teen suicides following bullying encounters. The cases of bullying victimization with fatal consequences receive heightened attention, thereby highlighting what may in fact be an infrequent problem that can have extreme consequences when it does occur. For those who are experiencing bullying, it may be a severe and life-

threatening problem. This may be exacerbated by the fact that victimization may in fact be uncommon, reinforcing a feelings of loneliness and isolation in the experience. All of these possibilities reasonably justify the validity of the low frequency of bullying experiences reported by children taking the most recent HBSC survey, despite assumptions that bullying is a prevalent and regular threat.

Another limitation that was detailed previously, is that this study does not consider causality. Based on analyses run in this study, it is not possible to say that bullying experiences cause poorer mental health or lower life satisfaction; merely that there is a relationship between these factors. A study that was longitudinal in nature would be better suited for determining the nature of the relationship between the variables. Determining the specific nature of the relationship may strengthen arguments regarding the dangers of bullying experiences and may better inform bullying interventions. That said, the mere presence of a relationship between variables maintains the potential to be useful and informative in its own right.

Touched on in the "Theory" discussion is the limitation of using prior collected data. Although the HBSC dataset is ideal in that it is rich in information and draws from a large, nationally representative pool, it was not designed specifically for this project. The questions used for the datapoints in this study were not always consistent in their wording, which led to forced manipulation and re-coding of responses. For example, some questions were worded with "parent or guardian," others included step-parents, or family in general, and others included only mothers or fathers. To ensure that parental units were specifically represented in the involvement and communication family factors questions, some data was sacrificed (for example responses about step-parents because

these were not available for all family-related questions). Also, in some cases changes could not be made to accommodate differences in the wording of family-based questions, (as noted in the Theory discussion, the Family Relationship Satisfaction variable did not include only parents, and could not be manipulated to do so because not enough details were available.)

Perhaps one of the most problematic factors in this research project is that of multicollinearity. Unique sign changes were noted after the models had been run. Signs (β) would sometime change from positive to negative. Upon closer examination, it was determined that this was not due to the direction of the findings, but rather, multicollinearity was likely the culprit for this problem. In fact, signs that are the opposite direction of logically predicted relationships are considered an informal sign of multicollinearity problems (Central Michigan University, n. d.). Although items considering parental involvement, communication, and family relationship satisfaction were unique from one another in the underlying constructs, there may have been overlap in that the broader concept of the general health of family relationships may have been an inadvertently shared trait among all of the family factors in the study. It is likely that children who are comfortable speaking with their parents, have parents who know them well, and are happy with their family relationships, all maintain strong families. As such, the variables likely overlapped with one another.

Attempts had been made, initially, to avoid multicollinearity by removing "parental closeness" from analyses. As previously detailed, a factor analysis showed that the constructs measured by the "parental closeness" variable overlapped with those measured by the other family factors. As such, the variable was not used in the ultimate

analyses conducted for this research project. That said, the variable of "Family Relationship Satisfaction" was found to possibly measure certain aspects of family relationships that were captured by family factor variables as well. "Family Relationship Satisfaction" was retained, however, and used in final analyses because it was theoretically necessary, as it served as the child's perception of available family resources, or the "C" in the Family Stress Theory framework. Additionally, all the measures were mean-centered in an effort to minimize multicollinearity. Despite efforts to eliminate overlap in measured variables, multicollinearity very likely remained a problematic issue with analyses.

Despite findings that, by and large, family factors alone are not capable of moderating the link between bullying experiences and mental health or life satisfaction, it is possible that this is not the case. Perhaps it is simply that the family factors that were being studied do not make a statistical difference. Consideration of other family factors, may, in fact, have resulted in stronger report for Hypothesis 2. This study was limited by the factors and questions included in the HBSC 2005/2006 survey. Only a small number of family factors were available in this dataset. The factors in the survey data that seemed to have the most potential for moderation of bullying experiences were chosen for analysis. Perhaps factors such as parental warmth, time spent with children, parental empathy, or other aspects of parental support of children may have resulted in different findings. Involvement and communication were used in analyses for this research project because they are found to be important in parent/child relationships. That said, they were also the best factors that were available for analyses using the HBSC 2005/2006 dataset.

**Suggestions for Future Research**

This study finds that, based on the ABC-X theoretical framework and the family factors of parental communication, involvement, and family relationship satisfaction, families are only capable of weakening the relationship between bullying experiences and mental well-being in a few very specific circumstances. As such, future research remains vital. Although the number of children found to be experiencing bullying was relatively small in this sample, the relationship between bullying experiences and poor mental health or life satisfaction, with those involved, was clearly proven.

As detailed, moderation of the poorer mental health and life satisfaction related to bullying experiences was not typically found - above and beyond that of children without. That said, the benefits of stronger parent/child relationships were clearly proven for children across the board. Children reporting stronger parent/child communication and involvement also maintain better mental health and life satisfaction. Counter to expectations, these benefits were usually stronger for those without bullying experiences, but they were found to exist for all adolescents, nonetheless.

Additionally, this study was completed in the early phases of the birth of cyber bullying. In the years since the study, it is highly likely that a growth in cyber bullying, or at least an increased recognition of certain behaviors as cyber bullying, has occurred. Due to the anonymous nature of cyber bullying perpetration (Li, 2007) and the vastly enormous reaches of some cyber bullying platforms (Smith et al., 2008), in-depth consideration of methods of protecting children from this new and growing form of bullying is vital. Far greater incidences of cyber bullying are expected to be reported in newer studies for a variety of reasons. Children are more apt to use social networking

sites and other means of cyber communication, such as texting, than they were at the time of the 2005/2006 HBSC Survey (Pew Research Institute, 2010), thereby likely increasing the use of cyber means to perpetrate bullying. Moreover, cyber bullying may be indirect and anonymous in nature - occurring through fake social networking accounts, blocked cell phone numbers, or with false e-mail addresses. As discussed, the highest numbers of bullying incidences in the HBSC 2005/2006 survey were aligned with verbal and relational bullying. These more "indirect" forms of bullying falling out as the most frequently perpetrated may be predictive of a trend towards greater cyber bullying perpetration, due to its similar potential for anonymous perpetration.

A number of demographic variables were held constant in this study and are not directly considered in the results. That said, literature finds significant differences in mental health problems related to bullying experiences, based on gender (Carlyle & Steinman, 2007; Luukkonen et al., 2009, Ng & Tsang, 2008). Including gender as a variable in analyses and contemplating the effect that it may have on the application of the ABC-X theory to this study, may be quite informative and may help tailor, by gender, recommendations for helping youth who are experiencing poor mental health and bullying concurrently. Turner, Exum, Brame and Holt's (2013) study on mental health and bullying across gender, which include nearly 1,875 middle school and high school students in North Carolina found that, "…the pathway from bullying victimization to negative mental health status is different for adolescent males and females (p. 58)." Bauman, Toomey, and Walker, in their 2013 research on bullying and suicide, concur. They found differences among male and female pathways to suicidal behavior via

depression and bullying experiences, concluding that indeed, "…some gender-specific strategies for [bullying] prevention and intervention may be helpful (p. 346)."

Most importantly, outside of this study, a growing number of publicized cases with fatal consequences of bullying underscore the urgency to find circumstances that may help children who are embroiled in bullying experiences, to better cope with the circumstances. Future research will ideally consider additional factors that may protect children who are at harm of suffering severe and potentially deadly consequences from bullying.

The life altering experiences of bullying perpetrators are often not considered, but are of vital consequence as well. Although this study clarifies that a link is present between bullying experiences and poor mental health and/or life satisfaction, the best means of weakening this relationship remain elusive. Perhaps a focus on school interventions, methods of preventing bullying, and studies on the impact of some school bullying policies, can better inform the issue.

Also, a heightened focus on bully/victims, who experience both externalized symptoms and internalized symptoms, as well as potentially the poorest adjustment out of all types of children involved in bullying behaviors (Gradinger et al., 2009), would perhaps best serve the most vulnerable population. The vast differences in bullying practices, the varied roles that children can take on in their bullying experiences, the demographic differences associated with bullying, and the varied outcomes of bullying experiences, increase the potential for bullying-based research to point in a great number of directions. Some research foci may be more applicable and urgent than others. Literature consistently discusses the unique challenges of bully/victims, reinforcing the

need for an increased focus on this unique population. Concentrated research on the root behind the creation of the experience of hybrid bullying roles would be particularly enlightening. Identifying factors that may correlate with the creation of a bully/victim identity may inform interventions that can help prevent children from suffering the associated particularly poor outcomes of bully/victims.

The HBSC 2005/2006 dataset serves as a rich source of information culled from children throughout the United States, Europe and beyond. The scope of bullying data collected via the survey is broad and unique in its international bend. Leveraging the diversity of the HBSC sample may also inform future research on this topic, in that the problems related to bullying may vary world-wide. If this is so, what are the unique experiences of children in the cultures who fare better, despite bullying experiences? Determining such protective factors may shed light on modes of improving the mental health and life satisfaction of children in the United States and other countries in which there is a strong correlation between bullying and poor performance on measures of children's overall well-being.

Quantitative data collection does not always allow for elaboration on responses. Details on children's experiences, or on information provided, may shed light on phenomenon that were uncovered, and, may also provide insight into why hypotheses were not always proven to be true. Interviewing children to secure follow up information, or more specific information about experiences, may be particularly helpful. As such, qualitative research may be a more revealing means of data collection. Direct interviews with children about their bullying experiences may provide rich and poignant

details that would never be unveiled via quantitative data collection and statistical analysis.

**Practical Implications**

The unfortunate consequences of bullying have made headlines nation-wide because of the potentially fatal results of its infliction. Although the Olweus Bullying Prevention program remains the gold standard school-based bullying intervention (Violencepreventionworks.org, n.d.), as times change, the modes of perpetration and reach of bullying perpetration have expanded as well. The need to consider new interventions and even policies to address bullying has become all too urgent.

Furthermore, due to several high profile cases of bullying with fatal consequences, it is likely that parents are worried about their children becoming victims of bullying in a way that is far beyond concerns of just broken bones or hurt feelings. As such, a great need for family interventions to prevent bullying perpetration or victimization, or at least to protect children when prevention is not possible, is apparent. Furthermore, consequences of bullying perpetration are now being argued in courts of law, with prison terms handed down to perpetrators in cases in which victims took their own lives. No longer is bullying perpetration merely dealt with via schoolyard brawls or trips to the principal's office. The consequences of both victimization and perpetration can be grave and severe.

This study was not able to identify definite family factors that can consistently benefit children experiencing bullying by weakening the relationship between bullying experiences and mental health or life satisfaction. However, it did demonstrate that all children fare better when they are engaged with their parents, even if the protective value

of that engagement is stronger for those not experiencing bullying. The lack of clear findings sends an important message in and of itself. If strong parental communication, involvement, and family relationship satisfaction is not enough to protect children from poor mental health or life satisfaction in relation to their bullying experiences then what is? Perhaps families need to recognize that as much as they may try to intervene and prevent their child from suffering, their availability to speak with their children and be involved in their children's lives is simply not enough.

Schools, and even the government, must focus on strengthening existing policies and, in many cases, creating new ones, so that attempts to correct bullying behavior can be made before the victim and and/or perpetrator are faced with disastrous results. With policies better defining bullying behavior, clear consequences for perpetration, and immediate enactment of consequences, perhaps bullying experiences can decrease even further. Additionally, school interventions, such as the Olweus program, that attempt to proactively ensure that bullying is not occurring in a school, seem to require even further recognition and more widespread implementation, particularly in light of this study's findings that strength in certain family factors is not enough to buffer children with bullying experiences from great hurt and potential harm. Action must be taken on a policy level, which can address the consequences of involvement and more clearly outline bullying behaviors, as well as on a practical level, with more widespread implementation of useful and proven techniques to aid in decreasing bullying experiences, overall.

Finally, this study underscores an important lesson, in terms of families and their protective properties. Overall, families were found to be important for children

when it came to mental health and life satisfaction. Although, the benefits of strong family factors were rarely greater for those with bullying experiences than for those of children without, the reality stands that a communicative and involved family is a general boost to children's overall levels of mental wellness and well being. As such, although family factors can not necessarily be touted as protective from the undesirable correlates of bullying experiences, they can still be touted as a boost to children's mental health and life satisfaction. The maintenance of open parental communication, strong parental involvement in children's lives, and generally strong family relationships, therefore, remains an important focus of any initiative to improve children's health and well-being.

**Conclusion**

Bullying experiences are related to children's mental health and life satisfaction. Children who are not bullying perpetrators, victims, or both, have a tendency to fare better on these factors, than those reporting bullying experiences. As technology changes, policies and interventions must update as well, to ensure that all potential modes of bullying are fully understood and explored. Moreover, in light of the occasionally fatal consequences of bullying victimization, and the potentially life altering legal involvement that may be associated with bullying perpetration, it is vital to work through this issue and begin to implement changes to help support children and teens need. Increased recognition of the need for improved and updated bullying policies and interventions is vital to the well-being of American children.

Although the HBSC 2005/2006 U.S. data did not reveal an enormous number of children involved in bullying behavior, for those who are, the related poorer mental health and life satisfaction is apparent. Family factors alone can help children better work

through bullying experiences in only a few isolated circumstances; however, they consistently remain an important contributing component of children's mental well-being and happiness.

# Appendices

## Appendix A

HBSC 2005/2006 topics and measures of adolescent health, as well as indicators of the family and peer context in which these behaviors and experiences occur:

- Academic achievement
- Academic pressure
- Body image
- Body Mass Index (BMI)
- Consumption of food and drinks
- Electronic communication
- **Family relationships**
- **Family socioeconomic status**
- Family structure
- **Fighting and bullying**
- Having close friends
- Health complaints
- Injuries
- **Life satisfaction**
- Liking school
- Numbers of friends
- Physical activity
- Self-rated health
- Sexual behavior**
- Spending time with friends
- Support from classmates
- Tobacco, alcohol and cannabis
- Toothbrushing
- TV and computer use
- Weight control behavior

(Currie, 2009)
*Bold font added to indicate data used in the present study
**Not collected in the U.S. study for cultural reasons (WHO, 2008).

**Appendix B**

Table 25

*Correlations, Family Resources*

| | Parental Involvement | Family Relationship Satisfaction | Parental Communication | Parental Closeness |
|---|---|---|---|---|
| Parental Involvement | | .46** (N = 8,596) | .38** (N = 8,368) | .47** (N = 8,494) |
| Family Relationship Satisfaction | | | .47** (N = 8,673) | .60** (N = 8,826) |
| Parental Communication | | | | .48** (N = 8,553) |

** p = .01 (2-tailed)

**Appendix C**

Table 26

*Factor Analysis: Components with Varimax Rotation*

| Component | Total | Percent of Variance | Cumulative Percentage |
|---|---|---|---|
| 1 | 3.58 | 17.89 | 17.89 |
| 2 | 3.46 | 17.30 | 35.19 |
| 3 | 2.65 | 13.27 | 48.45 |
| 4 | 1.60 | 7.98 | 56.43 |

Table 27

*Factor Analysis: Factor Loadings*

| Question | 1 | 2 |
|---|---|---|
| How easy is it for you to talk to the following persons about things that really bother you? | | |
| Father | 0.50 | 0.41 |
| Mother | 0.08 | 0.61 |
| How much does your mother (or female guardian) really know about...? (Involvement items) | | |
| Who your friends are | 0.16 | 0.40 |
| How you spend your money | 0.18 | 0.23 |
| Where you are after school | 0.11 | 0.14 |
| Where you go at night | 0.14 | 0.06 |
| What you do with your free time | 0.25 | 0.26 |
| How much does your father (or male guardian) really know about...? | | |
| Who your friends are | 0.73 | 0.25 |
| How you spend your money | 0.77 | 0.13 |

Table 27

*Factor Analysis: Factor Loadings*

| Question | 1 | 2 |
|---|---|---|
| Where you are after school | 0.81 | 0.07 |
| Where you go at night | 0.80 | 0.03 |
| What you do with your free time | 0.80 | 0.14 |
| May parent/guardian: (Closeness items) | | |
| Helps me as much as I need | 0.17 | 0.68 |
| Lets me do the things I like doing | 0.05 | 0.56 |
| Is loving | 0.07 | 0.60 |
| Understands my problems and worries | 0.19 | 0.75 |
| Likes me to make my own decisions | 0.06 | 0.52 |
| Tries to control everything I do | 0.07 | 0.22 |
| Treats me like a baby | 0.09 | 0.11 |
| Makes me feel better when I am upset | 0.18 | 0.70 |

**Appendix D**

Table 28

*Standardized Coefficients, Steps 1 through 5, Model 1*
*Physical Bullying and Mental Health*

| | β Step 1 | β Step 2 | β Step 3 | β Step 4 | β Step 5 |
|---|---|---|---|---|---|
| Girl | -.23 | -.27 | -.23 | -.23 | -.20 |
| Grade | -.08 | -.11 | -.04 | -.04 | -.03 |
| FAS[a] | .09 | .08 | .04 | .04 | .01 |
| Black | -.03 | -.02 | .01 | .01 | -.01 |
| Other race | -.03 | -.03 | -.01 | -.01 | -.01 |
| Hispanic | -.05 | -.04 | -.02 | -.02 | -.04 |
| Victim | | -.13 | -.10 | -.10 | -.09 |
| Bully | | -.11 | -.07 | -.08 | -.08 |
| Bully/victim | | -.14 | -.11 | -.10 | -.09 |
| Parental communication[b] | | | .21 | .23 | .13 |
| Parental involvement[c] | | | .22 | .22 | .12 |
| Victim, Interaction 1[d] | | | | -.02 | -.01 |
| Victim, Interaction 2[e] | | | | .01 | .00 |
| Bully, Interaction 1 | | | | -.02 | -.02 |
| Bully, Interaction 2 | | | | -.02 | -.02 |
| Bully/victim, Interaction 1 | | | | -.03 | -.03 |
| Bully/victim, Interaction 2 | | | | .02 | .02 |
| Family relationship satisfaction | | | | | .30 |

[a]FAS (Family Affluence Scale), standardized
[b]Parental communication, mean centered
[c] Parental involvement, mean centered
[d] Interaction 1 – Parental Communication
[e] Interaction 2 - Parental Involvement

Table 29

*Standardized Coefficients, Steps 1 through 5, Model 2*
*Physical Bullying and Life Satisfaction*

| | β Step 1 | β Step 2 | β Step 3 | β Step 4 | β Step 5 |
|---|---|---|---|---|---|
| Girl | -.04 | -.06 | -.03 | -.03 | .02 |
| Grade | -.05 | -.07 | -.01 | -.01 | .01 |
| FAS[a] | .18 | .17 | .13 | .13 | .08 |
| Black | -.01 | -.01 | .02 | .02 | -.00 |
| Other race | -.04 | -.04 | -.02 | -.02 | -.02 |
| Hispanic | -.04 | -.03 | -.01 | -.01 | -.04 |
| Victim | | -.10 | -.07 | -.07 | -.05 |
| Bully | | -.07 | -.03 | -.04 | -.02 |
| Bully/victim | | -.81 | -.06 | -.07 | -.05 |
| Parental communication[b] | | | .21 | .22 | .05 |
| Parental involvement[c] | | | .20 | .21 | .04 |
| Victim, Interaction 1[d] | | | | -.00 | .01 |
| Victim, Interaction 2[e] | | | | .01 | .01 |
| Bully, Interaction 1 | | | | -.03 | -.02 |
| Bully, Interaction 2 | | | | -.01 | .01 |
| Bully/victim, Interaction 1 | | | | -.01 | -.01 |
| Bully/victim, Interaction 2 | | | | -.01 | -.00 |
| Family relationship satisfaction | | | | | .50 |

[a]FAS (Family Affluence Scale), standardized
[b]Parental communication, mean centered
[c]Parental involvement, mean centered
[d]Interaction 1 – Parental Communication
[e]Interaction 2 - Parental Involvement

Table 30

*Standardized Coefficients, Steps 1 through 5, Model 3*
*Verbal Bullying and Mental Health*

| | β Step 1 | β Step 2 | β Step 3 | β Step 4 | β Step 5 |
|---|---|---|---|---|---|
| Girl | -.23 | -.23 | -.20 | -.20 | -.18 |
| Grade | -.082 | -.11 | -.05 | -.04 | -.03 |
| FAS[a] | .09 | .09 | .05 | .05 | .02 |
| Black | -.02 | -.02 | .00 | .00 | -.07 |
| Other race | -.03 | -.03 | -.01 | -.01 | -.01 |
| Hispanic | -.05 | -.05 | -.03 | -.03 | -.04 |
| Victim | | -.20 | -.17 | -.17 | -.14 |
| Bully | | -.12 | -.07 | -.08 | -.07 |
| Bully/victim | | -.31 | -.24 | -.24 | -.21 |
| Parental communication[b] | | | .20 | .22 | .13 |
| Parental involvement[c] | | | .21 | .17 | .08 |
| Victim, Interaction 1[d] | | | | .00 | -.00 |
| Victim, Interaction 2[e] | | | | .04 | .03 |
| Bully, Interaction 1 | | | | -.01 | -.01 |
| Bully, Interaction 2 | | | | .01 | -01 |
| Bully/victim, Interaction 1 | | | | -.04 | -.05 |
| Bully/victim, Interaction 2 | | | | .04 | .04 |
| Family relationship satisfaction | | | | | .29 |

[a]FAS (Family Affluence Scale), standardized
[b]Parental communication, mean centered
[c]Parental involvement, mean centered
[d]Interaction 1 – Parental Communication
[e]Interaction 2 - Parental Involvement

Table 31

*Standardized Coefficients, Steps 1 through 5, Model 4*
*Verbal Bullying and Life Satisfaction*

| | β Step 1 | β Step 2 | β Step 3 | β Step 4 | β Step 5 |
|---|---|---|---|---|---|
| Girl | -.04 | -.04 | -.01 | -.01 | .03 |
| Grade | -.05 | -.07 | -.01 | -.01 | .01 |
| FAS[a] | .18 | .18 | .14 | .14 | .09 |
| Black | -.01 | -.01 | .02 | .02 | -.00 |
| Other race | -.04 | -.04 | -.02 | -.02 | -.02 |
| Hispanic | -.04 | -.03 | -.01 | -.01 | -.04 |
| Victim | | -.13 | -.09 | -.09 | -.05 |
| Bully | | -.09 | -.05 | -.05 | -.02 |
| Bully/victim | | -.18 | -.11 | -.11 | -.07 |
| Parental communication[b] | | | .20 | .19 | .04 |
| Parental involvement[c] | | | .20 | .18 | .02 |
| Victim, Interaction 1[d] | | | | .02 | .01 |
| Victim, Interaction 2[e] | | | | .01 | -.01 |
| Bully, Interaction 1 | | | | -.01 | -.01 |
| Bully, Interaction 2 | | | | .02 | .02 |
| Bully/victim, Interaction 1 | | | | .01 | -.01 |
| Bully/victim, Interaction 2 | | | | .02 | .03 |
| Family relationship satisfaction | | | | | .49 |

[a]FAS (Family Affluence Scale), standardized
[b]Parental communication, mean centered
[c]Parental involvement, mean centered
[d]Interaction 1 – Parental Communication
[e]Interaction 2 - Parental Involvement

Table 32

*Standardized Coefficients, Steps 1 through 5, Model 5*
*Relationsal Bullying and Mental Health*

| | β Step 1 | β Step 2 | β Step 3 | β Step 4 | β Step 5 |
|---|---|---|---|---|---|
| Girl | -.23 | -.20 | -.18 | -.18 | -.16 |
| Grade | .08 | -.11 | -.05 | -.05 | -.04 |
| FAS[a] | .09 | .10 | .06 | .06 | .03 |
| Black | -.02 | -.03 | -.00 | -.00 | -.01 |
| Other race | -.03 | -.03 | -.01 | -.01 | -.01 |
| Hispanic | -.05 | -.06 | -.03 | -.03 | -.04 |
| Victim | | -.24 | -.20 | -.19 | -.17 |
| Bully | | -.12 | -.09 | -.09 | -.09 |
| Bully/victim | | -.29 | -.23 | -.23 | -.20 |
| Parental communication[b] | | | .19 | .21 | .12 |
| Parental involvement[c] | | | .21 | .18 | .09 |
| Victim, Interaction 1[d] | | | | .00 | -.01 |
| Victim, Interaction 2[e] | | | | .04 | .03 |
| Bully, Interaction 1 | | | | -.01 | -.01 |
| Bully, Interaction 2 | | | | -.01 | -.01 |
| Bully/victim, Interaction 1 | | | | -.04 | -.05 |
| Bully/victim, Interaction 2 | | | | .04 | .04 |
| Family relationship satisfaction | | | | | .29 |

[a]FAS (Family Affluence Scale), standardized
[b]Parental communication, mean centered
[c]Parental involvement, mean centered
[d]Interaction 1 – Parental Communication
[e]Interaction 2 - Parental Involvement

Table 33

*Standardized Coefficients, Steps 1 through 5, Model 6*
*Relational Bullying and Life Satisfaction*

| | β Step 1 | β Step 2 | β Step 3 | β Step 4 | β Step 5 |
|---|---|---|---|---|---|
| Girl | -.04 | -.02 | .00 | .00 | .03 |
| Grade | -.05 | -.07 | -.01 | -.01 | .01 |
| FAS[a] | .18 | .18 | .14 | .14 | .09 |
| Black | -.01 | -.01 | .01 | .01 | -.01 |
| Other race | -.04 | -.04 | -.02 | -.02 | -.02 |
| Hispanic | -.03 | -.04 | -.02 | -.02 | -.04 |
| Victim | | -.13 | -.09 | -.09 | -.05 |
| Bully | | -.05 | -.02 | -.02 | -.01 |
| Bully/victim | | -.15 | -.09 | -.09 | -.04 |
| Parental communication[b] | | | .20 | .19 | .04 |
| Parental involvement[c] | | | .20 | .21 | .05 |
| Victim, Interaction 1[d] | | | | .02 | .00 |
| Victim, Interaction 2[e] | | | | -.01 | -.02 |
| Bully, Interaction 1 | | | | -.00 | .00 |
| Bully, Interaction 2 | | | | -.01 | -00 |
| Bully/victim, Interaction 1 | | | | .00 | -.02 |
| Bully/victim, Interaction 2 | | | | .01 | .01 |
| Family relationship satisfaction | | | | | .50 |

[a]FAS (Family Affluence Scale), standardized
[b]Parental communication, mean centered
[c]Parental involvement, mean centered
[d]Interaction 1 – Parental Communication
[e]Interaction 2 - Parental Involvement

Table 34

*Standardized Coefficients, Steps 1 through 5, Model 7*
*Cyber Bullying and Mental Health*

| | β Step 1 | β Step 2 | β Step 3 | β Step 4 | β Step 5 |
|---|---|---|---|---|---|
| Girl | -.23 | -.23 | -.20 | -.20 | -.18 |
| Grade | -.08 | -.09 | -.02 | .02 | -.01 |
| FAS[a] | .09 | .09 | .05 | .05 | .02 |
| Black | -.02 | -.02 | .01 | .01 | -.00 |
| Other race | -.03 | -.03 | -.01 | -.01 | -.01 |
| Hispanic | -.05 | -.05 | -.03 | -.03 | -.04 |
| Victim | | -.12 | -.09 | -.09 | -.08 |
| Bully | | -.07 | -.04 | -.05 | -.04 |
| Bully/victim | | -.11 | -.08 | -.09 | -.08 |
| Parental communication[b] | | | .22 | .23 | .13 |
| Parental involvement[c] | | | .23 | .23 | .13 |
| Victim, Interaction 1[d] | | | | .01 | .01 |
| Victim, Interaction 2[e] | | | | .00 | .00 |
| Bully, Interaction 1 | | | | -.02 | -.02 |
| Bully, Interaction 2 | | | | -.02 | -.01 |
| Bully/victim, Interaction 1 | | | | -.03 | -.03 |
| Bully/victim, Interaction 2 | | | | -.01 | .00 |
| Family relationship satisfaction | | | | | .31 |

[a]FAS (Family Affluence Scale), standardized
[b]Parental communication, mean centered
[c]Parental involvement, mean centered
[d]Interaction 1 – Parental Communication
[e]Interaction 2 - Parental Involvement

Table 35

*Standardized Coefficients, Steps 1 through 5, Model 8*
*Cyber Bullying and Life Satisfaction*

| | β Step 1 | β Step 2 | β Step 3 | β Step 4 | β Step 5 |
|---|---|---|---|---|---|
| Girl | -.04 | -.04 | -.01 | -.01 | .03 |
| Grade | -.05 | -.06 | .00 | .00 | .02 |
| FAS[a] | .18 | .18 | .14 | .14 | .09 |
| Black | -.01 | -.01 | .02 | .02 | -.00 |
| Other race | -.04 | -.04 | -.02 | -.02 | -.02 |
| Hispanic | -.04 | -.03 | -.01 | -.01 | -.04 |
| Victim | | -.08 | -.06 | -.05 | -.04 |
| Bully | | -.03 | -.01 | -.01 | -.00 |
| Bully/victim | | -.07 | -.05 | -.06 | -.04 |
| Parental communication[b] | | | .21 | .21 | .05 |
| Parental involvement[c] | | | .21 | .21 | .04 |
| Victim, Interaction 1[d] | | | | .02 | .01 |
| Victim, Interaction 2[e] | | | | -.01 | -.01 |
| Bully, Interaction 1 | | | | -.03 | -.03 |
| Bully, Interaction 2 | | | | .02 | .02 |
| Bully/victim, Interaction 1 | | | | -.02 | -.03 |
| Bully/victim, Interaction 2 | | | | -.02 | -.01 |
| Family relationship satisfaction | | | | | .50 |

[a]FAS (Family Affluence Scale), standardized
[b]Parental communication, mean centered
[c]Parental involvement, mean centered
[d]Interaction 1 – Parental Communication
[e]Interaction 2 - Parental Involvement

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