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The current study examined the influence of interpersonal relationships on self-perceptions, defined as one's interpretation of their own personal abilities. Interpersonal relationships with parents and peers, children's competence, and sex play an important role in the development of self-perceptions,. However, no studies have examined these key factors simultaneously. The current study utilized a path analysis to address these gaps by examining the influence of children's competence and negative interpersonal interactions (parental hosility and peer victimization) on self-perceptions of academic competence and social acceptance. Academic competence was assessed using scores from the WIAT-II at age 7. Social acceptance and peer victimizaiton at age 7 were measured using peer-report of social preference from the sociometric peer nomination procedure. Observational ratings from parent-child interaction tasks were used to capture parental hostility at age 7. Social and academic self-perceptions were measured using self-report from the BASC-2. In the full sample (N = 382), there was a significant direct effect of academic competence on academic self-perceptions. There was also a significant direct effect of peer victimization on social self-perceptions. A multiple group path analysis was conducted to assess for sex differences. The model produced poor fit among males and good fit among females. For females, there was a significant direct effect of social acceptance on social self-perceptions in the female-only path diagram. There was also a significant direct effect of peer victimization on academic self-perceptions among

females. Implications for future research examining the role of competence, interpersonal

relationships, and sex on self-perceptions are discussed.

NEGATIVE SELF-PERCEPTIONS IN PREADOLESCENCE: THE ROLE OF

PARENTAL HOSTILITY AND PEER VICTIMIZATION

by

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CHAPTER I

INTRODUCTION

Knowledge of the self plays a critical role in organizing thoughts, behaviors, and events into meaningful information (Jacobs, Bleeker, & Constantino, 2003). Research investigating self-knowledge in youth has primarily focused on self-perceptions of competence. Researchers have theorized that feelings of competence are a basic psychological need and beliefs about one's competence are essential for motivation and overall psychological adjustment (Bandura, 1986; Deci & Ryan, 2008; Harter, 2012). Self-perceptions of competence in youth have been linked to a range of outcomes including academic performance (Dixson, Worrell, Olszewski-Kubilius, & Subotnik, 2016; Chamorro-Premuzic, Harlaar, Greven, & Plomin, 2010; Marsh & O'Mara, 2008), body image (Michael al., 2014; Canpolat, Orsel, Akdemir, & Ozbay, 2005), and risk for internalizing disorders (Bédard, Bouffard, & Pansu, 2014; Bilsky et al., 2013; Cole et al., 2015). Failure to construct positive self-perceptions in middle childhood and preadolescence results in lower self-esteem, negative views about the world, hopelessness about the future, and increased risk for depression (Cole, 1991b; Cole, Jacquez, & Maschmann, 2001; Harter, 2012). Therefore, research investigating factors that contribute to the formation of childhood self-perceptions is important for identifying precursors to both adaptive and maladaptive outcomes in youth.

Self-perception is traditionally defined as one's interpretation of their own personal abilities (Eccles, Wigfield, Harold, & Blumenfeld, 1993). While self-perceptions can contain both evaluative and non-evaluative descriptions, the literature primarily focuses on evaluative self-perceptions, as these seem to be more influential in predicting adjustment (Cole, 1991b; Jacobs et al., 2003; Jacquez, Cole, & Searle, 2004). Evaluative self-perceptions fall on a continuum that ranges from positive self-perceptions (e.g. smart, popular, nice) to negative self-perceptions (e.g. dumb, unpopular, mean). The formation of both positive and negative self-perceptions is a critical component in the construction of self-esteem (Cole, 1991b; Harter, 2012). Measures used to evaluate self-perceptions ask youth to report self-perceptions of academic competence, social acceptance, athletic competence, and their level of physical attractiveness (Harter, 2012; Jacobs et al., 2003).

Construction of Self-Perceptions

Self-perceptions are primarily informed by observing one's behavior and are typically more positive in younger children due to the rapid rate at which new skills are acquired (e.g. learning to walk, learning the alphabet). The rapid rate of acquisition for new skills during this phase of development contributes to positivity bias, which is known as the tendency to maintain positive views of oneself (Mezulis, Abramson, Hyde, & Hankin, 2004). As the rate of these concrete milestones decline and newly developing skills become less observable in preadolescence (e.g. increases in abstract reasoning), positivity bias attenuates (Giles & Heyman, 2004, Lockhart, Goddu, & Keil, 2016). As a result, self-perceptions about competence become more realistic in middle childhood than

in earlier stages of development (Cole et al., 2001; Roeder et al., 2014; Harter, 2012). The increases in social comparison accompany increased concern about children's performance relative to their peers (Dweck, 2002).

Given that self-perceptions are largely influenced by observing one's skills, studies have examined the agreement between external measures of children's skills and social acceptance relative to their self-perceptions. In terms of academic competence, a modest correlation between academic achievement and academic self-perceptions were found among a sample of German elementary school students (Spinath & Spinath, 2005). Moderate correlations were found between teacher's perceptions of academic ability and children's ratings of their academic ability (ranging from .27 to.48) among a sample of third, fourth, and fifth graders from socioeconomically diverse backgrounds. Similarly, among a socioeconomically diverse sample of fourth-grade students, there was modest agreement between self-other ratings on sociometric nominations of "liked most" as measured by Cohen's kappa for same-sex peers. Self-other ratings of sociometric nominations for "liked least" were poor for both same-sex and cross-sex peers (Bellmore & Cillessen, 2003). A moderate correlation was also found between self-perceived popularity and peer-rated popularity among a sample of sixth and seventh grade Croatian students (Putarek & Kerestes, 2015). Taken together, the moderate associations between external ratings and self-perceptions suggest that personal abilities partly contribute to formation of self-perceptions. This moderate association also suggests that other factors contribute to the formation of self-perceptions.

In addition to observing one's behavior, self-perceptions are formed through social comparisons and reflected appraisals (Beer, 2012; Harter, 2012; Jacobs et al., 2003). Reflected appraisals represent the judgments of influential people, such as parents, teachers, and peers. Reflected appraisals involve imagining how the self is perceived by others and incorporating these judgments into one's self-perceptions (Beer, 2012). Perspective-taking skills that emerge in preadolescence allow youth to consider feedback as they evaluate their skills in different domains (Harter, 2012; Jacobs et al., 2003). Through reflected appraisals, the attitudes and opinions of others indirectly influence self-perceptions. Consequently, this can leave children vulnerable to the negative evaluations of their abilities held by others.

Empirical support for the role of reflected appraisals from parents, peers, and teachers has been found in middle childhood and preadolescence. In a longitudinal study of a middle-class sample that consisted of primarily European-American participants, parental ratings of academic competence consistently predicted self-perceptions of academic competence over time across elementary, middle, and high school (Fredricks & Eccles, 2002). Similarly, parent, teacher, and peer ratings of academic competence predicted later self-perceptions in a longitudinal study examining a sample of 3rd through 6th grade students that was racially and socioeconomically diverse. The strength of the relation between others' ratings of competence and self-perceptions increased over time (Cole et al., 2001). This is consistent with the increases in perspective-taking skills that emerge in preadolescence. Consequently, these skills facilitate the influence of others' appraisals on self-perceptions as children advance through elementary school. Taken

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together, these findings support the idea that others' appraisals play an important role in the development of children's self-perceptions. Cole and colleagues suggested the evaluations of others influence self-perceptions through positive and negative feedback provided via social interactions (Cole, 1991a; Cole et al., 2001; Jacquez et al., 2004).

Middle childhood and preadolescence are an important time period for examining the impact of negative experiences on the development of self-perceptions. Reactivity to negative evaluations is heightened during early adolescence. Past studies have proposed that poorly-constructed self-protective biases, defined as cognitive strategies that facilitate the maintenance of positive self-views (Campbell & Sedikides, 1999), leave early adolescents especially vulnerable to negative evaluations from others. For example, in a study of European-American individuals aged 10-23, participants completed a social evaluation task in which participants were provided with feedback from a peer. Younger adolescents were more likely to report decreases in self-esteem after receiving negative feedback from peers in comparison to older participants. Younger adolescents were also more likely to anticipate rejection when compared with older participants. In contrast, older participants were more likely to criticize the peer that rejected them (Rodman et al., 2017). Given that self-protective biases have not been mastered in early adolescence, negative social interactions are potentially the most salient in this phase of development. Therefore, it is important to examine the context of negative interpersonal relationships and how these relationships may contribute to negative self-perceptions during preadolescence.

Given that both social acceptance and academic competence are important indicators of adjustment in early adolescence, the current study will focus on self-perceptions in these specific domains. Of the commonly studied self-perception domains, both social and academic competence have been found to be most directly associated with adjustment across childhood and adolescence. In studies that examined the role of self-perceptions in predicting depression and anxiety among an ethnically and socioeconomically diverse sample of third through sixth grade students, self-perceptions of both social and academic competence were most strongly associated with anxiety and depression when compared with self-perceptions of athletic competence and behavioral conduct (Cole et al., 2001; Cole, Martin, Peeke, Seroczynski, & Fier, 1999). This is likely due to the increasing emphasis of academics and peer relationships in adolescence. As adolescents progress through middle and high school, they become more focused on developing academic skills that will help them pursue higher education. At the same time, adolescents place a greater value on their peer relationships and are driven to establishing a social network that extends beyond family members. Taken together, these studies suggest self-perceptions of social acceptance and academic competence are especially important to investigate in early adolescence.

In summary, children's self-perceptions play an important role throughout development. While self-perceptions are largely informed by one's abilities, children begin to develop perspective-taking skills in early adolescence that facilitate the use of reflected appraisals to construct self-perceptions. This idea is consistent with research on self-perceptions throughout development, which suggests that external ratings of

competence by parents, peers, and teachers are more predictive of children's self-perceptions over time. While it is understood that observation of one's skills and feedback from others jointly influence self-perceptions, the literature remains unclear on how these factors work together to inform self-perceptions. A limitation of past studies examining self-perceptions has been the use of teacher or parent-report to assess children's skills, as these measures do not objectively measure a child's aptitude. In addition, most studies have solely focused on relationships with parents and peers as predictors of self-perceptions and have not accounted for the role of children's skills on self-perceptions. In order to more fully understand the role of interpersonal relationships on self-perceptions, studies that jointly examine both the role of children's aptitude and the influence of interpersonal relationships are needed.

Another gap in the literature has been the limited number of studies that include minority populations. With some exceptions (Cole et al., 2001; Cole et al., 1999), the research has largely focused on the construction of self-perceptions among white, middle-class samples. There are no studies to date that have examined whether the formation of self-perceptions differs for children from different socioeconomic or ethnic backgrounds. There is some literature to suggest that low socioeconomic status (SES) puts adults at risk for low self-esteem (Twenge & Campbell, 2001) and low self-efficacy (Boardman & Robert, 2000). These relations have been attributed to chronic exposure to adversity and fewer opportunities for educational and career advancement among low SES populations. However, it is unknown whether chronic exposure to adversity might impact children's self-perceptions.

Past research suggests early adolescence is an important time period for examining the role of interpersonal relationships on the development of negative self-perceptions. At this developmental timepoint, self-protective biases have not yet formalized to protect adolescents from negative feedback. Given that early adolescence is marked by the increased influence of interpersonal relationships on self-perceptions as well as increased vulnerability to negative feedback, this developmental stage is especially important for investigating interpersonal sources of negative feedback that may contribute to negative self-perceptions.

Academic Self-perceptions

As students progress through school, greater emphasis is placed on academic performance by parents and teachers. This increase in emphasis likely contributes to the increased role of self-perceptions of academic competence in predicting academic achievement (Dixson et al., 2016; Chamorro-Premuzic et al., 2010; Marsh & O'Mara, 2008). Academic self-perception encompasses beliefs about one's ability to learn, reason, and solve problems within different academic domains (Chamorro-Premuzic et al., 2010).

The transition from elementary to high school is an important environmental influence on academic self-perceptions. As students near adolescence, most children experience decreases in academic self-perceptions. In a longitudinal study of self-perceptions that followed primarily European American children from middle-class families from elementary to high school, decreases in academic self-perceptions in mathematics and language arts decreased during the transition to middle school and continued through the transition to high school (Jacobs, Lanza, Osgood, Eccles, &

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Wingfield, 2002). Similar results were found in a study that followed French-Canadian students attending schools from varied socioeconomic environments. Among this sample, academic self-perceptions decreased during the transition from elementary to junior high school (Cantin & Boivin, 2004). Declines in academic self-perceptions have been attributed to both general declines in academic performance and greater exposure to students of similar ability levels. This exposure to a larger student body, is believed to contribute to an attenuation in academic self-perceptions during the transitions to middle and high school.

The changes in academic self-perceptions that occur during the transition to middle school are consistent with overall changes in self-perceptions that occur during adolescence. As mentioned previously, the influence of others' views on self-perceptions increases through the use of reflected appraisals in adolescence. Exposure to more teachers and a larger peer group increases the likelihood that adolescents encounter negative feedback about their academic ability. Greater exposure to negative feedback may contribute to the attenuation of positive academic self-perceptions that occurs upon the transition to middle school. While overall changes in academic self-perceptions have been examined throughout development, no studies have directly measured interpersonal influences while examining changes in self-perceptions throughout adolescence. Consequently, little is known about the types of social interactions that contribute to declines in academic self-perceptions. Additional research examining potential interpersonal influences on academic self-perceptions during early adolescence is an

important step in furthering the understanding of why the overall positivity of academic self-perceptions declines during this stage of development.

Social Self-perceptions

With the transition to middle school, expanding social networks create several important changes in the formation of self-perceptions in preadolescence. During this phase, the opinions and perspectives of peers become more influential in forming one's self-perceptions. Perceptions of social acceptance encompass beliefs about the number of friends the child has, whether peers share with him/her, and whether peers invite him/her to spend time together (Harter, & Pike, 1984). Concerns about social acceptance motivate children to enhance their social skills, expand their social networks, and form more high-quality peer relationships (Bergeron et al., 2007; Brown, VonBank, & Steinberg, 2008; Lee, Hankin, & Mermelstein, 2010; McElhaney, Antonishak, & Allen, 2008).

While academic self-perceptions typically decline during the transition to middle school, social self-perceptions typically increase across adolescence (Shapka & Keating, 2005; Kuzucu et al., 2013). Among a sample of Canadian high school students from predominantly white, middle-class families, overall increases in social self-perceptions were found in the domains of social acceptance, close friendships, and romantic relationships over the course of two years (Shapka & Keating, 2005). In a longitudinal study following children from adoptive and non-adoptive families from ages 9 to 16, children experienced overall increases in self-perceptions of social acceptance over the course of the study. The span of this study encompassed both the transition to middle and high school. Increases in social self-perceptions are believed to accompany the formation

of higher-quality friendships that provide adolescents with greater peer support than was experienced in childhood peer relationships. Consistent with this idea, a study investigating Canadian students during their transition into junior high school found an association between increases in social support received from peers and more positive self-perceptions of social competence (Cantin & Boivin, 2004). Given the changes that occur in social self-perceptions upon the transition to middle school, it is important to understand the interpersonal influences that contribute to the formation of both adaptive and maladaptive self-perceptions in preadolescence.

The shifts that occur in academic and social self-perceptions across adolescence are consistent with the increasing influence of social interactions on children's self-perceptions. The studies reviewed primarily highlight changes in social environment that influence self-perceptions. Another explanation for shifts in self-perceptions during adolescence is increased vulnerability to other's evaluations during early adolescence. Both positive and negative evaluations are communicated through children's social interactions (Cole et al., 1991). However, the manner through which negative interpersonal experiences influence self-perceptions has not been thoroughly examined in the literature. Additionally, theoretical explanations for understanding the joint influence of parental and peer relationships on self-perceptions has been limited. Past research has primarily focused on interpersonal experiences within either the context of parent-child or peer relationships, as opposed to their collective impact on self-perceptions. In order to better understand the role of negative interpersonal relationships on self-perceptions, research should simultaneously consider negative social interactions within both parental

and peer relationship contexts. As mentioned previously, few studies have considered the role of children's aptitude in conjunction with interpersonal experiences. Thus, more comprehensive studies that explore the joint impact of children's objectively measured abilities and social interactions within the parent-child and peer context are needed to further clarify how these factors influence the formation of self-perceptions.

Parent-child Relationships

Parent-child relationships provide an important context for children to understand themselves, their skills, and the world around them (Harris et al., 2015; Laursen & Collins, 2009). Parents are an important source of feedback throughout development and play a major role in the formation of self-perceptions (Harris et al., 2015; Bruce et al., 2006; Jacquez et al., 2004). Positive parenting behaviors, such as parental support and autonomy granting, are associated with positive self-perceptions in youth (Côté, Bouffard, & Vezeau, 2014; Bilsky et al., 2013; Kopala-Sibley et. al, 2013; Putnick et al., 2008). Positive parenting behaviors are believed to convey messages of acceptance and approval of the child and their skills, which produce positive reflected appraisals that are used to form positive self-perceptions (Côté et al., 2014; Jacquez et al., 2004). This is consistent with the findings of a longitudinal study examining parental support and self-perceptions. Youth-report of supportive parenting behaviors predicted positive self-perceptions six months later (Bilsky et al., 2013). In contrast, negative parenting behaviors are believed to put children at risk for developing negative reflected appraisals that contribute to negative self-perceptions (Cole et al., 2015; Côté & Bouffard, 2011; Jacquez et al., 2004; Kopala-Sibley et al., 2013). This is consistent with a study

examining hostile parental reactions to children's mistakes and self-perceptions. Parent-report of reacting to children's mistakes with disapproval and criticism was associated with child-report of negative self-perceptions (Côté & Bouffard, 2011).

Throughout development, parental hostility has been linked to maladaptive outcomes such as aggression (Ali et al., 2015; Hale, VanderValk, Akse, & Meeus, 2008), delinquency (Wu et al., 2014), anxiety and depression (Cole et al., 2015; Hale et al., 2005) and negative cognitions (Bruce et al., 2006; Cole, 1991b; Cole et al., 2015). Parental hostility, which is also referred to as parental rejection and harsh parenting, is characterized by behaviors that demonstrate a lack of concern or interest in the child's wellbeing (Jacquez et al., 2004). Hostile behaviors include overt criticism, invalidation, insults, arguments, shouting, hitting, threatening, and expressions of anger directed towards the child (Taylor, Larsen-Rife, Conger, & Widaman, 2012). Repeated exposure to parental hostility puts children at risk for receiving negative feedback, which increases the likelihood of developing negative self-perceptions. Given the role of parent-child relationships in providing a context for understanding oneself, the influence of parental hostility is an important interpersonal factor to consider when examining the formation of negative self-perceptions (Côté & Bouffard, 2011; Bruce et al., 2006; Cole et al., 2015).

Past research has found support for concurrent and longitudinal associations between parental hostility and self-perceptions across all domains. In a sample of predominantly African-American students aged 6-13 from low-income families, youth ratings of parental hostility were concurrently associated with more negative self-perceptions (Bruce et al., 2006). Additionally, a longitudinal study of elementary and

middle school students found that youth and parent-report of harsh parenting behaviors predicted negative self-perceptions of social acceptance and physical appearance one year later (Cole et al., 2015). Taken together, these studies suggest that children who experience parental hostility are at greater risk for developing negative self-perceptions.

The influence of parenting behaviors on academic self-perceptions. While past research suggests that parental hostility plays a general role in influencing self-perceptions across domains, few studies have explored whether parenting behaviors are especially salient in specific self-perception domains. Harter's theoretical work (2012) posited that parents place a higher value on academic competence and behavioral conduct when compared with the domains of social acceptance, athletic skills, and physical appearance. As a result, parenting behaviors are believed to be more instrumental in the development of self-perceptions of academic competence and behavioral conduct. Support for parent-salient domains was found among samples of predominantly white, middle-class students in both a middle school and high school setting. When asked to rate areas of competence that their parents perceived as important, students rated academic competence and behavioral conduct as more important for parents than the domains of social acceptance, physical appearance, and athletic competence (Harter, Marold, & Whitesell, 1992; Harter & Whitesell, 1996). Furthermore, self-perceptions in parent-salient domains (academic competence, behavioral conduct) were more strongly and positively associated with youth's perceived parental support when compared with self-perceptions in peer-salient domains (social acceptance, physical appearance, athletic competence) (Harter et al., 1992; Harter & Whitesell, 1996). In her theoretical work,

Harter (2012) suggested children's aptitude in parent-salient domains, such as academic competence and behavioral conduct, draws greater support from parents. Parental support of children's skills in parent-salient domains is believed to positively influence children's self-perceptions, such that a child who is well-behaved receives more positive parental feedback about their behavior and consequently develops more positive self-perceptions about their behavioral conduct.

Parental influence in the formation of children's academic beliefs and achievement behaviors has been widely examined in the literature (Simpkins, Fredricks, & Eccles, 2012; Estell & Perdue, 2013; Bleeker & Jacobs, 2004; Fredricks & Eccles, 2002). In a longitudinal study consisting of predominantly white, middle-class families, parental influences on children's academic beliefs and achievement were examined across the 1st through 12th grades. Maternal behaviors, such as encouragement and modeling, predicted children's academic self-perceptions (Simpkins et al., 2012). Additionally, in a longitudinal study of ethnically diverse 1st through 8th grade students, parental praise was positively associated with the belief that intellectual ability can be improved with effort. However, perceived criticism was negatively associated with these same beliefs (Gunderson, Donnellan, Robins & Trzesniewski, 2018). Similar results were found in a sample of elementary-school students examining the influence of parenting behaviors on self-perceptions among a predominantly middle-class sample in Montreal, Canada. Youth-report of parental hostility was associated with more negative academic self-perceptions (Côté & Bouffard, 2011). Taken together, these studies suggest parenting behaviors are an important influence on children's academic self-perceptions.

In summary, parents are an important influence across all domains of self-perceptions in youth. Past research has found concurrent and longitudinal associations between parental hostility and self-perceptions in various domains, suggesting children who are exposed to higher rates of hostility from their parents are more likely to develop negative self-perceptions. Strengths of literature include investigation of the influence of parental hostility in both ethnically and socioeconomically diverse populations (Bruce et al., 2006; Cole et al., 2015). However, none of the studies reviewed have explored whether differences in ethnicity or SES moderate the associations between hostility and self-perceptions.

Harter's theoretical work posits that parents are especially influential in the development of self-perceptions of academic competence and behavioral conduct. This idea is consistent with research on academic achievement, which posits that parents play a central role in shaping academic beliefs and academic achievement. A limitation of this literature is that most of the findings have been generated from white, middle-class samples and have not been tested in more diverse samples. Thus, studies investigating these variables in more diverse samples are needed to determine whether these processes are similar across groups. Additionally, few studies have examined whether parenting behaviors, such as parental hostility, are more important in determining children's academic self-perceptions, as compared to other domains of self-perceptions. Studies that have examined academic self-perceptions have primarily focused on positive parenting behaviors and have not considered the role of negative parenting behaviors. While several studies have identified positive parenting behaviors as important factors in

influencing positive academic self-perceptions, it is unclear whether negative parenting behaviors, such as parental hostility, would have a similar impact on the development of negative academic self-perceptions. While it is clear parental hostility puts children at risk for developing negative self-perceptions across domains, only one study has specifically examined the impact of parental hostility on academic self-perceptions (Côté & Bouffard, 2011). Given that the relation between negative parenting behaviors and academic self-perceptions has rarely been examined in the literature, it is unclear whether parental hostility is more influential in determining academic self-perceptions, when compared with other domains of self-perception. Therefore, additional research is needed to compare the impact of hostility across parent-salient and peer-salient domains of self-perceptions to determine whether hostility is especially relevant to academic self-perceptions.

Peer Relationships

During middle childhood, peers serve as a source of feedback on one's skills, especially as the child compares their performance to that of their peers. Beginning in preadolescence, feedback received through peer interactions becomes an important source for reflected appraisals. Past research has demonstrated that positive peer interactions predict more positive self-perceptions (Leung, Marsh, Craven, Yeung, & Abduljabbar, 2012; Ellis, Marsh, & Craven, 2009; Laursen, Furman, & Mooney, 2006). Positive peer interactions (e.g. peer support, encouragement) convey messages of acceptance and approval of one's social skills. In contrast, negative interactions with peers, such as those associated with peer rejection and peer victimization, predict

increases in negative self-perceptions (Cole et al., 2015; Kopala-Sibley et al., 2013; Sinclair et al., 2012; Bellmore & Cillessen, 2006). These experiences convey negative messages about a child's skills and increase their vulnerability for developing negative self-perceptions. These negative messages are potentially more damaging during early adolescence, when the use of reflected appraisals are not buffered by self-protection biases.

Peer victimization is a major interpersonal stressor that negatively impacts psychosocial adjustment in youth. Peer victimization refers to exposure to aggressive acts, including attempts to harm a target physically or psychologically (Sumter, Baumgartner, Valkenburg, & Peter, 2012). Peer victimization has been linked to several outcomes including loneliness (Catterson & Hunter, 2010), low self-esteem (Schwartz, Lansford, Dodge, Pettit, & Bates, 2015), and depression (Bilsky et al., 2013; Schwartz et al., 2015). Exposure to peer victimization also serves as a source of negative feedback about one's social desirability that puts youth at risk for developing negative cognitive styles (Bruce et al., 2006; Cole et al., 2015; Roeder et al., 2014).

Past research has found concurrent and longitudinal associations between peer victimization and self-perceptions. In a sample of 8-14-year-old students from racially and socioeconomically diverse backgrounds, peer nominations of victimization were associated with more negative self-perceptions of social acceptance (Bilsky et al., 2013). In another study examining third through sixth grade students from socioeconomically diverse backgrounds, both self and peer-reported victimization predicted decreases in positive self-perceptions of social acceptance and physical appearance a year later

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(Sinclair et al., 2012). In a cross-lagged analysis examining peer victimization and social self-perceptions among a predominantly white sample of middle school students, victimization predicted increases in negative social self-perceptions. However, self-perceptions did not predict victimization in these analyses, which lends support to the role of peer victimization in the formation of negative self-perceptions (Bellmore & Cillessen, 2006). Taken together, these studies provide support for the influence of peer victimization in increasing the likelihood of developing negative self-perceptions.

Past research examining the role of peers in influencing self-perceptions has focused primarily on adolescence. However, the transition from middle childhood to preadolescence is a potentially salient period of development for examining the impact of negative peer interactions on self-perceptions due to greater sensitivity to negative feedback and rejection (Rodman et al., 2017). Consistent with this idea, Roeder and colleagues (2014) found a moderating influence of age on peer victimization and negative self-cognitions among a sample of ethnically diverse students in grades 3-6. The impact of peer victimization was stronger among younger girls in this study. These findings are consistent with the idea that the influence of negative interpersonal factors on the formation of negative self-perceptions is strongest during preadolescence. Given the changes in peer relationships and self-perceptions that occur during the transition to adolescence, middle childhood is an important developmental period for examining the influence of peer victimization on self-perceptions.

The influence of peers on social self-perceptions. Throughout development, social interactions play a key role in the formation of social self-perceptions. As

described above, Harter (2012) posited that peer support and feedback are more salient to self-perceptions in the domains of social acceptance, physical appearance, and athletic ability. In her empirical work, confirmatory factor analyses supported the separation of parent and peer-salient domains in a white middle-class sample of middle and high school students (Harter et al., 1992; 1996). Furthermore, self-perceptions in peer-salient domains (physical appearance, social acceptance, athletic competence) were associated with greater levels of perceived peer support. Consistent with Harter's (2012) concept of peer-salient domains, perceived peer support was more strongly associated with social self-perceptions when compared with the association between perceived parental support and social self-perceptions (Bédard et al., 2014).

Few studies have compared the impact of peer victimization across both parent-salient and peer-salient domains of self-perceptions. Some support for the salience of peer victimization on self-perceptions of social acceptance and physical attractiveness was found in a sample of students ages 9-10 from predominantly working-class families in the UK. Peer victimization predicted lower social self-perception scores. However, peer victimization was not a significant predictor of lower self-perception scores in parent-salient domains (academic competence and behavioral conduct) for both male and female participants (Boulton, Smith, & Cowie, 2010). Taken together, these findings suggest that peer interactions are especially relevant to social self-perceptions and exhibit a stronger influence on social self-perceptions relative to parent-child interactions.

In summary, Harter's theoretical work (2012) posits that peer relationships are more influential in the development of self-perceptions of physical appearance, social

acceptance, and athletic competence. This framework is consistent with studies that have examined the influence of perceived peer support (Bedard et al., 2014; Harter et al., 1992, 1996) on social self-perceptions. While it is clear that peers play an important role in the development of social self-perceptions, only one study has specifically compared the impact of peer victimization across parent-salient and peer-salient domains (Boulton et al., 2010). Given the paucity of studies that have compared the influence of negative interpersonal factors on parent-salient and peer-salient domains of self-perceptions, it remains unclear whether peer victimization is more influential in determining social self-perceptions, when compared with other domains of self-perception. Therefore, additional research is needed to determine whether victimization is especially relevant to social self-perceptions in adolescence.

Differences in Response to Interpersonal Stressors across Sex

Preadolescence is an important timepoint for examining differing responses to interpersonal stress across sex. Females tend to report higher levels of interpersonal stress compared with their male counterparts across development (Stroud, Papandonatos, D'Angelo, Brush, & Lloyd-Richardson, 2017; Kendler, Thornton, & Prescott, 2001). Sex differences in susceptibility to interpersonal stress are believed to contribute to the sex disparity in risk for depressive symptoms (Rudolph, Miernicki, Troop-Gordon, Davis, & Telzer, 2016; Rudolph, 2009). As children near adolescence, interpersonal stress increases for females, in particular; making this an especially sensitive period for the risk of interpersonal stress on female social and emotional maladjustment.

Differences in relational orientation style are believed to contribute to higher levels of interpersonal stress among females. These differences have been found in both preadolescent and adolescent samples (Rudolph et al., 2016; Rudolph & Conley, 2005). The relational orientation style of females is characterized by greater social-evaluative concerns and greater investment in dyadic relationships. This pattern may increase vulnerability to the negative impact of both peer victimization and parental hostility on self-perceptions. For example, among a socioeconomically and ethnically diverse sample of fifth-grade students, social-evaluative concerns were higher among females and accounted for sex differences in depressive symptoms (Rudolph & Conley, 2005). Additionally, among a sample of adolescents, activation in the social pain network on fMRI scans was associated with internalizing symptoms. This association was even stronger among girls that had experienced chronic peer victimization (Rudolph et al., 2016). Taken together, these findings suggest that negative interpersonal stressors have a more pronounced effect on females as compared to males.

Empirical support has been found for the differential effect of peer relationships on self-cognitions across sex. Two studies have demonstrated that perceived peer support had an indirect effect on the relation between social self-perceptions and depressive symptoms in females. However, this indirect effect was not present among males (Bedard et al., 2014; Nilsen, Karevold, Røysamb, Gustavson, & Mathiesen, 2013). Sex differences have also been found in how youth cope with interpersonal stressors. In a study that examined differences in coping with peer rejection among middle school students in Australia, female adolescents were more likely to endorse experiencing self-

blame appraisals and reported greater interpersonal stress (Zimmer-Gembeck & Skinner, 2015). Taken together, these studies suggest that females may be more likely to experience negative self-perceptions in response to negative social interactions, such as peer victimization and parental hostility.

In summary, past research has indicated that males and females respond differently to interpersonal stressors in preadolescence. Females experience greater social-evaluative concerns and greater reactivity in the brain's social pain network in response to interpersonal stressors (Rudolph et al., 2016; Rudolph & Conley, 2005). Additionally, there is some empirical support for greater susceptibility of developing negative self-perceptions in response to peer relationships among females relative to their male peers (Bédard et al., 2014; Nilsen et al., 2013). While there is significant support for sex differences in response to interpersonal stressors from the peer group, little is known about whether males and females respond differently to interpersonal stressors within the parent-child relationship (e.g. parental hostility). Consequently, research comparing the influence of interpersonal stress within the parent-child relationship across males and females is needed to determine whether females are at greater susceptibility for developing negative self-perceptions when experiencing interpersonal stress within the parent-child relationship.

Research Objectives and Hypotheses

The proposed study will examine the influence of interpersonal relationships on the development of self-perceptions during the transition from middle childhood to preadolescence. Past studies have established that interactions with parents and peers are

critical in shaping children's self-perceptions. However, there are several gaps in the

literature that are addressed in the current study. Of note, few studies have

simultaneously examined the impact of parents and peers on self-perceptions.

Furthermore, no studies have investigated the impact of both interpersonal relationships

and external measures of child aptitude on self-perceptions. The present study addressed

this gap by examining the influence of external measures of children's skills and negative

interpersonal interactions on preadolescent self-perceptions in a cohesive model. Given

that reactivity to negative feedback is heightened in preadolescence (Rodman et al.,

2017), this is an important developmental period for examining interpersonal factors that

contribute to negative self-perceptions. While there is evidence for differential

susceptibility of interpersonal stress across sex, no studies have examined sex differences

in response to negative parenting behaviors. The following objectives are outlined to

examine the influence of aptitude and interpersonal relationships on preadolescent self-

perceptions.

Objective 1: Examine the contribution of both external measures of

competence and interpersonal stressors on self-perceptions of competence.

Several studies have found that interpersonal stressors contribute to the formation

of negative self-perceptions. While most of the research has emphasized the role

of interpersonal relationships in influencing self-perceptions, these studies have

only assessed self-perceptions of competence and have not accounted for

children's skills in a particular domain. As such, one objective of the current

study was to examine external measures of competence and interpersonal stressors simultaneously. The hypotheses for this objective are as follows:

1. It was expected that external ratings of academic competence at age 7 would have a direct effect on self-perceptions of academic competence such that greater academic competence would be associated with more positive self-perceptions of academic competence at age 10.

2. It was expected that external ratings of social acceptance at age 7 would have a direct effect on self-perceptions of social acceptance, such that higher ratings of social acceptance would be associated with more positive self-perceptions of social acceptance at age 10.

3. It was hypothesized that parental hostility at age 7 would have a direct effect on 10-year social and academic self-perceptions, such that greater hostility would be associated with more negative self-perceptions in both domains.

4. It was hypothesized that peer victimization at age 7 would have a direct effect on 10-year social and academic self-perceptions, such that greater victimization would be associated with more negative self-perceptions in both domains.

Objective 2: Examine whether the relation between negative interpersonal relationships and self-perceptions differs by sex. Sex differences in response to interpersonal stress, such as parental hostility and peer victimization, may help explain sex differences in cognitive vulnerability to depression (e.g. negative self-perceptions). In general, females report higher levels of interpersonal stress and

greater social-evaluative concerns relative to males (Rudolph et al., 2016; Rudolph 2009; Rudolph & Conley, 2005). However, little is known as to whether these sex differences in interpersonal stressors correspond to greater decreases in self-perceptions among females when exposed to stressors such as victimization and hostility. Therefore, another goal of the present study was to examine whether the relation between interpersonal stressors (parental hostility, peer victimization) and self-perceptions differs by sex. The hypotheses for this objective are as follows:

1. It was hypothesized that the direct effect between 7-year maternal hostility and 10-year self-perceptions of social acceptance and academic competence would be stronger in magnitude for females.

2. It was expected that the direct effect between 7-year peer victimization and 10-year self-perceptions of social acceptance and academic competence would be stronger in magnitude for females.

Objective 3: Compare the impact of parents and peers on different domains of self-perceptions. Finally, both theoretical and empirical work suggests that parent and peer relationships differentially influence specific domains of self-perceptions. However, no studies have examined whether negative interpersonal stressors in the context of parent-child and peer relationships might differentially relate to parent-salient and peer-salient domains of self-perceptions. As a result, the final objective is to compare the impact of negative parent-child interactions

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(parental hostility) and negative peer interactions (peer victimization) on parent-salient self-perceptions (academic competence) and peer-salient self-perceptions (social acceptance). The hypotheses for this objective are as follows:

1. It was hypothesized that maternal hostility at age 7 would have a stronger direct effect on academic self-perceptions at age 10 relative to the direct effect of maternal hostility at age 7 on social self-perceptions at age 10. This relation was expected to be stronger in magnitude for females relative to males.

2. It was hypothesized that maternal hostility at age 7 would have a stronger direct effect on academic self-perceptions age 10 relative to the direct effect of peer victimization at age 7 on academic self-perceptions at age 10. This relation was expected to be stronger in magnitude for females relative to males.

3. It was hypothesized that peer victimization at age 7 would have a stronger direct effect on social self-perceptions relative to the direct effect of peer victimization at age 7 on academic self-perceptions at age 10. This relation was expected to be stronger in magnitude for females relative to males.

4. It was hypothesized that peer victimization at age 7 would have a stronger direct effect on social self-perceptions at age 10 relative to the direct effect of maternal hostility at age 7 on social self-perceptions at age 10. This relation was expected to be stronger in magnitude for females relative to males.

CHAPTER II

METHOD

Recruitment and Attrition

The current study utilized data from three cohorts of children who are part of an ongoing longitudinal study of social and emotional development. The goal for recruitment was to obtain a sample of children who were at risk for developing future externalizing behavior problems, and who were representative of the surrounding community in terms of race and socioeconomic status (SES). All cohorts were recruited through child day care centers, the County Health Department, and the local Women, Infants, and Children (WIC) program. Potential participants for cohorts 1 and 2 were recruited at 2-years of age (cohort 1: 1994-1996 and cohort 2: 2000-2001) and screened using the Child Behavior Checklist (Achenbach, 1992, CBCL 2-3), completed by the mother, in order to over-sample for externalizing behavior problems. Children were identified as being at risk for future externalizing behaviors if they received an externalizing T-score of 60 or above. Efforts were made to obtain approximately equal numbers of males and females. This recruitment effort resulted in a total of 307 children. Cohort 3 was initially recruited when infants were 6 months of age (in 1998) for their level of frustration, based on laboratory observation and parent report, and were followed through the toddler period (see Calkins, Dedmon, Gill, Lomax, & Johnson, 2002, for

more information). Children from Cohort 3 whose mothers completed the CBCL at two-years of age were then included in the larger study ($N = 140$). Of the entire sample ($N = 447$), 37% of children were identified as being at risk for future externalizing problems. There were no significant demographic differences between cohorts with regard to sex, χ^2 (2, $N = 447$) = .63, p = .73, race, χ^2 (2, $N = 447$) = 1.13, p = .57, or two-year SES, F (2, 444) = .53, p = .59.

Of the 447 originally selected participants, six were dropped because they did not participate in any data collection at 2 years old. At age five, 365 families participated, including four that did not participate in the four-year assessment (cohort 1: 2000-2001, cohort 2: 2003-2004, cohort 3: 2003-2004). Again, there were no significant differences between families who did and did not participate in terms of sex, χ^2 (1, $N = 447$) = .76, $p = .38$, race, χ^2 (1, $N = 447$) = .14, $p = .71$, 2-year SES, t (432) = -1.93, $p = .06$, and 2-year externalizing T-score, t (445) = 1.39, $p = .17$. At 7 years of age, 350 families participated, including 19 that did not participate in the 5-year assessment. There were no significant differences between families who did and did not participate in terms of sex, χ^2 (1, $N = 447$) = 2.12, $p = .15$, race, χ^2 (3, $N = 447$) = .19, $p = .67$, and two-year externalizing T-score, t (445) = 1.30, $p = .19$. Families with lower 2-year SES, t (432) = -2.61, $p < .01$, were less likely to participate in the 7-year assessment. At age 10, 357 families participated, including 31 families that did not participate in the 7-year assessment. No significant differences were noted between families who did and did not participate in the 10-year assessment in terms of child sex, χ^2 (1, N = 447) = 3.31,

p = .07; race, $\chi2$ (3, N = 447) = 3.12, p = .08; 2-year SES, t (432) = .02, p = .98; or 2-year

externalizing T-score, t (445) = -.11, p = .91.

Participants

The sample for the current study included 382 children (204 females, 178 males).

Participants were excluded from the current study if data was missing for all study

variables (N = 88). Data for the current study were collected at laboratory visits when

child participants were ages 5, 7, and 10 and from sociometric interviews conducted at

the child's school in the second grade, which occurred during the 7-year timepoint.

66.5% of the sample was European American, 28% African American, 3.3% biracial and

1.9% other. Families were economically diverse based on Hollingshead (1975) scores at

the 7-year assessment, with a range from 12 to 66 (M = 44.52, SD = 11.65). Thus, this

range represents families from each level of social strata typically captured by this scale.

Hollingshead scores that range from 40 to 54 reflect minor professional and technical

occupations considered to be representative of middle class.

Procedures

Lab assessments. Data from both laboratory assessments at age 7 and age 10

were utilized for the current study. Participants attended laboratory assessments at ages 7

and 10 with their mothers during which children completed a battery of behavioral

assessments assessing social, emotional, and cognitive functioning as well as parent-child

interaction tasks. During the 10-year laboratory visits, children completed questionnaires

about their functioning.

Sociometric interviews. Consent for sociometric interviews was obtained from the local superintendent, the principal, the teachers, and the parents of children in the class. Only children whose parents provided consent were included in the sociometric assessment. Sociometric interviews were conducted at least 8 weeks into the academic year by trained graduate students using standard sociometric practices (Coie, Dodge, & Coppotelli, 1982). In the 2nd grade, children were individually interviewed and asked to indicate classmates (by pointing at a picture of the student on a class roster) who fit a behavioral descriptor (i.e. "kids who are friendly"). For each description, children were permitted to nominate to nominate across sex. Cross-sex nominations increase the stability of the measurement for the nominations. Because peer nomination data uses information from multiple reporters, the reliability of single-item peer nomination scales tends to be quite high (Coie, Dodge, & Kupersmidt, 1990).

Observational coding. Mother-child interaction tasks recorded during the 7-year lab visit were scored using behavioral codes adapted from the Early Parenting Coding System (see Winslow et al., 1995). Two research assistants coded 10% of the total sample together, for all tasks. Another 10% were coded separately to assess reliability. Three coded tasks were selected for use in the current study. These coding tasks, described below, were selected because their activities allowed for a broad range of relational parenting behaviors to be observed.

The first task was a craft task, in which mother-child dyads were instructed to create a mask together, using a grocery-sized brown paper bag and assorted craft materials. Interval coding, defined by behavioral ratings across one-minute epochs, was

used for this task. Specifically, the first four intervals were used for the current study, as the number of participants that continued the task beyond the first four minutes dropped by 20%. The second task was a clean-up task, in which the experimenter prompted the mother to ask the child to clean up the toys as she and her child would at home. Only ratings for the first minute of the task were examined for the current study, as 70% of the families completed this task within the first epoch. The final task was the puzzle-box task, in which the experimenter asked the child to assemble a puzzle in a wooden box that obstructs the child's view of the puzzle pieces. The mother was seated on the other side of the box. Despite having a view of the puzzle, the mother was unable to manipulate the puzzle pieces. The mother was instructed to provide as much verbal assistance she thought was necessary for her child to assemble the puzzle. The mother and child were given five minutes to complete the task. A behavioral global rating was used for the entire task.

Measures

Social acceptance. Social acceptance was assessed using sociometric ratings of social preference during 2nd grade. Social preference was measured using children's responses to the items "Who do you like to play with the most?" and "Who do you like to play with the least?" Participants were able to select an unlimited number of nominations for these items. Unlimited nominations allow for more reliable results and a reduction in measurement error (Gommans & Cillessen, 2015). The total number of nominations for "like most" and "like least" were divided by the number of students in the participant's class and subsequently subtracted to calculate the social preference proportion score (p

"like most" – p "like least" = social preference; Coie et al., 1982). Lower scores indicated less likeability in the classroom, whereas higher scores represented greater likeability.

Academic competence. The participant's academic competence was assessed using the Wechsler Individual Achievement Test- Second Edition (WIAT-II). The WIAT-II (Wechsler, 1992) was administered to participants in second grade by trained clinical psychology graduate students. For the purposes of this study, the Reading Composite was used to assess academic competence. In early elementary school, reading acquisition is a major developmental milestone. Past studies examining academic self-perceptions over time found that early reading performance was a strong predictor of academic self-perceptions in adolescence (Chapman, Tunmer, & Prochnow, 2000). The Reading composite included tasks that assessed children's basic reading and reading comprehension skills. Lower scores were used to represent less academic competence, whereas higher scores were used to represent greater academic competence.

Maternal hostility. Measures of maternal hostility in the mother-child interaction tasks were utilized in the current study. "Maternal hostility" was coded as maternal behaviors that included maternal expressions of anger directed towards the child. Mother's general displays of hostility such as tone of voice and facial expression were coded using ratings from low to high hostility on a 4-point Likert scale (1 = None, 2 = A little, 3 = Some, 4 = A lot). Kappas were calculated for maternal hostility ratings across tasks to determine interrater agreement. Interrater agreements for the tasks varied (Kappa = .38-.74). Recommendations for behavioral coding suggest that lower kappa's than .80 may be acceptable (Chorney, McMurtry, Chambers, & Bakeman, 2014) especially when

there are a few number of codes (e.g., 4 or less) coupled with varying probabilities among

the codes (Bakeman, McArthur, Quera, & Robinson, 1997). As such, using guidelines

suggested by Bakeman et al, 1997, kappa values above .50 were considered adequate.

Given that agreement for maternal hostility during the clean-up task was low (kappa =

.38), ratings from this task were not used in the hostility composite. Ratings from the

puzzle-box and craft task were adequate (kappa = .53 and .74, respectively) and therefore

used for the composite where the rating values were summed. In order for the ratings

from each task to be equally weighted in the composite, interval codes for the craft task

were summed and divided by the number of epochs completed. Values for the composite

ranged from 2 (low hostility) to 8 (high hostility).

Peer victimization. Peer victimization was measured using classmate ratings

from the sociometric interviews conducted in the participant's 2nd grade classroom. For

this item, each classmate was asked "Some kids get picked on and made fun of by other

kids. They get teased or get called names. Who gets picked on and teased by other kids?"

This item was divided by the number of students in the participant's class in order to

account for class size. Lower scores indicated less victimization by the participant's

peers, whereas higher scores represented greater victimization by the participant's peer

group.

Self-perceptions of competence. The current study utilized the Sense of

Inadequacy subscale and the Interpersonal Relations subscales from the Behavior

Assessment System for School Children-2nd edition: Self-report of personality (BASC-2-

SRP; Reynolds & Kamphaus, 2004) to assess self-perceptions of academic and social

acceptance respectively at age 10. The BASC-2 is widely used across research domains and exhibits well-established internal consistency, reliability, and validity. Past studies have utilized self-report subscales of the BASC-2 to assess self-perceptions and other aspects of self-esteem (Foley-Nicpon, Rickels, Assouline, & Richards, 2012, Ang, 2006). The BASC-2 was completed during the 10-year assessment. Participants were asked to rate items using both True and False items in addition to Likert-type rating from 0 (never) to 3 (almost always). The Sense of Inadequacy subscale is a clinical subscale that assesses achievement expectations and the perception of being successful in academics (e.g. "I am disappointed with my grades," "I never seem to get anything right,"). The general T-score of this scale was utilized, with higher values indicating greater negativity in self-perceptions of competence. Alpha level for the Sense of Inadequacy subscale at age 10 falls in the acceptable range ($\alpha = .78$). The Interpersonal Relations subscale is an adaptive subscale that assesses self-perceptions of social acceptance and success in social interactions (e.g. "I am left out of things," "Other people find things wrong with me,"). The general T-score of this scale was utilized, with higher values indicating more positive or neutral self-perceptions of competence. Alpha level for the Interpersonal Relation subscale at age 10 was good ($\alpha = .86$).

Self-perceptions at age 5, were also assessed using the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Harter & Pike, 1984) conducted at the 5-year assessment. This scale assessed children's perceptions of their peer acceptance, cognitive competence, physical competence, and maternal acceptance. A trained graduate student read each item out loud to the children while showing a

corresponding picture. Participants were shown two pictures, in which one child is successful at completing a task and one is unsuccessful. Then, the child was asked to choose the picture most similar to them. Each item was scored on a 4-point scale. The Social Acceptance and Academic Competence subscales were used as covariates in the current study. The alpha value for the Social Acceptance scale was good ($\alpha = .72$). The alpha value for the Academic Competence scale was low ($\alpha = .46$).

CHAPTER III

RESULTS

Data Analytic Plan

Prior to conducting the main analyses, preliminary analyses were conducted in SPSS. These analyses included descriptive statistics for all study and relevant demographic variables (e.g. sex and ethnicity). Further, intercorrelations for all study and demographic variables were computed. After the preliminary analyses were completed, data were imported into MPlus (Muthén & Muthén, 2017).

To address missingness resulting from participant attrition and incomplete behavioral and measurement data points, data was analyzed using a maximum likelihood estimation with robust standard errors (MLR). MLR makes use of all available information from all missing data patterns to maximize the use of all the data, (Savalei, 2010; Wang & Wang, 2012) resulting in a sample of 382 participants. A path analysis model was used to examine measures of academic and social acceptance at age 7 and negative interpersonal variables (maternal hostility and peer victimization) at age 7 in predicting academic and social self-perceptions at age 10 (See Figure 1).

The influence of sex on self-perceptions was assessed using a multiple sample path analysis. Sex was used as a grouping variable to compare completely restricted and unrestricted models. In the completely restricted model, all parameters were constrained to be equal for males and females, whereas the unrestricted model allowed structural

parameters to differ by sex. Fit indices were compared between these two models to determine if there was a significant difference in model fit to determine moderation by sex. A Wald chi-square test was used to test whether certain direct effects were stronger in magnitude within a given model.

Preliminary Analyses

Table 1 displays the descriptive statistics of all study variables. Slight- to significant- skewness and kurtosis values were observed for some of the study variables. Slight to moderate skew and kurtosis are defined by values between 1 and 2 and 1 and 9, respectively (Curran, West, & Finch, 1996; Gao, Mokhtarian, & Johnston, 2008). Values for variables were plotted and it was determined that no outliers were present for any of the study variables. Variable transformations were not conducted because doing so may distort linear relationships among the variables when conducting path analyses or may render the path models empirically unidentifiable (Gao et al 2008). Moreover, MLR works well under non-normality due to the use of robust estimators for model estimation (Savalei, 2010; Wang & Wang, 2012).

To address outside influential variables that could affect the model, T-Tests were conducted to examine sex differences among study variables. Significant mean differences were found for maternal hostility, with ratings being higher for mothers of female participants ($\bar{x}$= 2.48) compared to males (M = 2.31), t (1, 286) = -2.00, p < 01. No other differences across sex were found. Ethnicity was also assessed with a one-way ANOVA across study variables. Results indicated that maternal hostility differed by ethnicity, such that mothers of black participants were rated as demonstrating higher

hostility than mothers of white participants, $F_{(3, 284)} = 9.12$, $p < .01$. There were also significant differences in academic competence, such that white participants scored significantly higher than black participants on the WIAT-II, $F_{(3, 284)} = 5.48$, $p < .01$. Additionally, significant mean differences were found in peer victimization. Black participants received significantly more nominations of peer victimization when compared to white participants $F_{(3, 244)} = 4.05$, $p < .01$. No other differences by race were found. Given that no significant differences were found among the outcome variables, race was not used as a covariate in the main study analyses.

To address the possible effect of SES, correlations were computed between SES at age 10 and all study variables (See Table 2). Results indicated that there was a significant, moderate correlation between academic competence and SES at age 10 ($r = .31$, $p < .01$), such that higher SES was associated with higher scores on the WIAT at age 7. Similarly, negative associations were found between peer victimization at age 7 and SES at age 10 ($r = -.23$, $p < .01$). Greater nominations of peer victimization were associated with higher SES. A small negative correlation was also found between academic self-perceptions and SES at age 10 ($r = -.20$, $p < .01$). Higher SES at age 10 was associated with lower scores on the Sense of Inadequacy scale, which represents more positive self-perceptions of academic competence. Finally, there was a small association between social self-perceptions and SES at age 10 ($r = .16$, $p < .01$). Given that small to modest associations were found between SES and the outcome variables, SES was used as a covariate in the main study analyses.

Intercorrelations for all study variables were computed. (See Table 2 for Correlations). All significant correlations were in the expected direction. In terms of concurrent associations, there was a significant positive association between academic and social self-perceptions at age 5 ($r = .45$, $p < .001$). Similarly, external ratings of academic and social acceptance at age 7 were positively associated ($r = .18$, $p < .01$). There was a small negative association between peer ratings of social acceptance at age 7 and peer ratings of victimization at age 7 ($r = -.17$, $p < .01$), such that higher social preference scores, indicating greater social acceptance, were associated with lower peer victimization scores, which represent less victimization. Finally, there was a strong negative association between academic and social self-perceptions at age 10 ($r = -.63$, $p < .01$), such that higher scores on the Interpersonal Relations subscale, which represent more neutral to positive self-perception of social acceptance, were associated with lower scores on the Sense of Inadequacy subscale, which represents more neutral to positive self-perceptions.

In terms of correlations across timepoints, 5-year academic self-perceptions ($r = .22$, $p < .01$) were associated with 7-year academic achievement scores. There was a small negative association between academic self-perceptions at age 5 and victimization at age 7 ($r = .14$). A small, negative association was also found between academic self-perceptions at age 5 and age 10 ($r = -.17$, $p < .01$). Higher scores at age 5, which represent more positive self-perceptions on the Cognitive Competence subscale, were associated with lower scores on the Sense of Inadequacy subscale, representing more positive

academic self-perceptions. There was also a positive association between 5-year academic competence and 10-year social self-perceptions (r = .15, p < .05).

There was a small negative association between 5-year social self-perceptions and 7-year academic achievement scores (r = -.17, p<.01). There was a small positive association between 5-year social self-perceptions and 7-year maternal hostility (r = .13, p < .05). Academic competence at age 7 was negatively and moderately associated with 10-year academic self-perceptions (r = -.33, p < .01). Higher scores on the Reading Comprehension composite, which represents greater academic competence, were associated with lower scores on the Sense of Inadequacy subscale, which represents more neutral or positive self-perceptions. Academic competence at age 7 was positively associated with 10-year social self-perceptions (r = .16, p < .05), such that higher scores on the Reading Comprehension composite were associated with higher scores on the Interpersonal Relations subscale.

Social acceptance at age 7 was negatively associated with 10-year academic self-perceptions (r = -.24, p < .01), such that higher social preference scores were associated with lower scores on the Sense of Inadequacy subscale, which represents more neutral or positive self-perceptions. Social acceptance at age 7 was positively associated with 10-year social self-perceptions (r = .21, p < .05). Finally, there was a negative correlation between victimization at age 7 and 10-year social self-perceptions (r = -.21, p < .01), such that greater victimization at age 7 was associated with more negative social self-perceptions at age 10.

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Main Analyses

The study hypotheses were first tested in the full sample (N=382). Model 1 produced adequate fit ($\chi 2$ (4) = 19.513, p = 0.001; RMSEA = .101; CFI = .901; SRMR = .047). There was a significant direct effect of academic competence at age 7 on academic self-perceptions at age 10 (β = -.227 S.E. = .055). Higher scores on the WIAT, which represent greater academic competence at age 7, predicted lower scores on the Sense of Inadequacy subscale, which represent positive academic self-perceptions at age 10. However, the direct effect of social preference at age 7 on social self-perceptions at age 10 was nonsignificant (β = .106, S.E. = .070). Peer victimization at age 7 was significantly and negatively predictive of social self-perceptions at age 10 (β = -.255, S.E. = .098). Higher proportion scores for victimization, which represent a greater number of nominations for victimization from the peer group at age 7, predicted lower scores on the Interpersonal Relations subscale, which represents more negative social self-perceptions. The direct effect of peer victimization at age 7 on academic self-perceptions at age 10 was nonsignificant (β = .101, S.E. = .073). Similarly, the direct effects of maternal hostility at age 7 on 10-year academic (β = .071, S.E. = .093) and social self-perceptions (β = -.079, S.E. = .104) were nonsignificant.

Tests of sex invariance were conducted to explore whether there were significant sex differences on path coefficients in the model. A fully constrained model in which all paths were set equal was compared to a baseline model where all relevant paths were free to be estimated for boys and girls. Based on the chi-square difference test ($\Delta\chi 2$ (10) = 34.638, p < .01), the structural paths differed significantly for males (N=178) and females

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(N=204). Among females (Figure 2), there was good model fit ($\chi 2$ (4) = 8.643, p >.05; RMSEA = .075; CFI = .962; SRMR = .040). Direct effects of peer victimization at age 7 on both social (β = -.424, S.E. = .123) and academic self-perceptions (β = .227, S.E. = .089) at age 10 were both significant. Higher proportion scores for victimization, which represent a greater number of nominations for victimization from the peer group at age 7, predicted lower scores on the Interpersonal Relations subscale, which represent more negative social self-perceptions. Conversely, higher proportion scores for victimization at age 7 predicted higher scores on the Sense of Inadequacy subscale, which represent more negative social self-perceptions at age 10.

Similar to the results found in the full sample, there was a significant direct effect of academic competence on academic self-perceptions (β = -.331, S.E. = .064). Higher scores on the WIAT, which represent greater academic competence at age 7, predicted lower scores on the Sense of Inadequacy subscale, which represent positive academic self-perceptions at age 10. Additionally, there was a significant direct effect of social preference at age 7 on social self-perceptions at age 10 (β = .278, S.E. = .082). Higher scores for social preference, representing greater social acceptance at age 7, were associated with higher scores on the Interpersonal Relationship subscale, which represent more positive social self-perceptions at age 10. For males, there were no significant direct effects and the model produced poor model fit ($\chi 2$ (4) = 18.967, p = 0.000; RMSEA = .145; CFI = .824; SRMR = .061).

Given that significant direct effects were found for peer victimization on social and academic self-perceptions for females, a Wald chi-square test was used to compare

the direct effects of victimization across academic and social self-perceptions. This test revealed that the direct effect of victimization at age 7 on social self-perceptions at age 10 was stronger in magnitude when compared with the direct effect of victimization at age 7 on academic self-perceptions at age 10 (Wald Chi-square test: $\chi2(1) = 10.119$, p < .01).

CHAPTER IV

DISCUSSION

The current study investigated the longitudinal impact of interpersonal relationships in middle childhood on self-perceptions during the transition to preadolescence. Parental and peer relationships are well-established in the literature as key sources of influence on self-perceptions across development. However, few studies have simultaneously tested the impact of parents and peers on self-perceptions in preadolescence. Furthermore, no study has simultaneously explored the longitudinal impact of both interpersonal relationships and external ratings of child aptitude on self-perceptions in preadolescence. The current study also examined differential susceptibility to interpersonal stressors on self-perceptions across sex. In particular, no studies had previously investigated whether males and females are more vulnerable to the negative impact of parental hostility.

Variations Among Study Variables by Race, Sex, and SES

Preliminary analyses indicated significant associations between demographic (sex, race, SES) and study variables. Thus, the contribution of these variables will be discussed first. In regards to sex, mothers of females received significantly higher ratings of hostility when compared to mothers of male participants. Differences in hostility were also found across ethnicity, with mothers of black participants receiving significantly higher ratings of hostility than mothers of white participants. However, the differences in

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means for both these analyses were too small ($\bar{x}_D < 1$), to represent meaningful differences in ratings as indicated by the hostility composite.

Differences in ethnicity were also found for academic competence. There was a moderate correlation between 10-year SES and academic competence. Children from high SES backgrounds scored significantly higher on the WIAT Reading Comprehension composite. Similarly, white participants scored higher on the WIAT Reading Comprehension composite relative to black participants. These findings regarding ethnicity and SES are consistent with the discrepancies in standardized testing scores that exist in the literature. Bias in item construction towards white, middle-class students is believed to account for these differences across groups (Grodsky, Warren, & Felts, 2008).

Differences in race were also found for sociometric nominations of victimization. Black participants received significantly more nominations of peer victimization than white participants. This finding could be explained by increased risk for victimization among minority students. In a study examining rates of victimization across ethnic groups in different California high schools, rates of physical and relational victimization varied significantly across groups. Native American and African-American adolescents reported the highest rates of physical peer victimization. African-American adolescents also reported significantly higher rates of relational victimization relative to other ethnic groups. Overall, this study found that risk for victimization varied depending on the ethnic composition of the school attended (Felix & You, 2011). Much of the inconsistent findings between ethnic minority membership and rates of victimization in the literature is possibly due to contextual factors such as region and school composition. There was

also a modest, but significant between socioeconomic status at age 10 and peer victimization in the current study. This finding is consistent with a cross-cultural study in which low SES was associated with greater reports of peer victimization among adolescents (Due et al., 2009). While the relations between demographic variables and peer victimization were modest in the current study, these relations remain poorly understood in the literature and should be investigated more thoroughly in future studies.

Finally, modest associations were found between SES and both social and academic self-perceptions at age 10, such that lower SES was associated with more negative self-perceptions. This finding is consistent with studies that have found increased risk for low self-esteem and low self-efficacy among adults with low SES (Twenge & Campbell, 2001; Boardman & Robert, 2000). The observed relation between SES and self-perceptions in the current study could be attributed to chronic exposure to adversity and fewer opportunities for educational and career advancement among low SES populations. Future research is needed to better understand whether low SES increases vulnerability to negative self-perceptions in adolescence and how access to opportunities might account for differences in self-perceptions across SES.

Main Analyses

Predictors of self-perceptions. The findings of the current study demonstrated partial support for the hypotheses included in Objective 1, which hypothesized a significant direct effect of external ratings of academic achievement and social acceptance on their respective domains of self-perception. A significant direct effect was found between academic competence at age 7 and academic self-perceptions at age 10.

This finding is consistent with past studies that have found longitudinal associations between intellectual ability and academic self-perceptions (Guez et al., 2018; Chamorro-Premuzic et al., 2010). Consistent with past studies that found moderate correlations between self and peer-report of relationship quality (Brendgen et al., 2000; Cleary et al., 2002), there was a modest correlation between social preference at 7 and social self-perceptions at age 10. However, the direct effect between these variables was not significant when tested in the path analysis. A possible explanation for this null finding may be in part due to measurement. Sociometric ratings of social preference assess acceptance by equally weighing whether the child was nominated for the "liked most" and "liked least" items. The Interpersonal Relations subscale does not equally weigh self-perceptions of likeability with self-perceptions of disliking by peers. Of the 6 items on this subscale, there is a single item to assess likeability and four items that assess disliking from peers. Unlike the current study, past studies equally weighted both self-perceptions of likeability by peers and dislike by peers to correspond with sociometric ratings of social preference. Past studies likely found significant relations between peer and self-report of social acceptance by examining the concordance rate between both peer and self-report of likeability and dislike.

Partial support was found for the Objective 1 hypothesis that predicted negative interpersonal relationships with parents and peers would have a direct effect on both social and academic self-perceptions. Preliminary analyses found support for a significant association between peer victimization and both academic and social self-perceptions. In the path analysis for the full sample, there was a significant direct effect of victimization

at age 7 on social self-perceptions at age 10; however, no significant direct effect was found between victimization and academic self-perceptions. These results are consistent with past studies linking peer victimization to negative self-perceptions (Bilsky et al., 2013; Sinclair et al., 2012; Bellmore & Cillessen, 2006). The null finding between peer victimization and academic self-perceptions in the current study could possibly be attributed to Harter's theory (2012) of parent-salient and peer-salient domains of self-perceptions. Consistent with this theory, peer victimization was a significant predictor of the peer-salient domain (social acceptance), but failed to predict the parent-salient domain (academic competence).

No support was found for the hypothesized relation between parental hostility and self-perception in either the correlational or path analyses. These findings were inconsistent with past studies that have found significant longitudinal associations between youth-report of parental hostility and negative self-perceptions (Bruce et al., 2006; Côté & Bouffard, 2011; Cole et al., 2015). These null findings may be in part due to the negative skew of the hostility variable in the current study. While the current study sought to expand the literature on the relation between parental hostility and self-perceptions by capturing naturalistic parent-child interactions, few instances of hostility during parent-child interaction tasks were observed in the current sample. Low instances of observed hostility could be explained by the artificial nature of the parent-child interaction tasks coded in the present study. While the craft task may have generalized to potential parent-child interactions that occur in the home, the puzzle-box task is a novel task that may not produce authentic frustration towards the child. Higher instances of

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hostility may occur in tasks that simulate frustrating exchanges at home, such as

homework completion (Murray et al., 2006; Solomon, Warin, & Lewis, 2002). Similarly,

higher instances of hostility would be more observable in the context of the home

environment rather than the lab setting. Overall, the shortcomings of the hostility measure

likely contributed to the null findings between parental hostility and self-perceptions in

the current study.

Sex differences. When study analyses were split by sex, results differed in

support for Objective 1 among males and females. Similar to the results found in the full

sample, there was a significant direct effect of academic competence at age 7 on

academic self-perceptions at age 10 for female participants. Additionally, there was a

significant direct effect of social acceptance at age 7 on social self-perceptions at age 10

for female participants. In contrast, there were no significant direct effects between

external measures of social acceptance and academic competence at age 7 and self-

perceptions at age 10 among male participants. This pattern of findings is consistent with

past studies examining accuracy of social self-perceptions in middle childhood and

preadolescence. In general, females in this age group are more accurate in their self-

report of popularity/social status relative to their male peers (Putarek & Keresteš, 2016,

Bellmore & Cillessen, 2003; Cillessen & Bellmore, 1999). Measurement of self-

perceptions in the current study may have also contributed to greater support for

Objective 1 among female participants relative to male participants. In the current study,

both measures of academic and social self-perceptions contained more items that assess

negative self-perceptions (e.g. "I feel that nobody likes me," "I am disappointed with my

grades,") relative to the number of items that assess positive self-perceptions (e.g. "I am liked by others,"). Past studies have demonstrated that females are more likely to report negative self-perceptions relative to their male peers in middle childhood and preadolescence (Cole et al, 1999; Kistner et al., 2006). Overall, the sex differences found in the current study are consistent with those found in the literature.

In order to test the hypothesized associations in Objective 3, which aimed to identify sex differences in the impact of negative interpersonal relationships on self-perceptions, a multi-group path analysis was performed to assess for sex differences. Similar to the results found among the full sample, significant direct effects were found between peer victimization at age 7 and social self-perceptions at age 10, as well as a significant direct effect of academic competence at age 7 on academic self-perceptions at age 10 in the female only model. Additionally, there was a significant direct effect of peer victimization at age 7 on academic self-perceptions at age 10 among females. These findings are consistent with past studies in which females that experienced higher levels of victimization reported more negative self-perceptions across all domains (Boulton et al., 2010; Roeder et al., 2014).

Contrary to the findings in the female only model, there were no significant direct effects found when the model was tested with male participants. These findings are inconsistent with past studies that have identified victimization and hostility as significant predictors of self-perceptions (Bilsky et al., 2013; Sinclair et al., 2012). A study examining the impact of peer victimization on self-cognitions among a sample of students in grades 3 through 6, found a stronger association between victimization and

self-cognitions for boys when compared to girls (Sinclair et al., 2012). However, the findings in the current study are consistent with a past study examining changes in negative self-cognitions in preadolescence. This study identified peer victimization as a predictor of increases in negative self-cognitions for females only (Roeder et al., 2014).

One interpretation of the null findings found among male participants in the current sample is a difference in growth mindset. In studies examining differences in ability self-perceptions among males and females, males have been to be more likely to attribute failure to chance rather than assume that it has to do with their own competence or trait-like skills (Dweck, 2002). These findings have been suggested to explain the tendency for males to outperform their female peers in math (Blackwell, Trzesniewski, & Dweck, 2007). Growth mindset in males has also been linked to greater self-esteem and self-efficacy among adolescent males relative to females (Diseth, Meland, & Breidablik, 2014). Furthermore, past studies have found that males tend to overestimate their abilities relative to females. In an ethnically and socioeconomically diverse sample of third through sixth grade students, males were more likely to overestimate academic abilities and females were more likely to underestimate their academic abilities (Cole et al., 1999). Taken together, these studies suggest that males are less prone to developing negative self-perceptions. The current study solely focused on negative self-perceptions, which could potentially explain the lack of findings in the current study relative to past studies that have found significant relations between victimization and hostility and self-perceptions that were measured more broadly (Bilsky et al., 2013; Sinclair et al., 2012).

Differences in the prevalence of certain forms of victimization might also account for the sex differences observed in the relation between peer victimization and self-perceptions. The current study assessed for victimization broadly by prompting the peer group to nominate peers that are "picked on." Two forms of victimization, relational victimization and physical victimization, are likely captured by this item, but are not differentiated in the current study. Relational victimization refers to aggressive acts such as spreading rumors, exclusion, and withdrawing friendship (Reijntjes, Stegge, Meerum, & Terwogt, 2006). While both males and females report experiencing relational victimization throughout development, females report higher levels of relational victimization when compared to males, (Cullerton-Sen & Crick, 2005; Ostrov & Godleski, 2010). It has also been suggested that relational victimization may have more detrimental impacts on negative self-cognitions relative to the impact of physical victimization (Cole et al., 2014). While the current study measured victimization more broadly, past literature suggests female participants in the current study may have experienced greater instances of relational victimization; therefore, making them more vulnerable to experiencing negative self-perceptions in response to peer victimization.

Parent and peer-salient domains of self-perceptions. Limited support was found for Harter's theoretical framework (Harter, 2012) of peer and parent-salient domains of self-perceptions in the current study. There was a significant direct effect of peer victimization on social self-perceptions (peer-salient domain) in the full sample. However, no significant direct effect was found between peer victimization and academic self-perceptions (parent-salient domain) in the full sample. This pattern of findings

supported the hypothesis that peer victimization would be more salient to the domain of social self-perceptions. These findings are similar to those found in a sample of youth ages 9-10 in which peer victimization predicted changes for social self-perceptions only. Similar to the findings in the current study, peer victimization did not predict increases in negative self-perceptions in parent-salient domains, such as academic self-perceptions (Boulton et al., 2010). Contrary to Harter's theoretical framework, no significant direct effects were found in the current study between parental hostility and self-perceptions. This finding was inconsistent with past studies that have found a negative influence of hostility on self-perceptions (Bruce et al., 2006; Côté & Bouffard, 2011; Cole et al., 2015). Again, these null findings may due to low occurrences of hostility observed during laboratory tasks.

Some additional support for the concept of parent-salient and peer-salient domains was found in the current study when examining study hypotheses by sex. For females, the direct effects between victimization were significant for both academic and social self-perceptions. However, the direct effect between victimization and social self-perceptions was stronger in magnitude than the direct effect between victimization and academic self-perceptions. This finding is consistent with Harter's theoretical work, which found peer support relative to parent support was a more significant predictor of self-perceptions of social acceptance, physical attractiveness, and athletic ability (Harter et al., 1992; Harter et al., 1996; Harter & Whitesell, 1996). It is possible that the sex differences found in the current study may be explained by differences in social maturity for males and females during middle childhood and preadolescence. The separation of

parent-salient and peer-salient domains may occur earlier in development for females relative to males. Additional research is needed to identify when parent-salient and peer-salient domains of competence begin to emerge for males and females.

There are some methodological differences between the current study and the studies used to validate Harter's theoretical model (Harter et al., 1992; Harter et al., 1996) that may account for the lack of support for parent-salient and peer-salient domains in the current sample. The first major difference was in measurement of self-perceptions. The current study primarily focused on instances of negative self-perceptions, while Harter's studies examined self-perceptions more broadly. Additionally, Harter's study examined the global role of parent and peer support on self-perceptions. The current study focused on the role of specific, negative interpersonal experiences (victimization and hostility) on self-perceptions. Furthermore, Harter's studies relied solely on child-report to assess both parental and peer support, as well as self-perceptions of competence. As a result, these results were subject to shared method variance. The current study utilized external measures to assess victimization and hostility and self-report to assess self-perceptions. No external measure of competence was assessed in Harter's work. Finally, the current study examined longitudinal data from middle childhood to preadolescence, while Harter's work on parent-salient and peer-salient domains was only supported using concurrent data. Taken together, these methodological differences likely contributed to lack of support for parent-salient and peer-salient domains in the current study.

There were also multiple differences in the characteristics of the current study's sample when compared with Harter's work. Harter's samples consisted of older students

in middle and high school, while the current study explored these hypotheses among elementary-school aged children. It is possible that maturational differences across sex may not have been as noticeable in Harter's samples because the distinction between parent and peer-salient domains was more defined in adolescence. It is important to note that the current sample is far more diverse both in socioeconomic status and ethnic background, which may have also contributed to different findings. It is also possible that cohort effects account for some differences in the findings across these studies. Data for Harter's studies was collected in the 1990s and data for the current study was collected in the 2000s. Rapid changes in technology across this time period has expanded children's social networks. Furthermore, increased access to the internet has strengthened the influence of the media on children's self-perceptions and self-esteem (Polce-Lynch, Myers, Kliewer, & Kilmartin, 2001; Clay, Vignoles, & Dittmar, 2005) when compared with previous generations. Technological changes may have resulted in Harter's theoretical framework becoming obsolete for the current sample. Participants in the current sample had greater access to social relationships outside of parents and peers that act as agents of influence on their self-perceptions. Furthermore, technology likely facilitated the media to play a larger role in influencing children's self-perceptions among the current sample.

Limitations and Future Directions

While the present study added to the literature by including both interpersonal factors and external ratings of competence as factors that contribute to the formation of self-perceptions, there were some limitations that contributed to the findings. One

significant limitation in the current study was a lack of continuity in the control and outcome variables. At age 5, self-perceptions were measured by the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children, which assessed self-perceptions ranging from negative to positive. At age 10, self-perceptions were measured by the Sense of Inadequacy and Interpersonal Relations subscales of the BASC-2. These subscales contained more items that assessed negative self-perceptions, which restricted the range of self-perceptions measured from neutral to negative self-perceptions. This restricted range of self-perceptions may have resulted in some direct effects being more difficult to detect. As mentioned above, the restricted range may have also contributed to the sex differences found in the current study. Future studies examining self-perceptions in this age group would benefit from using measures that examine both positive and negative self-perceptions to more clearly understand the relation between negative interpersonal variables and self-perceptions in this age group and any sex differences that exist.

In exploring the relative contribution of parent and peer factors to parent and peer-salient domains of self-perceptions, the current study was also limited to examining only social and academic self-perceptions. Future investigations of the hypotheses tested in the present model would benefit from use of consistent measures of self-perceptions across timepoints, utilizing outcome measures of self-perceptions that range from positive to negative, and further testing parent-salient and peer-salient domains by including physical attractiveness, behavioral conduct, and athletic competence.

Although the use of multiple reporters is a significant strength of the current study, there were limitations regarding measurement, particularly in observational ratings of parental hostility. Past literature has found significant relations between youth-report of parental hostility and negative self-perceptions (Bruce et al., 2006; Côté & Bouffard, 2011; Cole et al., 2015). While the current study was novel in its use of observational ratings of parent-child interactions, the instances of hostility in the lab setting were low. While the skew fell within normal limits, more ratings of "Some hostility" and fewer responses of "A lot of hostility" were coded in the present sample. During lab observation tasks, parent behavior is likely impacted by the knowledge that such tasks are being recorded and viewed by experimenters. In the current study, observed ratings of hostility made it difficult to detect the relation between parental hostility and negative self-perceptions. Future studies examining hostility and self-perceptions would benefit from using a multi-informant approach, including observational ratings and youth-report to measure parental hostility.

While the current study addressed some of the gaps in the current literature, there remains several future directions for research examining the role of parent and peer relationships on self-perceptions. A major gap in the parenting literature is differentiation between father-child and mother-child relationships. Most studies that examined parental factors on self-perception have only considered mother-child relationships. However, some literature suggests that mothers and fathers may play different roles in influencing self-perceptions. For example, in a sample of middle and high school students from predominantly two-parent households, there was an association between maternal

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psychological control and social self-perceptions; however, this same association was not found between paternal psychological control and social self-perceptions (Laible & Carlo, 2004). Future studies should include mother-child and father-child variables to compare the relative influence of these relationships on children's self-perceptions.

The influence of other interpersonal relationships on self-perceptions is another area of research that should be explored further. Evidence for the impact of student-teacher relationships on self-perception has been found in past studies. For example, autonomy granting from teachers was associated with more positive self-perceptions of academic competence in two studies examining Dutch adolescents (Soenens & Vansteenkiste, 2005; Farkas & Grolnick, 2010). Additionally, sibling relationships are a potentially important predictor of self-perceptions. High quality sibling relationships are associated with better adjustment and fewer internalizing and externalizing symptoms (Stocker, Burwell, & Briggs, 2002; Branje, van Lieshout, van Aken, & Haselager, 2004). At the present, there are no studies that have directly examined the impact of these sibling relationships on adolescent self-perceptions, but this seems like a promising future direction for better understanding interpersonal influence on self-perceptions.

Further investigation of interpersonal factors in the etiology of negative self-perceptions should further explore some of the explanatory mechanisms that contribute to the relation between interpersonal relationships and self-perceptions. In adolescence, the role of reflected self-appraisals on youth's self-perceptions increases as perspective-taking skills increase. Measurement of self-appraisals should be included in future studies

to better understand the mechanisms through which negative interpersonal factors such as parental hostility and peer victimization influence youth's self-perceptions.

Additionally, future studies examining the influence of peer victimization on self-perceptions should include other variables that may buffer the negative impact of interpersonal stressors. Past studies have supported the role of parental support in buffering children against depressive symptoms after experiencing peer victimization (Conners-Burrow et al., 2009). Similarly, among a sample of socioeconomically and ethnically diverse students in third through sixth grade, child-report of parental support reduced the negative impact of peer victimization on negative self-perceptions (Bilsky et al., 2013). Furthermore, positive aspects of peer relationships such as friendship support could be examined as potential buffers against negative self-perceptions that may develop within the context of peer victimization.

To expand upon the questions explored in the current study, specific parenting behaviors could also be explored, such as discipline strategies or validation. Different aspects of friendships could also be included to determine their impact on the formation of self-perceptions, such as exploring disclosure and intimacy within dyadic peer relationships. Thus far, the literature has assumed the existence of negative feedback within the contexts of peer victimization and parental hostility but have not examined how feedback practices impact self-perceptions. Future studies would benefit from exploring feedback behaviors that portray approval (e.g. praise) or disapproval (e.g. criticism) within the context of peer relationships, as well as parent-child relationships, and how these feedback behaviors impact self-perceptions.

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Summary and Conclusions

Overall, the present study demonstrated that peer victimization in middle childhood is predictive of self-perceptions in preadolescence. Specifically, higher rates of peer victimization predicted more negative self-perceptions. Additionally, there was a significant direct effect of academic competence on academic self-perceptions among the full sample. Significant sex differences were found in the current study, with no significant direct effects of any variables on self-perceptions among males. While there was no influence of either parental hostility or peer victimization on academic self-perceptions within the full sample, victimization was a significant predictor of academic self-perceptions for females. When the strength of the direct effect between victimization and both social and academic self-perceptions was examined, it was determined that victimization had a stronger direct effect on social self-perceptions relative to academic self-perceptions, which is consistent with Harter's theoretical framework regarding parent-salient and peer-salient domains of competence. Finally, the results of the present study suggest that both interpersonal factors and measures of ability should be considered when examining predictors of self-perceptions. Past research has typically examined only interpersonal variables and their influence on self-perceptions of competence. The results of the current study indicate that future research should not only consider both of these factors, but also explore these relations longitudinally in order to see how these variables relate to self-perceptions across different stages of development. Furthermore, sex differences that exist in these relations should continue to be examined across development, as males and females mature at different rates throughout development.

The influence of these variables on self-perceptions may peak at different points in

development for males and females.

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TABLES AND FIGURES

Table 1. Descriptive Statistics

Measure	N	% Missing	Mean	Min.	Max.	S.D.	Kurt.	Skew
5 yr. Academic Self-perceptions	327	14.39	3.69	2.33	4.00	0.32	1.82	-1.32
5 yr. Social Self-perceptions	327	14.39	3.07	1.33	4.00	0.64	-0.59	-0.32
7 yr. Academic Competence	288	24.61	110.38	76.00	143.00	16.30	-0.78	-0.09
7 yr. Social acceptance	246	35.60	0.09	-1.00	0.73	0.32	-0.23	-0.34
7 yr. Maternal Hostility	288	24.61	2.40	2.00	6.75	0.76	8.44	2.58
7 yr. Peer Victimization	248	35.08	0.11	0.00	0.71	0.12	5.63	2.01
10 yr. SES	323	15.45	44.29	12.00	66.00	12.09	-.36	-.52
10 yr. Academic Self-perceptions	288	24.61	46.78	37.00	87.00	8.46	3.93	1.56
10 yr. Social Self-perceptions	288	24.61	53.63	11.00	59.00	8.79	6.84	-2.43

Table 2. Correlation Coefficients

Measure	1	2	3	4	5	6	7	8
1. 5 yr. Academic Self-perception								
2. 5 yr. Social Self-perceptions	.450**							
3. 7 yr. Academic Competence	.224**	-.174*						
4. 7 yr. Social Acceptance	-.057	-.036	.182**					
5. 7 yr. Hostility	-.054	.126*	-.101	-.095				
6. 7 yr. Victimization	.090	.139*	-.119	-.168**	.109			
7. 10 yr. SES	.025	-.124*	.305**	.141*	-.102	-.229**		
8. 10 yr. Academic Self-perceptions	-.174**	.096	-.331**	-.240**	.089	.120	-.195**	
9. 10 yr. Social Self-perceptions	.150*	-.074	.158*	.205**	-.093	-.208**	.155*	-.628**

Table 3. T-test Results by Sex

|	Females			Males			
	N	*M*	*SD*	*N*	*M*	*SD*	*T-test*
5 yr. Academic Self-perceptions	176	3.696	.311	151	3.703	.320	ns
5 yr. Social Self-perceptions	176	3.075	.634	151	3.07	.640	ns
7 yr. Academic Competence	157	111.752	16.233	131	108.725	16.199	ns
7 yr. Social acceptance	133	.121	.328	113	.046	.303	ns
7 yr. Maternal Hostility	158	2.478	.833	130	2.306	.637	8.628**
7 yr. Peer Victimization	135	.106	.126	113	.109	.118	ns
10 yr. Academic Self-perceptions	161	46.596	8.438	127	47.016	8.522	ns
10 yr. Social Self-perceptions	161	53.559	9.113	127	53.709	8.405	ns

**$p<.01$. *T-test*s were conducted to estimate sex differences across all study variables. Sex was only significantly different for 7 yr. Maternal Hostility. Mothers of females received higher ratings of hostility than males, t (286) = 2.306, p = .004.

Figure 1. Path Diagram in the Full Sample
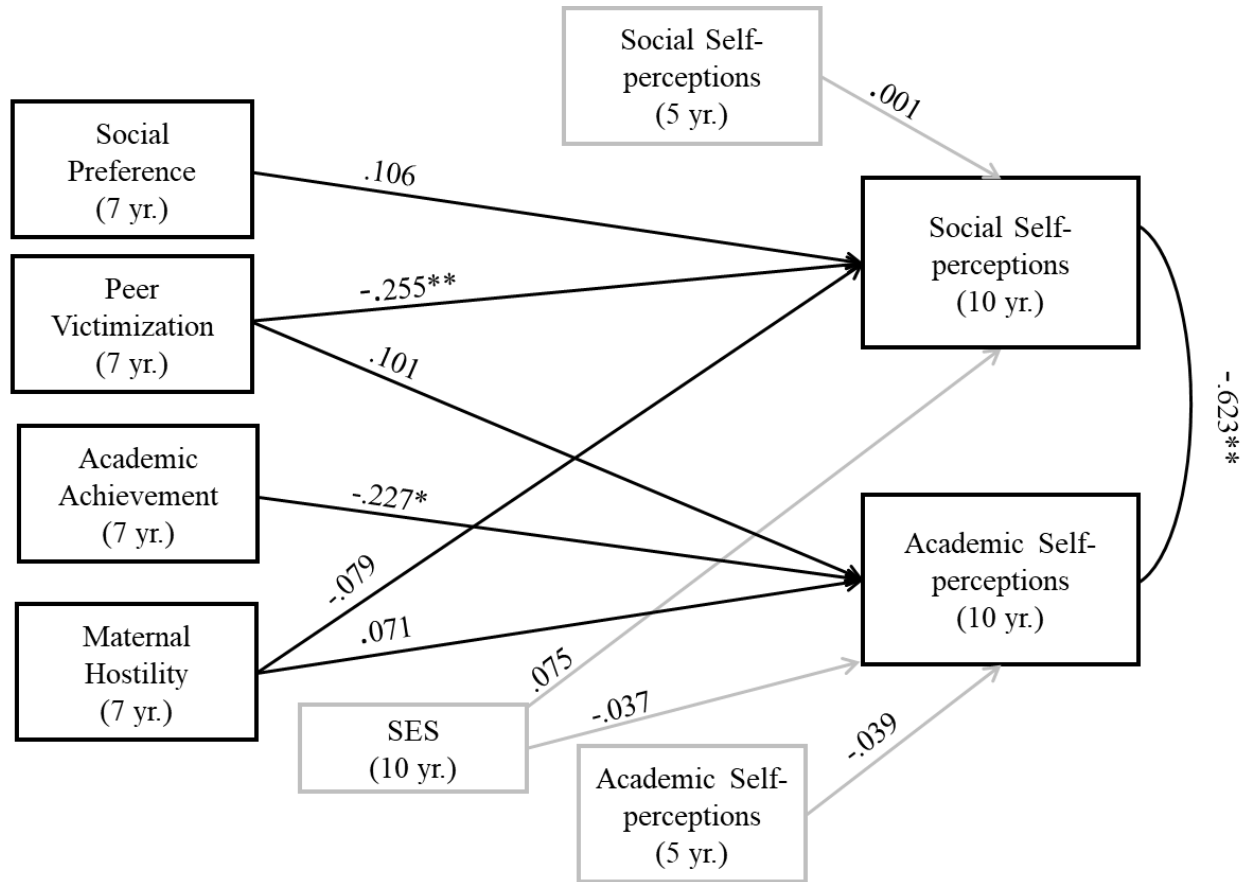
Standardized estimates for main analyses. Italicized wording delineates controls variables.
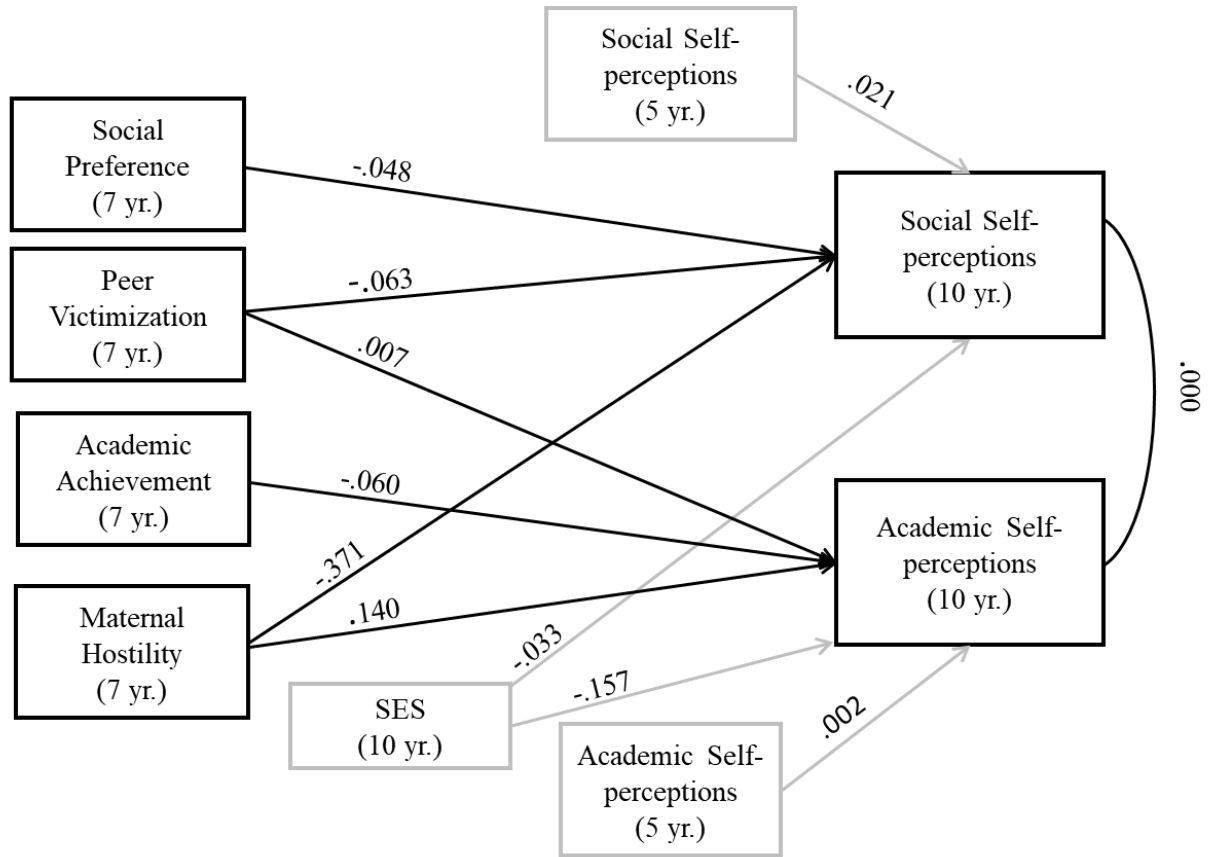*p < .05. **p < .01. ***p < .001

Figure 2. Path Diagram with Female Participants
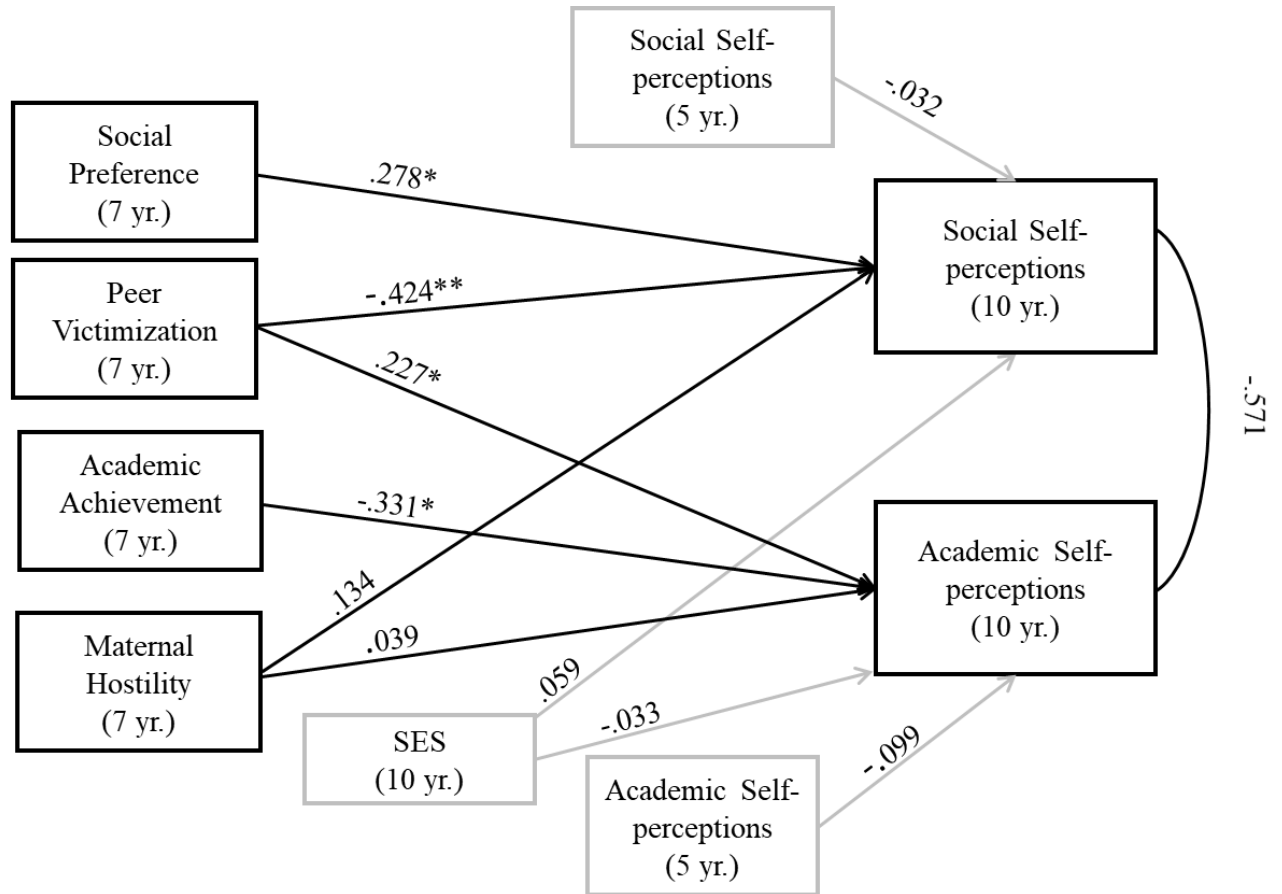
Standardized estimates for main analyses. Italicized wording delineates controls variables.
*p < .05. **p < .01. ***p < .001

Figure 3. Path Diagram with Male Participants

Standardized estimates for main analyses. Italicized wording delineates controls variables.
*p < .05. **p < .01. ***p < .001

MEASURES

Global Coding of Maternal Hostility at Age 7

1) Overall, how much hostility did the parent express during the task? (Hostility is defined as the emotional expression of anger toward the child. Use tone of voice and facial expressions as indicators.)

    1. None (not hostile, no bouts of hostility directed toward the child; parent might raise voice to emphasize directions, but no anger displayed)

    2. A little (not hostile, a few bouts of hostility directed toward the child)

    3. Some (somewhat hostile, several bouts of hostility directed toward the child, or one extreme case of hostility)

    4. A lot (consistently hostile, parent's interaction style seemed to be hostile)

BASC-2 Interpersonal Relations Subscale

"My classmates don't like me"	(0) T/F (1)
"Other children don't like to be with me"	(0) T/F (1)
"Other kids hate to be with me"	Never (3), Sometimes (2), Often (1), Almost Always (0)
"I feel that nobody likes me"	Never (3), Sometimes (2), Often (1), Almost Always (0)
"I am slow to make new friends"	Never (3), Sometimes (2), Often (1), Almost Always (0)
"I am liked by others"	Never (0), Sometimes (1), Often (2), Almost Always (3)

BASC-2 Sense of Inadequacy Scale

"I never seem to get anything right"	(1) T/F (0)
"I am not very good at anything"	(1) T/F (0)
"When I take tests, I can't think"	Never (0), Sometimes (1), Often (2), Almost Always (3)
"It is hard for me to keep my mind on schoolwork"	Never (0), Sometimes (1), Often (2), Almost Always (3)
"I am disappointed with my grades"	Never (0), Sometimes (1), Often (2), Almost Always (3)
"Even when I try hard, I fail"	Never (0), Sometimes (1), Often (2), Almost Always (3)
"I fail at things"	Never (0), Sometimes (1), Often (2), Almost Always (3)
"I want to do better but I can't"	Never (0), Sometimes (1), Often (2), Almost Always (3)