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BULLYING IN ADOLESCENCE AND PSYCHOSOCIAL ADJUSTMENT:  
THE MEDIATING ROLE OF SOCIAL SELF-CONCEPT AND THE  
BUFFERING EFFECT OF PARENTAL COMMUNICATION

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by

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## Abstract

The past few years have seen an increase in research and media attention regarding the impact of experiencing bullying on adolescent adjustment & wellbeing. However, few studies have explored either potential mediating mechanisms linking bullying with poor psychosocial adjustment or potential moderators of this association. The current study uses a structural equation modeling technique to examine social self-concept as a mediating mechanism as well as the potentially buffering role of high levels of parental communication on the association between experiencing bullying and psychosocial maladjustment using a nationally representative sample of US students in grades 6 through 10 (N = 14,039), the Health Behavior in School-Aged Children Survey 2001/2002 (HBSC). Findings indicate that experiencing bullying contributes to adolescents' psychosocial maladjustment, in part through the negative influence of bullying on adolescents' social self-concept, which additionally contributes to poorer adjustment. Gender differences exist in this association; overall bullying is more consequential for adolescent females' adjustment. Parental communication acts as a buffer against the negative effects of bullying on psychosocial adjustment by moderating the impact that bullying has on adolescent social self-concept. Findings from this study suggest that further research is warranted on how bullying might differentially affect the adjustment and psychological well-being of adolescent males and females, as well as what aspects of the parent-child relationship may be protective for bullied adolescents.

## TABLE OF CONTENTS

List of Tables.....	v
List of Figures.....	vi
Chapter 1. INTRODUCTION.....	1
Chapter 2. LITERATURE REVIEW & CONCEPTUAL FRAMEWORK .....	3
Chapter 3. METHODS.....	11
Study population.....	11
Measures.....	12
Data Analytic Strategy.....	18
Chapter 4. RESULTS.....	19
Prevalence of experiencing bullying.....	19
Measurement Model .....	22
Structural Model .....	25
The relationship between bullying, social self-concept and psychosocial maladjustment.....	26
Buffering role of parental communication.....	29
Chapter 5. DISCUSSION.....	34
Appendix: Results for control variables in the structural model .....	40
Bibliography.....	41

## List of Tables

Table 1. Prevalence of Experiencing Bullying by Sub-type and Gender (%).....	21
Table 2. Measurement Models.....	24
Table 3. Structural Models.....	27
Table 4. Multigroup Models by Adolescent Gender & Level of Parental Communication...32	

## List of Figures

Figure 1. Structural Model..... 27

Figure 2. Multigroup Models by Adolescent Gender & Level of Parental Communication... 31

## **Introduction**

The experiences we have during our formative years, specifically in early adolescence, help to shape our conceptions of our social world and how we function within it. The adolescent experience is substantially influenced by the social environment of school. In turn, interactions and relationships with peers shape adolescent self-concept and identity. Adverse interactions and unstable peer relations have the potential to negatively impact social self-concept development and psychosocial adjustment among young adolescents. Bullying is one such experience which has the potential to influence the development of a negative social self-concept, psychosocial maladjustment and the internalization of problems, which may in turn have long-term consequences for psychosocial well-being (Olweus 1992).

Bullying is a widespread problem in contemporary American schools. According to statistics from the 2007 School Crime Supplement to the National Crime Victimization Survey, about 31.7% of US students ages 12 through 18 reported being bullied at school during the 2006/2007 school year (DeVoe & Murphy 2011). Experiencing bullying at school is associated with poorer psychosocial adjustment (Nansel, Overpeck, Pilla, Ruan, Simons-Morton and Scheidt 2001). The adverse effects of being bullied during early adolescence are potentially long-term and enduring. It is important to investigate factors which may help buffer young adolescents who are bullied from these negative psychosocial consequences. One such potentially important factor is the role of parents, who along with peers can play an important role in adolescent development. Supportive and warm parent-child relationships are associated with healthy development and child well-being (Moore, Chalk, Scarpa and Vandivere 2002). Therefore, a strong relationship with a parent might moderate the effects of experiencing

bullying on psychosocial maladjustment and negative self-concept formation. Little research has explored this buffering role of parents against the negative effects of bullying experiences.

This study examines how experiencing bullying affects young adolescents' psychosocial adjustment. This study also investigates one mechanism, which has received little attention in prior research, through which bullying may translate into psychosocial maladjustment, focusing on how social self-concept is influenced by bullying and how this self-concept in turn influences psychosocial adjustment. Additionally, this project examines how supportive parental relationships, specifically high levels of parental communication, with these young adolescents might moderate the effect of bullying on negative social self-concept formation and psychosocial maladjustment. Using a structural equation modeling approach with data from the Health Behavior in School-Aged Children (HBSC) 2001-2002 cross-sectional survey, the mediating effect of social self-concept as well as the moderating effect of parental communication on the association between bullying and psychosocial maladjustment will be explored.



## **Literature Review & Conceptual Framework**

Peer victimization, or bullying, is commonly defined as a specific type of aggressive behavior which is repeated over time with the intention to harm or disturb another. This behavior is characterized by an asymmetrical distribution of power, in which a more powerful individual or group of individuals go after a weaker person (Olweus 1978; Olweus 2001). Bullying is social in nature, where the acts of bullying relate to the group dynamics in which it takes place (Arora 1996).

Bullying behavior takes on different and distinct forms: physical, verbal, and relational aggression. Physical aggression involves the infliction of physical force upon the victim, an invasion or attack on his or her physical domain. Verbal victimization concerns the vocal attack or threat of attack on a victim's status or character, such as name calling. Finally, relational bullying refers to behavior employed to threaten or cause damage to peer relationships and/or social acceptance and friendship networks through social manipulation and exclusion (Cullerton-Sen & Crick, 2005). Verbally and relationally aggressive behavior can be manifested in direct or indirect ways. Direct aggression involves face-to-face interactions while indirect aggression is characterized by the covert victimization of an individual through some third party medium so as to conceal the identity of the perpetrator (Rivers & Smith, 1994). A number of studies point to gender differences in the experience of different forms of victimization; boys are more likely to fall victim to physical aggression, while girls are more likely to be the victims of relational bullying (e.g. Crick & Grotpeter, 1995; Cullerton-Sen & Crick, 2005; Crick, Werner, Casas, O'Brien, Nelson Grotpeter & Markon 1999).

Adolescents who fall victim to bullying often experience higher rates of psychosocial maladjustment than their uninvolved peers (see Hawker and Boulton 2000 for a review). Such

maladjustment can take many forms: depression, anxiety, loneliness, low self-esteem, insecurity and unhappiness. Prior research on the psychosocial impact of peer victimization has had one or more notable weaknesses that have limited our current understanding in this area, including reliance on generic measures of bullying (e.g. Spriggs et al 2007; Holt & Espelage 2007) or individual indicators of bullying sub-types rather than multi-dimensional measures (e.g. Wang et al 2009), few explorations of potential mediating mechanisms beyond self-worth (Grills & Ollendick 2002) and self-efficacy beliefs (Barchia & Bussey 2010), and few considerations of gender differences in the psychosocial impact of bullying experiences (e.g. Nansel et al 2001). Different forms of victimization may make additive contributions to maladjustment, affecting the adjustment of children in different ways (Kochenderfer-Ladd & Ladd 2001). The current study includes multiple measures of bullying (physical, verbal and relational) in both their direct and indirect manifestations as a latent construct; such a measurement captures multiple dimensions of bullying experiences which may affect psychosocial adjustment. This study also investigates one potential mediating mechanism which has not previously been explored, the role of social self-concept in mediating the association between bullying and psychosocial maladjustment. Finally, the current study explicitly tests for gender differences in the impact of bullying on psychosocial maladjustment.

A major initiative of adolescent development is the acquisition of autonomy and the successful development of identity (Erikson 1950). Identity is developed as an individual's self-conception, his/her perception of what it means to be him/herself – the self. According to Mead, the self is something which must develop, it “arises in the process of social experience and activity, that is, develops in the given individual as a result of his relations to that process as a whole and to other individuals within that process” (Mead 1934, pp 135). Our self-conception is

shaped by our interactions with those around us. According to this notion of identity construction, the interactions we have with others have the potential to negatively shape our self-conception, contributing to psychosocial maladjustment. If, through our interactions with others, our “self” is constantly reflected to us in a negative light this may contribute to the personal defining of our self in such terms. “Self-criticism is essentially social criticism, and behavior controlled by self-criticism is essentially behavior controlled socially” (Mead 1934, pp 255). During the period of adolescence, when identity formation is in its nativity, negative reflections of the self (through peer victimization) may be particularly problematic.

Social experiences during adolescence impact the development of youths’ social self-concept, their feelings of acceptance and belonging. Social self-concept refers to individuals’ sense of how much they are liked or disliked by others; self-perceptions of social acceptance (Berndt & Burgy 1996). Adolescents learn the meaning of their roles and statuses in terms of their relative status within the larger social context (Peterson 1987). Therefore, relations with others in their social sphere (their parents, siblings, friends, and peers) help to shape adolescents’ notions of their relative role and status within the relevant group. Youths’ perceptions and feelings about social standing, their level of social acceptance, develop within the context of social interactions and involve the interpretation of social events which they are exposed to (Crick & Ladd 1993). An adolescent’s social self-concept is shaped in part by their interaction with peers, such as experiences of peer victimization, and their subsequent feelings of social rejection/acceptance.

Peer relations and peer acceptance are important influences on the mental and social development of adolescents (Hartup 1996). Peer rejection has been found to have detrimental effects on the social and mental development of adolescents and puts them in jeopardy of later

behavioral and emotional maladjustment (Parker & Asher 1987). Negative self-concept is associated with maladjustment of social functioning and the internalizing (for girls) and externalizing (for boys) of problems (Ybrandt 2008). Several studies indicate that socially rejected children are more likely to experience depression and anxiety (see Newcomb, Bukowski and Pattee 1993), especially adolescents who place greater emphasis on the importance of peer status (Prinstein & Aikins 2004). Social anxiety and the fear of negative evaluation are risk factors for numerous maladaptive outcomes, including depression (Teachman and Allen, 2007). Victimization has been found to be significantly associated with poor social self-concept by several researchers (see Hawker & Boulton 2000 for review; Boulton, Smith & Cowie 2010; Grills & Ollendick 2002; Boivin & Hymel 1997). An adolescent's social self-concept contributes to his/her psychosocial adjustment and adolescents who are victimized are more likely to develop a negative social self-concept, therefore social self-concept might operate as a mechanism linking peer victimization with psychosocial maladjustment.

While adolescence is often viewed as a period of increased individuation and autonomy, the parent-child bond remains important and the value of parent-child cohesiveness endures (Newman, 1989). Parents remain significantly influential regarding adolescents' self-esteem, aspirations for achievement and values (Paikoff & Brooks-Gunn, 1991). Positive parent-child relationships are associated with healthy child-development and child well-being. Children who have more positive and supportive relationships with their parents tend to fare better socially, emotionally, and psychologically than those who lack a supportive parental bond (Masten & Coatsworth, 1998). Various aspects of the parental relationship are associated with psychosocial adjustment in adolescence. For example, greater parental support is positively associated with social competence and negatively associated with adolescent depression (Barber, Stolz & Olsen

2005), parental care coupled with low parental indifference is associated with lower prevalence of depression among adolescents (Lui 2003), and perceived parental support is positively associated with adolescent self-esteem (Lui 2003).

Parental communication, as one aspect of parental support, may also help foster healthy adolescent development. Adolescents whose relationship with their parents is characterized by open and supportive communication are less likely to have a high level of behavioral and emotional problems (Moore et al 2002). Adolescents' sense of connectedness to their parents is fostered through explanations and the flow of information and ideas (open communication), which contributes to the development and clarification of the adolescents' own perceptions and points of view (Newman, 1989). If adolescents are able to easily talk to their parents about their lives, the good and the bad aspects of it, parents may be able to help their children work through what they are dealing with. Parents may help adolescents place their experiences in a larger context and sort out their negative emotions. By acting as a "sounding board" and helping them to see the "big picture" parental communication may help attenuate harmful effects of negative social experiences, such as bullying. When adolescents are able to share their negative emotions and experiences parents may suggest coping strategies for adolescents to deal with negative emotions. Open communication with parents may nurture support-seeking behavior and greater coping aptitude (Gentzler, Contreras-Grau, Kerns & Weimer 2005). Adolescents' perception of open communication with their mothers is positively associated with greater maternal awareness of adolescent stressors, and such awareness is negatively associated with adolescent reports of anxiety and depression (Hartos & Power 1997). Conversely, adolescents' perceptions of low parental communication are associated with health risk behaviors and poor emotional health (Ackard, Neumark-Sztainer, Story & Perry 2006). Social support in the form of the perceived

availability of responsive interpersonal resources, such as adolescents' perceptions of their ability to talk with their parents, may help to buffer individuals from the potentially harmful effects of stressful experiences, such as bullying (Cohen & Wills 1985). If adolescents are able to openly communicate with their parents about problems with peers, these negative experiences may not as readily translate into the development of a poor social self-concept and in turn their sense of social acceptance may not as easily translate into maladjustment.

Given that parental support helps to promote healthy psychosocial adjustment in adolescence, we might expect that a positive parent-child relationship could work to buffer the negative effects of peer victimization on adolescent mental-health and well-being. Studies have found that higher levels of parental support are associated with lower odds of peer victimization (Wang et al 2009; Baldry & Farrington 2005) and parent-child communication is negatively associated with experiences of bullying behavior, as either a victim or a bully (Spriggs et al 2007). Very few studies, however, have looked at how parental communication may temper the influence of bullying on maladjustment.

A few studies have looked at the moderating effects of parental support on the psychosocial maladjustment of bullied adolescents (Davidson & Demaray 2007; Bowes, Maughan, Caspi, Moffit & Arseneault 2010; Holt & Espelage 2007); however the impact of parental communication specifically has not been explored. Additionally, these few studies do not use samples that are nationally representative of the United States. The current study enables the exploration of the role of parental communication on moderating the association between peer victimization and psychosocial maladjustment, utilizing a nationally representative sample. I hypothesize that bullying will not as readily contribute to psychosocial maladjustment among adolescents with high levels of parental communication, and that part of this buffering effect

may operate through the influence of parental communication on adolescents' social self-concept, their feelings of social acceptance.

The few studies that look at the buffering role of parents find that the association between bullying and psychosocial distress is weaker among adolescents with more supportive parental relationships. Among these studies, evidence is mixed as to whether gender differences exist in the extent to which parental support tempers the relationship between bullying and adolescent adjustment. Using a small sample of middle school students from a small Midwestern town, Davidson and Demaray (2007) found that parental support moderated the effect of victimization on internalizing distress from bullying for females, but not for males. However teacher, classmate and school support were more important moderators for boys. A nationally representative study of British children found that maternal warmth and a supportive home environment acted as protective factors promoting "emotional resilience" to bullying for both genders, but were more strongly associated with behavioral resilience in boys compared to girls (Bowes et al 2010). Bullied children from highly supportive families with high levels of maternal warmth had fewer behavioral and emotional problems over time compared to bullied children from less supportive families, but such family factors promoted greater levels of behavioral resilience among boys compared to girls, suggesting that supportive parental relationships may be equally protective against internalizing problems for both genders but more protective against externalizing problems for boys compared to girls. Another study also suggests that parental support is an equally important buffer against psychological distress for boys and girls. Holt & Espelage (2007) looked at how perceptions of maternal social support differed for victims, bullies, bully-victims and uninvolved adolescents, using a small sample of adolescents from the Midwest. They found that, regardless of bully/victim status, higher levels

of maternal support were associated with lower levels of anxiety and depression among both male and female adolescents. Considering these studies together, it is not entirely clear whether or not gender differences exist in the magnitude of the “protection” afforded to bullied adolescents with a supportive parental relationship.

The results of these studies suggest that further research is warranted on the role that parent-child relations (particularly parental communication) may play in moderating the negative effect of bullying on psychosocial adjustment with particular attention given to potential gender differences in these associations. The current study will examine the potentially protective role of parental communication in the association between bullying experiences and psychosocial maladjustment among adolescents, considering the mediating role of social self-concept and testing for gender differences in these associations.



## **Methods**

### ***Study Population***

The Health Behavior in School-Aged Children (HBSC) Survey was a multinational, school-based, cross-sectional survey of adolescents in grades 6 through 10. The World Health Organization (WHO) Regional Office for Europe has sponsored this cross-national survey of health-related behaviors and attitudes, conducting independent surveys in participating countries every four years since the 1985-1986 school year. The U.S. survey utilized in this study was a nationally representative sample of children in grades 6 through 10 during the 2001/2002 school year, the latest available year of data.

The HBSC study employed a three-stage cluster design. The first stage of the clustering, the primary-sampling unit (PSU), was the school district, the second stage was the school, and the final stage was the classroom. The unit of observation was the individual student. The universe consisted of public, Catholic, and other private school students in grades 6,7,8,9, and 10 in the 50 states and the District of Columbia. Agreement to participate among the original sampling frame of schools yielded a participation rate of 73.2 percent. Within the participating schools, 15,245 students participated out of the 18,620 eligible students, yielding a student response rate of 81.9 percent. Responding students were excluded from the final sample if they were outside of the sample target age range for their grade (outside of the 1-99<sup>th</sup> percentile for a grade; n = 365 students), if either grade or age were unknown (n = 6 students) or if they were missing on a significant number of “key” variables, specified according to international HBSC protocol (n = 57). After the exclusion of these cases, the final sample consisted of 14,817 US students in grades 6 through 10.

Data was collected using self-administered, anonymous surveys in classrooms. Parental consent was obtained prior to survey administration according to school district procedures and students then provided their assent to participate. The 2001/2002 US survey was approved by the Institutional Review Board at the National Institute of Child Health and Human Development. Each survey questionnaire contained a set of core questions looking at background and demographic factors, individual and social resources, health behaviors, and health outcomes.

The analytic sample included all adolescents with at least one living parent (biological or step-parent) that they primarily resided with (N = 14,039). The sample size for the multi-group models testing the moderating effect of parental communication was reduced to 13,267 after excluding adolescents who provided no information on the quality of communication with their parents.

### ***Measures***

*Bullying* is a latent construct, derived from five questions pertaining to adolescents' experience of different forms of bullying behavior. Questions regarding bullying were preceded by the following explanation: *Here are some questions about bullying. We say a student is BEING BULLIED when another student, or group of students, say or do nasty or 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 they are 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 the teasing is done in a friendly or playful way.*

Students were asked about the frequency with which they experienced five different forms of bullying within the past few months. Physical experiences of bullying were captured by one question asking how often they were “hit, kicked, pushed, shoved around, or locked indoors”. Experiences of verbal bullying were captured with two questions, one regarding how often they were “called mean names, was made fun of, or teased in a hurtful way” (Callednames), and another regarding how often “other students made sexual jokes, comments or gestures” at them (Sexualjoke). This second measure captures a distinct aspect of verbal bullying, teasing which is sexual in nature, which may have unique effects on psychosocial adjustment and self-concept beyond general name-calling. Relational bullying is captured by two questions, one regarding how often “other students told lies or spread false rumors about me and tried to get others to dislike me” (Rumors) and one regarding how often “other students left me out of things on purpose, excluded me from their group of friends, or completely ignored me” (Leftout). There were five possible responses to each of the bullying questions: 1= I have not been bullied in this way in the past couple of months, 2= only once or twice, 3= 2-3 times a month, 4= about once a week, and 5= several times a week. Exploratory factor analysis revealed that these five indicators form one composite latent factor with a standardized Cronbach’s alpha ( $\alpha$ ) of 0.83.

*Psychosocial maladjustment* is a latent construct, created using three survey items measuring aspects of depression, anxiety and life satisfaction. Students were asked how often in the past 6 months they “feel low”: 1= rarely/never, 2= about every month, 3= about every week, 4= more than once a week, or 5= about once a day (Depression). Similarly, students were asked how often in the past 6 months they “feel nervous”: 1= rarely/never, 2= about every month, 3= about every week, 4= more than once a week, or 5= about once a day (Anxiety). For life

satisfaction, students were presented with a picture of a ladder (Cantril's ladder) and told that the top of the ladder "10" was the best possible life for them and the bottom "0" was the worst possible life for them. They were then asked where on the ladder they felt they stood at the moment. This variable was reverse-coded so that higher scores indicate lower life satisfaction (Life satisfaction). Exploratory factor analysis revealed that these three indicators form a single latent factor with a standardized Cronbach's alpha ( $\alpha$ ) of 0.61.

*Social Self-concept:* Social self-concept is indicated by an individual's perception of social acceptance from peers. Students were asked how much they agreed or disagreed (1= strongly disagree to 5= strongly agree) with the statement "Other students accept me as I am" (Social Acceptance).

*Parental Communication:* Using information on who lives in the respondent's main household, the primary parent(s) were identified, determining the number of possible parental relationships (biological and step) of a respondent. The quality of communication with every available parent (mother, father, stepmother, stepfather) was measured. Close parent-child relationships, whether step or biological, are shown to have positive benefits for children and are associated with positive outcomes in adolescence (King, 2006). Therefore, it is important to include the quality of adolescents' relationships with their step- as well as their biological parents. Respondents were asked to rate how easy it was for them to talk to specific people (father, mother, stepfather, stepmother) about things that really bothered them. Possible responses included: 1= very difficult, 2= difficult, 3= easy and 4= very easy. The highest rating of communication with any parent was taken as the value for communication quality with parents. Finally, these responses were dichotomized into high communication quality (1= easy and very easy) and low communication quality (0= difficult and very difficult). This schema of

variable construction, taking the highest value of parental communication and dichotomizing the variable into high and low quality communication has been employed in past studies, although only using the reports on biological parents (e.g. Spriggs et al 2007; Gage, Overpeck, Nansel & Kogan 2005). Of note, the wording of the question posed regarding ease of communication with the respondent's stepfather includes mother's cohabiting partner, and that regarding respondent's stepmother includes father's cohabiting partner. Therefore, this variable (Pcomm) measures the highest quality of a respondent's communication with any "mother-figure" or "father-figure" he or she might live with, capturing those from diverse family structure contexts. The majority of the reports on the "best" parental communication come from biological parents, given that only a small minority of respondents report having better communication with a step-parent than with their residential biological parent (N = 193; 16.5% of respondents living with a biological father and stepmother, 6.8% of respondents living with a biological mother and a stepfather).

*Controls:* Age (in years;  $\bar{x} = 13.43$  years, SE = 0.06) is included in the analysis to control for potential age differences in experiencing bullying (e.g. Nansel et al, 2001) as well as age differences in psychological maladjustment (e.g. Lewinsohn, Hops, Roberts, Seeley & Andrews 1993). The means, standard errors and percentages reported for control variables are weighted and based on non-missing data. Gender is also included to control for gender differences in bullying behavior (e.g. Crick, Werner, Casas, O'Brien, Nelson, Grotpeter & Markon, 1999) as well as psychosocial adjustment (e.g. Hankin, Abramson, Moffitt, Silva, McGee & Angell, 1998). Females (52%) were coded as 1 and males coded as 0. Race/ethnicity was also controlled to address potential racial & ethnic differences in bullying behavior (e.g. Spriggs et al 2007) as well as psychosocial adjustment (e.g. Saluja, Iachan, Scheidt, Overpeck, Sun & Giedd, 2004). Respondents were categorized into four racial/ethnic groups: white (reference group;

61%), black (14.2%), Hispanic (15.1%) and other (9.7%; includes those who identified as Asian, American Indian or Alaska Native, native Hawaiian or other Pacific Islander, or two or more races).

Family structure was also controlled for in the analyses in order to take into account differences in the respondents' home environment which may affect experiencing bullying as well as psychosocial adjustment (e.g. Stevens, De Bourdeaudhuij & Van Oost 2002; Sessa & Steinberg 1991; Demo & Acock 1996; Amato & Keith 1991). Information on who lived in the respondent's primary residence was used to construct dummy variables indicating the family structure: two biological parents (reference category, 61.1%), biological mother and stepfather (14.2%), biological father and stepmother (2.6%), single mother home (18.9%), and single father home (3.2%).

The socioeconomic status of respondents' families was additionally controlled for in the analyses. The family affluence scale (FAS) was used as a composite measure of a family's socioeconomic resources (Boyce, Torsheim, Currie and Zambon 2006). This scale placed a respondent's family into one of three categories, low affluence, medium affluence or high affluence, based on their summed responses to four questions ( $\bar{x} = 2.38$ ,  $SE = 0.02$ ). The first question asked respondents whether their family owned a car, van or truck (0= no, 1 = yes, one, or 2= yes, two or more). A second question, used as a proxy for overcrowding, asked about whether the respondent had his/her own bedroom (0= no, 1= yes). A third question asked respondents "during the past 12 months, how many times, did you travel away on holiday with your family" (0= not at all, 1= once, 2= twice, or 3= more than twice). A fourth question, used to identify higher SES families, asked respondents how many computers their family owned (0= none, 1= one, 2= two, 3= or more than two).

Two controls were included to account for important aspects of respondents' social experiences. (Similar results were obtained when these two controls were excluded from the overall structural model.) The extent of adolescents' social network, the number of close friends they can turn to, may affect how well individuals are able to psychologically and emotionally process experiencing bullying; a variable was included to control for the unique experience of social isolation. This variable (Isolated) is derived from questions asking respondents about the number of close male and female friends they had (1= no close friends, 1.3%, 0= at least one close friend, 98.7%). Lacking a close friend may have contributed to both the likelihood that an adolescent was bullied, as well the likelihood that they experienced psychosocial maladjustment. Having a close friend appears to be protective against victimization (Boulton, Trueman, Chau et al 1999), and number of friendships is negatively associated with being a victim (Mouittapa, Valente, Gallaher, Rohrbach and Unger 2004). Additionally, research suggests that the ability to establish close friendships with peers is of great importance for adolescent socioemotional adjustment (e.g. Buhrmester 1990) and that social isolation, lacking a close friend, is associated with increased risk for depression, suicide attempts, and low self-esteem (Hall-Lande, Eisenberg, Christenson & Neumark-Sztainer 2007). Past research on peer victimization and psychosocial adjustment have also controlled for the number of respondents' friends in some manner to adjust for social isolation (e.g. Wang, Iannotti & Nansel, 2009; Spriggs et al 2007).

A second control was included to account for bullying perpetrated by the respondent. Research suggests that bullying others is associated with both a heightened propensity of being victimized (e.g. Haynie, Nansel, Eitel, Crump, Saylor, Yu & Simons-Morton, 2001) as well as psychosocial maladjustment (Nansel et al 2001). Bully others is a composite scale which captures the greatest frequency of bullying perpetrated by respondents ( $\bar{x} = 1.81$ , SE = 0.02),

derived from five questions regarding how frequently in the past few months respondents physically bullied others, called others names, made sexual jokes or gestures towards others, spread lies or rumors about others, and excluded others (1= I have not bullied others in this way in the past couple of months, 2= only once or twice, 3= 2-3 times a month, 4= about once a week, and 5= several times a week). The highest frequency value of the individual items is taken as the respondent's value on bullying others.

### *Data Analytic Strategies*

Data analyses were conducted in Mplus version 6 in order to adjust for the complex survey design of the HBSC when executing structural equation modeling with latent variables and multigroup analysis (Muthén & Muthén 2010). A full-information maximum-likelihood (FIML) technique was utilized to handle missing data. Results are based on unweighted data. When adjustments were made to the models through weighting similar results were obtained.



## Results

### *Prevalence of experiencing bullying*

An examination of the prevalence of bullying experiences among this sample of adolescents indicates that bullying is widespread, a finding that is consistent with existing literature (DeVoe & Murphy 2011). Table 1 gives descriptive information on bullying prevalence by subtype and gender. Results are weighted and based on non-missing data. Statistically significant chi-square tests reveal that boys and girls experience a statistically different rate of each form, as well as any form, of bullying. However, given the large sample size, results of a chi-square test should be interpreted with caution. Overall, forty-six percent of the sample reports being uninvolved, not having experienced any of the five types of bullying behavior in the past few months. A greater proportion of boys (48%) report being uninvolved, and experiencing no form of bullying in the past few months, compared with girls (42%); past research similarly finds that more girls are victims of bullying than boys (DeVoe & Murphy 2011). Twenty-six percent of adolescent boys and girls in the sample reported experiencing at least one form of bullying infrequently, once or twice in the last few months. On the other end of the bullying continuum, 21% of the boys and girls in the sample report experiencing at least one of the forms of bullying at a frequent or severe rate, at least once to several times a week. While a smaller percentage of adolescent boys reported any involvement with bullying compared to adolescent girls, a greater percentage of boys experienced bullying more frequently, at least once a week, compared to adolescent girls (22% versus 20%).

Certain bullying behaviors were more common than others. Being called names was the most common bullying experience among all adolescents, with 34% reporting having

experienced name calling at least once or twice in the last few months. Involvement in the different bullying experiences also differed by gender. Rumor-spreading was the most prevalent form of bullying among girls (34% experienced it at least once or twice in the last few months), while physical bullying was the least prevalent (8%). Among boys, name calling is the most prevalent bullying experience (36% experienced it at least once or twice in the last few months), while physical bullying was least prevalent (20%).

All of the control variables with a few exceptions (Hispanic, Other, and Single-father household) were significantly associated with experiencing bullying, even when all were considered together in a multivariate framework, consistent with expectations and existing literature (see results from the full structural model in the Appendix). Females are less likely to experience a greater frequency of bullying compared to males. This finding is consistent with current research which finds that while a greater proportion of girls experience at least some bullying, boys are more likely to experience high frequencies of bullying, at least once a week (DeVoe & Murphy 2011). Experiencing bullying decreases slightly with age and is less likely to occur as family affluence increases. African American adolescents are less likely to be bullied compared to whites. Adolescents from single-mother homes, as well as those from step-family homes (both biological-father/step-mother and biological-mother/step-father homes), are more likely to experience bullying compared to adolescents from a two-biological parent home. Results indicate a moderate and significant association between bullying others and experiencing bullying as the victim; the more kids bullied others the more likely they were to be bullied themselves. Adolescents who were isolated, who did not have any close friends, were also more likely to experience bullying.

**Table 1. Prevalence of Experiencing Bullying by Sub-type and Gender (%)**

	Both	Females	Males
<b><i>Called Names</i></b>			
Has not experienced bullying in last few months	66	67	64
Experienced bullying 1-2 times in last few months	19	20	18
Experienced bullying 2-3 times in last month	4	4	5
Experienced bullying about once a week	4	3	4
Experienced bullying several times a week	7	6	9
<b><i>Left Out</i></b>			
Has not experienced bullying in last few months	73	72	74
Experienced bullying 1-2 times in last few months	15	17	12
Experienced bullying 2-3 times in last month	4	4	4
Experienced bullying about once a week	3	3	4
Experienced bullying several times a week	5	4	6
<b><i>Physical</i></b>			
Has not experienced bullying in last few months	86	92	80
Experienced bullying 1-2 times in last few months	7	5	10
Experienced bullying 2-3 times in last month	2	1	3
Experienced bullying about once a week	2	1	2
Experienced bullying several times a week	3	1	5
<b><i>Rumors</i></b>			
Has not experienced bullying in last few months	68	66	70
Experienced bullying 1-2 times in last few months	18	21	15
Experienced bullying 2-3 times in last month	5	5	5
Experienced bullying about once a week	3	3	3
Experienced bullying several times a week	6	5	7
<b><i>Sex Jokes</i></b>			
Has not experienced bullying in last few months	75	73	78
Experienced bullying 1-2 times in last few months	12	14	9
Experienced bullying 2-3 times in last month	4	4	3
Experienced bullying about once a week	3	3	3
Experienced bullying several times a week	6	6	7
<b><i>Any form of Bullying</i></b>			
Has not experienced bullying in last few months	46	43	48
Experienced bullying 1-2 times in last few months	26	29	23
Experienced bullying 2-3 times in last month	7	8	7
Experienced bullying about once a week	7	7	7
Experienced bullying several times a week	14	13	15

Note: Weighted results based on non-missing data.

### *Measurement model*

Confirmatory factor analysis was employed to assess the fit of the hypothesized latent constructs to the data. The chi-square value, corresponding  $p$  value, root-mean square error of approximation (RMSEA), and confirmatory fit index (CFI) were taken as indicators of the overall goodness of fit of the measurement model. Chi-square is sensitive to sample size, with a tendency to display a significant probability level with larger sample sizes. Therefore, additional model-fit indices which adjust for sample size were utilized to determine how well the measurement model fits the data, RMSEA and CFI. The root-mean square error of approximation (RMSEA) is a parsimony-corrected index which adjusts for sample size and degrees of freedom and compensates for model complexity to determine the goodness of fit (Kline 2011). The Bentler Confirmatory Fit Index (CFI) is an incremental fit index that compares the relative improvement in fit of the theoretical model over the baseline model. When using a maximum-likelihood estimation technique, RMSEA cut-off values under .05 and CFI cut-off values over .95 are considered to indicate a good fitting model (Hu and Bentler, 1999). Confirmatory factor analysis suggested that the overall fit of the measurement model proved to be satisfactory, with  $\chi^2 (19) = 252.01$ ,  $p < .001$ , RMSEA = 0.03, and CFI = 0.98 values for the measurement model of the latent constructs bullying and psychosocial adjustment (see Table 2).

To ensure that the measurement model fits the data well for both males and females, a multi-group model was used to test for measurement invariance between genders. Results indicate that the factor loadings for the latent constructs, particularly bullying, are different for males and females (see Table 2). The primary gender difference in factor loadings is for physical bullying, as the latent variable explained more of the variance in physical bullying for boys than for girls (male model:  $R^2 = (0.74)^2 = 0.55$ , 55% of the variance of the physical bullying

indicator; female model:  $R^2 = (0.54)^2 = 0.28$ , 28% of the variance of the physical bullying indicator). This finding is consistent with the descriptive statistics presented earlier demonstrating the lower levels of physical bullying and limited variance in this form of bullying among adolescent females, which contributes to its lower factor loading in the latent bullying construct compared to boys. However, while constraining the factors to be equal for both genders results in a slightly poorer fit of the measurement model, the relevant fit indices suggest that measuring these latent constructs in the same way for both genders still fits the data relatively well (unconstrained model:  $\chi^2(44) = 582.85$ ,  $p < .001$ , RMSEA = 0.04, CFI = 0.96; constrained model:  $\chi^2(56) = 1169.82$ ,  $p < .001$ , RMSEA = 0.05, CFI = 0.92). Given the consistency, the overall measurement model will be utilized in subsequent analyses, measuring the latent constructs in the same fashion for males and females.

Table 2. Measurement Models	Overall				Males				Females			
	Unstandardized Loadings (b)	Critical Ratio	Standardized Loadings (β)	Critical Ratio	Unstandardized Loadings (b)	Critical Ratio	Standardized Loadings (β)	Critical Ratio	Unstandardized Loadings (b)	Critical Ratio	Standardized Loadings (β)	Critical Ratio
<i>Psychosocial Maladjustment (PSM)</i>	(SE)		(SE)		(SE)		(SE)		(SE)		(SE)	
Depression	1.00 *** (0.00)	999.00	0.79 *** (0.01)	57.38	1.00 *** (0.00)	999.00	0.79 *** (0.02)	37.84	1.00 *** (0.00)	999.00	0.79 *** (0.02)	50.26
Anxiety	0.68 *** (0.02)	30.94	0.53 *** (0.01)	48.65	0.70 *** (0.03)	22.45	0.54 *** (0.02)	35.33	0.67 *** (0.03)	25.73	0.52 *** (0.01)	37.63
Life Satisfaction (reverse coded)	0.92 *** (0.03)	28.86	0.48 *** (0.01)	40.53	0.91 *** (0.05)	18.88	0.46 *** (0.02)	27.50	0.92 *** (0.04)	24.32	0.49 *** (0.02)	31.95
<i>Bullying</i>												
Called Names	1.00 *** (0.00)	999.00	0.75 *** (0.01)	83.52	1.00 *** (0.00)	999.00	0.78 *** (0.01)	73.80	1.00 *** (0.00)	999.00	0.72 *** (0.01)	52.26
Left Out	0.86 *** (0.02)	51.69	0.73 *** (0.01)	87.29	0.88 *** (0.02)	45.08	0.77 *** (0.01)	75.80	0.85 *** (0.03)	27.39	0.67 *** (0.02)	44.58
Physical	0.61 *** (0.02)	32.48	0.65 *** (0.01)	53.45	<b>0.77</b> *** (0.02)	32.87	<b>0.74</b> *** (0.01)	55.68	<b>0.41</b> *** (0.03)	15.77	<b>0.53</b> *** (0.02)	24.94
Rumors	0.95 *** (0.02)	58.37	0.77 *** (0.01)	117.23	0.92 *** (0.02)	48.22	0.79 *** (0.01)	92.99	1.00 *** (0.03)	33.42	0.75 *** (0.01)	64.47
Sex Jokes	0.79 *** (0.02)	43.30	0.64 *** (0.01)	59.57	0.83 *** (0.02)	38.35	0.72 *** (0.01)	59.15	0.74 *** (0.03)	25.52	0.55 *** (0.02)	33.92
<i>Correlation between PSM &amp; Bullying</i>	0.39 *** (0.02)	24.87	0.41 *** (0.02)	26.52	0.43 *** (0.03)	16.39	0.42 *** (0.02)	19.10	0.38 *** (0.02)	21.02	0.43 *** (0.02)	24.10
Overall Model: $\chi^2(19) = 252.01, p < .001$ RMSEA = 0.03 CFI = 0.98	Unconstrained model: $\chi^2(44) = 582.85, p < .001$ RMSEA = 0.04 CFI = 0.96				Constrained Model: $\chi^2(56) = 1169.82, p < .001$ RMSEA = 0.05 CFI = 0.92							

### *Structural Model*

Drawing on past empirical research and theoretical concepts, a structural model with latent variables was formulated in which experiencing bullying was hypothesized to affect psychosocial maladjustment, both directly and indirectly through its influence on social self-concept. The basic structural model proved to fit the data well, with satisfactory scores on the goodness-of-fit indices:  $\chi^2(25) = 545.26$ ,  $p < .001$ , RMSEA = 0.04, CFI = 0.97. When all control variables were included in the structural model the full structural model continued to fit the data well. Satisfactory scores were maintained for the goodness-of-fit indices:  $\chi^2(109) = 1971.435$ ,  $p < .001$ , RMSEA = 0.04, CFI = 0.93. When run separately by gender the structural model continued to fit the data well for both males and females, though slightly better for the males: male model  $\chi^2(102) = 679.263$ ,  $p < .001$ , RMSEA = .03, CFI = .96; female model  $\chi^2(102) = 1029.858$ ,  $p < .001$ , RMSEA = .04, CFI = .92. As the structural model tells the same story for both, males and females are kept together in subsequent analyses. Results of a multigroup analysis testing for gender differences in the structural model are described later in the results section.

In order to test the statistical significance of the indirect effect of social self-concept, a Sobel test was performed. Results indicate a statistically significant indirect pathway at the  $p < .001$  level ( $z = 14.429$ ). Bootstrap resampling is another significance test which enables the estimation of parameter standard errors and model test statistic  $p$  values under conditions of data nonnormality, acting as a robustness check of the standard-error estimation with a non-normal distribution of data (Nevitt and Hancock 2001). However, Mplus does not enable the user to take into account complex survey design when running a bootstrapping test; therefore the Sobel

test was utilized. The Sobel test approximated the standard error of the indirect effect, producing parameter estimates which were sensitive to design effects.

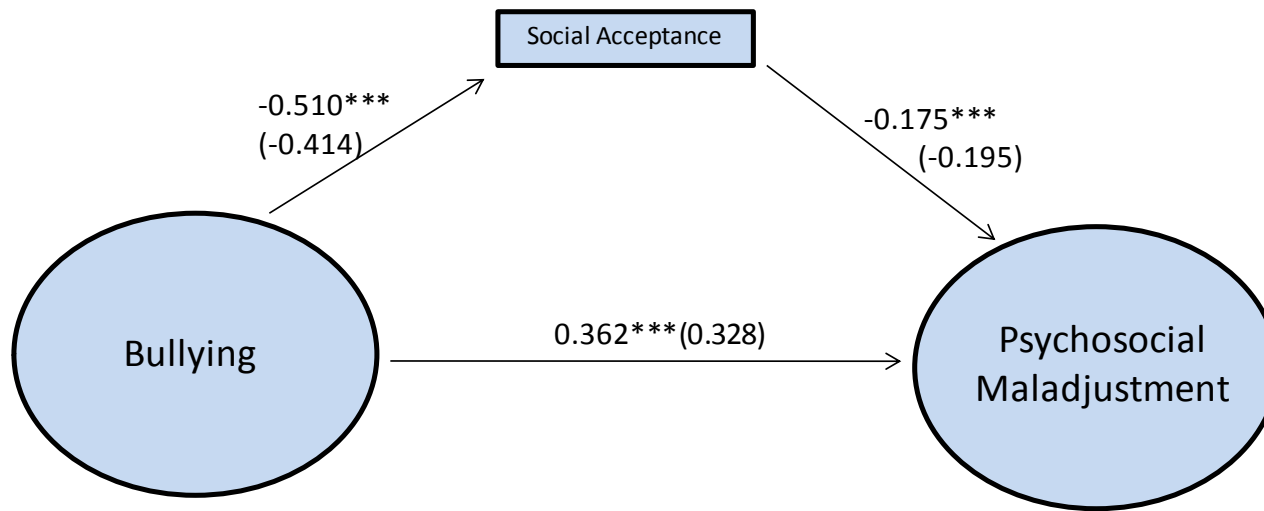
*The relationship between bullying, social self-concept and psychosocial maladjustment*

The structural model tested the hypothesized relationship between bullying, social self-concept, and psychosocial adjustment (see Figure 1 & table 3). Experiencing greater frequency of bullying contributes to greater levels of psychosocial maladjustment among adolescents; confirming findings from past research (see Hawker and Boulton 2000 for review). Part of this association is direct (unstandardized coefficient ( $b$ ) = 0.362,  $p < .001$ ) and part of it operates through the effect of bullying on social self-concept. Experiencing bullying negatively affects adolescents' social self-concept, their feelings of social acceptance ( $b = -0.510$ ,  $p < .001$ ). In turn, these feeling of social acceptance are negatively related to psychosocial maladjustment ( $b = -0.175$ ,  $p < .001$ ); teens who feel more accepted by their peers are less likely to experience maladjustment. Taken together, experiencing bullying indirectly contributes to psychosocial maladjustment through its negative influence on adolescents' social self concept. This indirect effect accounts for 20% of the total effect of bullying on psychosocial maladjustment, with the remaining 80% coming from its direct effect. Therefore, part of the effect of experiencing bullying on adolescents' psychosocial maladjustment is mediated through its effect on teens' social self concept.



**Figure 1: Structural Model**

N = 14,039



Indirect Effect 0.089 (0.081) Chi-Square 1971.435  
 Direct Effect 0.362 (0.328) DF 109  
 Total Effect 0.451 (0.409) P-value < .001  
 CFI .928  
 RMSEA .035

Note: Unstandardized coefficients are reported, standardized coefficients in parentheses;  $p < .001 = ***$   
 Controls included in models (age, race/ethnicity, family structure, family affluence scale, Isolated, bully others)

Table 3. Structural Models	Overall				Multigroup Structural Model - Males				Multigroup Structural Model - Females			
	Unstandardized Coefficient (b) (SE)	Critical Ratio	Standardized Coefficient (β) (SE)	Critical Ratio	Unstandardized Coefficient (b) (SE)	Critical Ratio	Standardized Coefficient (β) (SE)	Critical Ratio	Unstandardized Coefficient (b) (SE)	Critical Ratio	Standardized Coefficient (β) (SE)	Critical Ratio
Psychosocial Maladjustment												
Bullied	0.362 *** (0.02)	18.72	0.328 *** (0.02)	19.06	<b>0.297</b> *** (0.02)	12.24	<b>0.319</b> *** (0.03)	12.06	<b>0.456</b> *** (0.03)	15.76	<b>0.348</b> *** (0.02)	17.67
Social Acceptance	-0.175 *** (0.01)	-12.64	-0.195 *** (0.02)	-12.24	-0.175 *** (0.02)	-9.19	-0.211 *** (0.02)	-9.25	-0.174 *** (0.02)	-9.79	-0.184 *** (0.02)	-9.51
Social Acceptance												
Bullied	-0.510 *** (0.02)	-34.17	-0.414 *** (0.01)	-38.23	-0.495 *** (0.02)	-27.84	-0.442 *** (0.01)	-30.77	-0.526 *** (0.02)	-27.75	-0.379 *** (0.01)	-26.81

Note: **Bolded** coefficients in the multigroup structural model are statistically significantly different for males and females at the  $p < .05$  level;  $p < .001 = ***$

Controls included in all models (age, race/ethnicity, family structure, family affluence scale, Isolated, bully others); gender controlled for in overall model

To test whether the associations in the structural model operate differently for boys and girls a multigroup analysis by gender was performed. Multigroup analysis enables one to test if there is a statistically significant difference between pathway regression coefficients depending on group membership. A Satorra-Bentler scaled chi-square difference test was performed (Satorra and Bentler 2001). This test statistic adjusts downward the normal theory  $\chi^2$  generated with standard maximum-likelihood estimation using a correction factor that reflects the degree of kurtosis (Kline 2011). This statistic better approximates chi-square under conditions of data non-normality and therefore is a more robust test statistic to use when performing difference testing. Results from the gender multigroup analysis indicate that the direct effect of experiencing bullying on psychosocial maladjustment is statistically significantly larger for adolescent females than for males at the  $p < .001$  level (females:  $b = 0.456$ ,  $p < .001$ ; males:  $b = 0.297$ ,  $p < .001$ ; see Table 3). The unconstrained model, which allowed pathways to vary by gender, produced a chi-square of 2747.44 (DF = 228) while the model constraining the pathway from bullying to psychosocial maladjustment to be equal across genders produced a chi-square of 2766.69 (DF = 229). The indirect effect of bullying on psychosocial maladjustment through its influence on adolescents' social self-concept is not statistically different for teenage girls and boys.

All of the control variables with a few exceptions (Hispanic, Other, and Family Affluence) were significantly associated with psychosocial maladjustment, even when all were considered together in a multivariate framework, consistent with expectations and existing literature (see results from the full structural model in the Appendix). Adolescent girls were more likely to experience psychosocial maladjustment compared to adolescent boys. Psychosocial maladjustment increased with age. African American adolescents were more likely to experience psychosocial maladjustment compared to whites. Adolescents from every "other"

family structure arrangement (single-mother household, single-father household, biological mother/step-father household and biological father/step-mother household) had worse psychosocial maladjustment compared to those adolescents from a two-biological parent family. The more adolescents bullied others, the greater their psychosocial maladjustment. Finally, results indicate that adolescents who were socially isolated were more likely to experience psychosocial maladjustment, compared to those who had at least one friend.

### *Buffering role of Parental Communication*

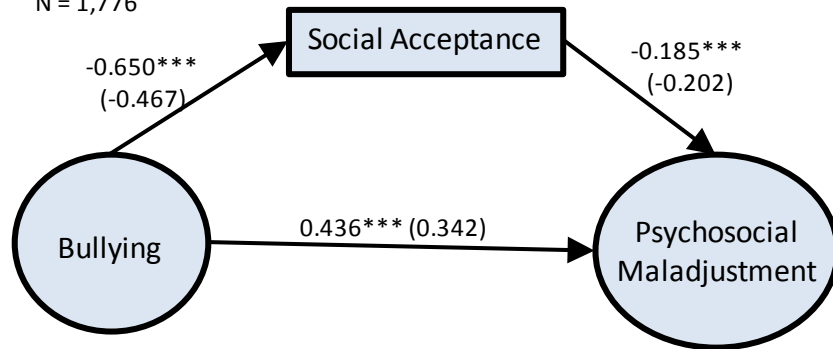
High levels of parental communication are hypothesized to mitigate the effect of experiencing bullying on adolescents' psychosocial maladjustment. Additionally given the variation in the relationship between bullying and psychosocial maladjustment by gender, parental communication may exert an influence differentially for adolescent girls and boys. Therefore a multigroup analysis was performed to examine how both level of communication with parent(s) and gender influence the direct and indirect effects of experiencing bullying on psychosocial maladjustment. This tests whether statistically significant differences in regression coefficient pathways exist for four groups: females with high levels of parental communication (N = 5,271), males with high levels of parental communication (N = 4,892), females with low levels of parental communication (N = 1,776), and males with low levels of parental communication (N = 1,328). Again, the Satorra-Bentler scaled chi-square difference test was used to adjust chi-square under conditions of non-normality.

Results from the multigroup analysis indicate that parental communication does act as a "buffer" for adolescent girls and boys; seen in the smaller total effect among those with high

levels of parental communication (see figure 2 & Table 4). Results from the Satorra-Bentler difference test reveal that the relationship between bullying and psychosocial maladjustment is statistically significantly different between the four gender-parent communication groups at the .05 level. Adolescents with low levels of parental communication do “worse”, bullying contributes to greater psychosocial maladjustment for them compared to adolescents with high parental communication. Parental communication appears to exert its effect primarily on the indirect pathway, through adolescents’ social self-concept. Gender differences in the direct effect of experiencing bullying on psychosocial maladjustment remain, with little influence from parental communication (females, high communication  $b = 0.439$ ,  $p < .001$ ; males, high communication  $b = 0.283$ ,  $p < .001$ ; females, low communication  $b = 0.436$ ,  $p < .001$ ; males, low communication  $b = 0.270$ ,  $p < .001$ ).

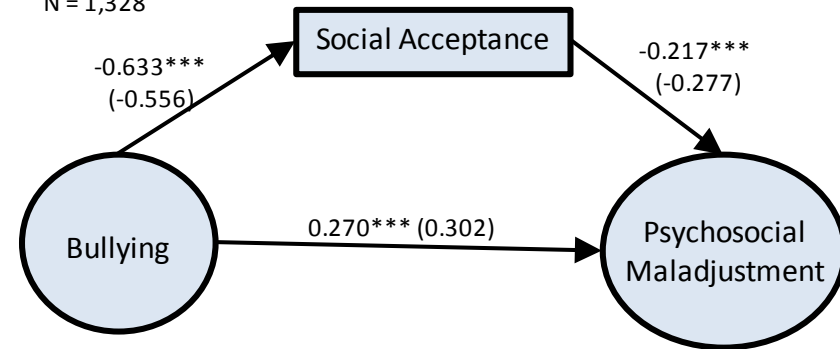
**Figure 2: Multigroup Models by Adolescent Gender & Level of Parental Communication**

Female, Low Parental Communication  
N = 1,776



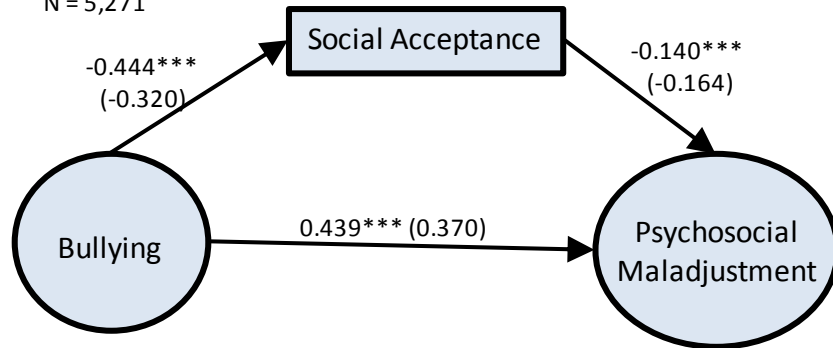
Indirect Effect 0.120 (0.094)  
Direct Effect 0.436 (0.342)  
Total Effect 0.556 (0.436)

Male, Low Parental Communication  
N = 1,328



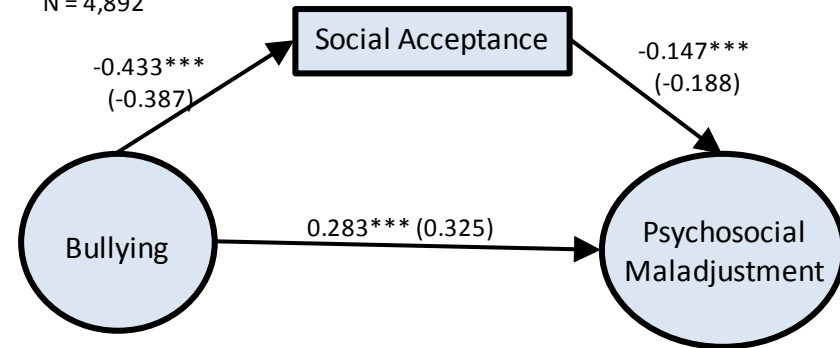
Indirect Effect 0.137 (0.154)  
Direct Effect 0.270 (0.302)  
Total Effect 0.407 (0.456)

Female, High Parental Communication  
N = 5,271



Indirect Effect 0.062 (0.052)  
Direct Effect 0.439 (0.370)  
Total Effect 0.501 (0.422)

Male, High Parental Communication  
N = 4,892



Indirect Effect 0.063 (0.073)  
Direct Effect 0.283 (0.325)  
Total Effect 0.346 (0.398)

Note: Unstandardized coefficients are reported, standardized coefficients are in parentheses;  $p < .001 = ***$   
Controls included in models (age, race/ethnicity, family structure, family affluence scale, Isolated, bully others)

**Table 4: Multigroup Models by Adolescent Gender & Level of Parental Communication**

	Female, Low Communication		Male, Low Communication		Female, High Communication		Male, High Communication	
	Unstandardized Coefficient ( <i>b</i> ) (SE)	Standardized Coefficient ( $\beta$ ) (SE)	Unstandardized Coefficient ( <i>b</i> ) (SE)	Standardized Coefficient ( $\beta$ ) (SE)	Unstandardized Coefficient ( <i>b</i> ) (SE)	Standardized Coefficient ( $\beta$ ) (SE)	Unstandardized Coefficient ( <i>b</i> ) (SE)	Standardized Coefficient ( $\beta$ ) (SE)
Psychosocial Maladjustment								
Bullied	<b>0.436</b> *** (0.06)	<b>0.342</b> *** (0.04)	<b>0.270</b> *** (0.05)	<b>0.302</b> *** (0.05)	<b>0.439</b> *** (0.03)	<b>0.370</b> *** (0.03)	<b>0.283</b> *** (0.03)	<b>0.325</b> *** (0.03)
Social Acceptance	-0.185 *** (0.03)	-0.202 *** (0.04)	-0.217 *** (0.04)	-0.277 *** (0.05)	-0.140 *** (0.02)	-0.164 *** (0.02)	-0.147 *** (0.02)	-0.188 *** (0.03)
Social Acceptance								
Bullied	<b>-0.650</b> *** (0.03)	<b>-0.467</b> *** (0.02)	<b>-0.633</b> *** (0.02)	<b>-0.556</b> *** (0.02)	<b>-0.444</b> *** (0.02)	<b>-0.320</b> *** (0.02)	<b>-0.433</b> *** (0.02)	<b>-0.387</b> *** (0.02)

Note: **Bolded** coefficients are statistically significantly different from one another, PSA & Bullied are statistically significantly different at the  $p < .05$  level, Social Acceptance & Bullied are statistically significantly different from one another at the  $p < .001$  level;  $p < .001 = ***$   
 Controls included in models (age, race/ethnicity, family structure, family affluence scale, Isolated, bully others)

Parental communication exerts its influence through the indirect effect by attenuating the effect of bullying on feelings of social acceptance. Among those adolescents with high levels of parental communication, experiencing bullying does not have as strong of a negative effect on their feelings of social acceptance compared to adolescents with low parental communication. This difference is similar for adolescent girls and boys (females, high communication  $b = -0.444$ ,  $p < .001$ ; females, low communication  $b = -0.650$ ,  $p < .001$ ; males, high communication  $b = -0.433$ ,  $p < .001$ ; males low communication  $b = -0.633$ ,  $p < .001$ ). Results from the Satorra-Bentler difference test indicate that the relationship between bullying and social acceptance is statistically significantly different between the four gender-parent communication groups at the .001 level. Bullying leads to lower levels of social acceptance among those with low parental communication, but there is no statistically significant difference in the magnitude in which social self-concept translates into adolescents' psychosocial maladjustment, by gender or level of parental communication. While gender differences may exist in the mechanisms linking bullying to psychosocial maladjustment, with adolescent girls who are bullied experiencing greater psychosocial maladjustment compared to bullied adolescent boys, parental communication appears to work as a buffer in roughly the same ways.

## Discussion

The present study looked at the association between bullying experiences and psychosocial maladjustment among early adolescents, considering both potential mediating and moderating factors in this association. Specifically, this study explored the role of social self-concept as a mechanism linking bullying with poor psychosocial adjustment, as well as the moderating role of parental communication. Findings lend support for the hypotheses that adolescents who experience a greater frequency of bullying also experience greater levels of psychosocial maladjustment, and that a small but significant portion of this association operates through the negative effect that bullying has on adolescents' social self-concept. Bullying makes adolescents feel less socially accepted, which contributes to their psychosocial maladjustment. These results support findings from past research of the negative psychosocial consequences of bullying for adolescents (see Hawker and Boulton 2000 for review). While findings from past research suggest that bullying contributes to poor social self-concept (Boulton, Smith & Cowie 2010), and that socially rejected children are more likely to experience psychological distress (Newcomb, Bukowski & Pattee 1993), the mediating role of social self concept has not been fully explored in prior literature. The current study extends prior research by explicitly testing social self-concept as a mediating mechanism between bullying and psychosocial adjustment in adolescents. Results also point to gender differences in this association; the direct effect of bullying on psychosocial maladjustment is stronger for adolescent girls than for boys. While past research has looked at how bullying influences adolescents' psychosocial adjustment, very few projects have explicitly tested for gender differences in this association (Saluja et al 2004). Research suggests that a gendered, differential vulnerability to internalizing problems may exist in part, due to socialization which encourages greater self-regulation and reactivity to



interpersonal concerns among girls compared to boys (Leadbeater, Kuperminc, Blatt & Hertzog 1999; Gore, Aseltine & Colten 1993). Socialization practices which place greater emphasis on the importance of interpersonal relations for girls may help to account for gender differences in the influence that negative interpersonal experiences, such as bullying, have on psychosocial outcomes. Research should further explore how gender differences in adolescent peer culture and status hierarchies (Eder, Evans & Parker 1995) influence gender differences in the association between bullying and psychosocial maladjustment.

The current study also extends prior research by looking at the moderating role of parental communication. Results indicate that parental communication moderates the association between bullying and psychosocial maladjustment through its effect on adolescents' social self-concept. The ability to easily talk with one's parent(s) acts as a buffer in that bullying does not contribute as much to adolescents' feelings of social rejection among those with high levels of parental communication. This suggests that parental communication may buffer adolescents by acting as a "sounding board"; adolescents who can easily talk with their parents can process negative social experiences with them, and in turn those experiences do not exert as strong of an effect on their social self-concept and psychosocial adjustment. Future research should further explore how parental communication may buffer adolescents from other negative experiences, such as experiencing verbal or physical abuse in a romantic relationship, reducing their impact on psychosocial outcomes.

Findings from the current study suggest that parental communication acts as a buffer against the negative effects of bullying in the same way for adolescent males and females. Past research exploring the protective role of parental support suggests that the buffering effect works equally well for boys and girls (Bowes, Maughan, Caspi, Moffit & Arsenaault 2010; Holt &

Espelage 2007) or is more beneficial for females (Davidson & Demaray 2007). However, these studies looked at the role of parental support generally, not parental communication specifically, and did not explore the mediating role of social self-concept. Therefore the finding that parental communication works as a buffer for both adolescent males and females contributes its own piece to the story.

While this study contributes to the current understanding of the intersection of family and peer relations in adolescence, several limitations exist. First, ideally this study would utilize longitudinal data to ensure the temporal accuracy in reports of bullying and indicators of psychosocial adjustment. One must be careful therefore, in making causal inferences and explicit statements about directionality given the nature of the data. Prior research utilizing longitudinal designs have found support for the positive relationship between experiencing bullying and psychosocial maladjustment, outlined in the structural model (e.g. Olweus 1993a; Smokowski & Kopasz 2005). Additionally, longitudinal research on another form of victimization, sexual harassment, continued to find an association between victimization and depression, controlling for prior psychological distress (Houle, Staff, Mortimer, Uggen & Blackstone, Forthcoming). Such longitudinal research designs provide some evidence that we might expect to find a positive relationship between peer victimization and psychosocial maladjustment, despite the cross-sectional nature of the data. Future data collection efforts should include measures of bullying in order to help facilitate research exploration of the long-term impact of bullying experiences on individual well-being.

Secondly, the self-reporting of both independent and dependent variables may contribute to shared method variance. That is, aspects of the respondent's disposition or personality traits may influence their judgments about conceptually distinct ideas (e.g. feeling low about oneself

and feeling that he/she is bullied by others) and render correlations among constructs inflated (Lorenz, Conger, Simon, Whitbeck & Elder 1991). The use of a single-informant is a common limitation in the bullying literature (see Hawker & Boulton 2000), and while some studies attempt to deal with this issue through the use of multiple reporters, this is not always appropriate depending on the ideas in question (e.g. respondents experience of bullying reported on by teachers may miss events that occur outside the classroom).

Third, the indicators used to construct the latent variable “psychosocial adjustment” are not rigorous measures of psychological distress, compared to measures extrapolated from the DSM (Diagnostic and Statistical Manual of Mental Disorders) or the CES-D (Center for Epidemiological Depression Scale). However, given data limitations, these measures serve as fairly reliable proxy indicators of psychosocial maladjustment ( $\alpha = .61$ ). Future research and data collection efforts should attempt to include more detailed measures of both bullying experiences and psychosocial outcomes in analyses and large-scale surveys in order to explore this association in greater detail.

Finally, details about the nature and content of communication between parents and children are not known. While the current study considers the ease of such communication, details about content would help illuminate what types of conversations might be most beneficial in buffering against the negative effects of bullying. Further research should explore *what* aspects of the communication between parents and adolescents are most protective.

The study reported here provides some evidence of how bullying contributes to poor outcomes for adolescents and what factors might protect victims from these negative consequences of bullying. A positive, supportive parent-child relationship characterized by open

communication helps to foster adolescent social, emotional and psychological development and promote resilience to behavioral and emotional problems for both adolescent girls and boys (Moore et al 2002; Masten & Coatsworth 1998). The implications of bullying, as social experiences which contribute to adolescents' psychosocial (Hakwer & Boulton 2000) and psychosomatic (Gini & Pozzoli 2009) problems, may be "combated" with a positive parent-child relationship that cultivates open communication. Parental communication contributes to healthy adolescent socioemotional development, and appears to be particularly important for promoting resilience in the face of bullying experiences for both males and females.

The findings from this study have both important research as well as policy implications. The current study extends prior research by highlighting one moderating, protective factor, parental communication, as well as one mediating mechanism, social self-concept, in the association between bullying and adolescent psychosocial maladjustment. Future research should further explore additional aspects of the parent-child relationship that may act as protective factors.

Bullying is a common social experience facing a large number of adolescents. Given its association with poorer outcomes, increased attention should be given to research and policy efforts that seek to understand and combat bullying. Bullying has received increased attention in the national media as a social problem with potentially deadly consequences (e.g. James 2010). The rash of teen suicides attributed, in part, to bullying calls national attention to an "old problem". The important role of parental communication as a buffer against the negative psychosocial consequences of bullying suggests a possible target of intervention efforts. Promoting parent-child communication efforts may result in the nurturance of psychosocial resilience among bullied adolescents. Parents and educators alike may benefit from an increased

understanding of both how social self-concept acts as a mechanism linking bullying to maladjustment and how parental communication may buffer adolescents from the negative effects of bullying.

<u>Appendix: Results for control variables in the structural model</u>				
	Unstandardized Coefficient ( <i>b</i> ) (SE)	Critical Ratio	Standardized Coefficient ( $\beta$ ) (SE)	Critical Ratio
<b>Bullied</b>				
Female	-0.048 ** (0.02)	-2.84	-0.026 ** (0.01)	-2.84
Age	-0.051 *** (0.01)	-8.60	-0.088 *** (0.01)	-8.63
Hispanic	-0.047 (0.02)	-1.91	-0.021 (0.01)	-1.89
Black	-0.069 * (0.03)	-2.41	-0.029 * (0.01)	-2.44
Other	0.023 (0.03)	0.81	0.008 (0.01)	0.82
FAS	-0.072 *** (0.01)	-5.67	-0.055 *** (0.01)	-5.70
Single-Mother Family	0.062 * (0.03)	2.36	0.027 * (0.01)	2.36
Single-Father Family	0.087 (0.05)	1.70	0.017 (0.01)	1.69
Bio-Father & Step-Mother Family	0.120 * (0.06)	2.11	0.021 * (0.01)	2.10
Bio-Mother & Step-Father Family	0.053 * (0.03)	2.16	0.020 * (0.01)	2.14
Bully Others	0.265 *** (0.01)	25.68	0.347 *** (0.01)	27.82
Isolated	0.635 *** (0.11)	5.91	0.080 *** (0.01)	5.84
<b>Psychosocial Maladjustment</b>				
Female	0.332 *** (0.02)	16.34	0.164 *** (0.01)	16.26
Age	0.072 *** (0.01)	10.46	0.112 *** (0.01)	10.30
Hispanic	-0.008 (0.03)	-0.29	-0.003 (0.01)	-0.29
Black	-0.253 *** (0.03)	-7.96	-0.097 *** (0.01)	-7.15
Other	0.023 (0.04)	0.62	0.007 (0.01)	0.62
FAS	-0.025 (0.01)	-1.79	-0.017 (0.01)	-1.78
Single-Mother Family	0.144 *** (0.03)	5.07	0.058 *** (0.01)	5.03
Single-Father Family	0.220 *** (0.07)	3.30	0.038 *** (0.01)	3.30
Bio-Father & Step-Mother Family	0.212 *** (0.06)	3.35	0.033 *** (0.01)	3.28
Bio-Mother & Step-Father Family	0.158 *** (0.03)	5.57	0.054 *** (0.01)	5.48
Bully Others	0.052 *** (0.01)	4.80	0.061 *** (0.01)	4.83
Isolated	0.359 *** (0.11)	3.28	0.041 *** (0.01)	3.27
* $p < 0.05$ , ** $p < 0.01$ , *** $p < 0.001$				

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