

DEVELOPMENTAL DIFFERENCES IN RELATIONS AMONG PARENTAL
PROTECTIVENESS, ATTACHMENT, SOCIAL SKILLS, SOCIAL ANXIETY AND
SOCIAL COMPETENCE IN JUVENILES WITH ASTHMA OR DIABETES

A Dissertation

by

JONHENRY C. GRIZZLE

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2007

Major Subject: Psychology

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Approved by:

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ABSTRACT

Developmental Differences in Relations among Parent Protectiveness, Attachment, Social Skills, Social Anxiety, and Social Competence in Juveniles with Asthma or Diabetes.

(August 2007)

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Previous research has elucidated social competence as a prominent variable contributing to psychosocial adjustment in juveniles with chronic illness. In particular, early interactions with parents and peers play a large role in the development of social competence by teaching young people how to initiate and maintain satisfying and warm relationships. The current study examined developmental differences in relations among parent-child relationship variables (parental protectiveness), peer interaction variables (social skills, social anxiety), and social competence in juveniles with asthma and diabetes. Hierarchical multiple regression was used to evaluate mediated models using data from a sample of 178 preadolescent (ages 7-11) and adolescent (ages 12-16) juveniles.

Results indicated that social anxiety and social skills mediated the relation between parental protectiveness and social competence in the adolescent age group, but not in the preadolescent age group. In contrast, social skills mediated the relation

between parental protectiveness and social anxiety in the preadolescent group only. Attachment security evidenced a strong direct influence on social competence, which was not mediated by social skills or social anxiety. Because protective parenting styles were found to influence social competence through peer interaction variables posited to be directly impacted by chronic illness (i.e., social skills and social anxiety), it is suggested that they are an influential illness-specific determinant of psychosocial adjustment in young people with asthma or diabetes.

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INTRODUCTION

Interest continues to abound regarding issues relating to juvenile emotional adjustment, evidenced by societal concerns regarding instances of school violence and adolescent suicide covered by the media. As a reflection of these concerns, empirical research has focused on delineating various mechanisms that influence emotional adjustment among young people. Social competence has been identified as one important predictor of emotional adjustment in juveniles. Within this context, *social competence* is used by researchers to describe the overall quality of contextually appropriate social behavior displayed by an individual. More specifically, social competence in the domain of peer interactions is proposed to lead to multiple personal benefits, such as development of self efficacy and sense of pride, perspective taking, ego resiliency and control, empathy, self-regulation, and development of criteria for evaluating one's performance (Spirito, De Lawyer, & Stark, 1991). Acknowledging the importance of this mechanism, models have been forwarded relating problematic social behavior to maladjustment through variables such as low peer acceptance and deviant social and personal experiences (La Greca, 1993).

Social Competence and Emotional Adjustment

Previous research has demonstrated that the quality of peer relationships has important implications for the development of social competence and subsequent emotional adjustment in juveniles. Hymel, Rubin, Rowden, and Lemarc (1990) investigated the predictive relation between social difficulties in early childhood (grade 2) and subsequent internalizing (e.g., social withdrawal) and externalizing (e.g.,

aggression) problems in middle childhood (grade 5). Results suggested that peer rejection in early childhood was significantly predictive of both internalizing and externalizing problems in middle childhood. Similarly, Newcomb, Bukowski, and Pattee (1993) conducted a meta-analysis examining the relation between peer ratings of juvenile sociometric status (e.g., popular, average, rejected, and neglected) and adjustment, and found that “rejected” juveniles evidenced significantly higher levels of withdrawal, depression, and anxiety than juveniles rated as “average” or “popular.”

Juveniles with chronic medical illnesses are at risk for experiencing similar adjustment problems due to illness-specific environmental stressors that may alter peer interaction experiences and hinder the development social competence. For example, La Greca (1990) described several consequences of pediatric chronic illness that often impede peer interactions, including restrictions of physical activities, interruption of daily activities, and lifestyle modifications due to intensive treatment protocols. Examples of mechanisms through which illness-related consequences may influence the development of social competence include: (a) discomfort in peer interactions due to perceptions of illness-related stigmatization and (b) exclusion from certain peer activities due to perceptions of chronically ill juveniles as frail or vulnerable.

In spite of these impediments, findings regarding the nature of peer relations of chronically ill juveniles have been equivocal. For example, the contention that young people with chronic illness, in general, experience poorer peer relations than healthy juveniles lacks consistent support (Spirito et al., 1991). Nassau and Drotar (1995) compared the social competence and adjustment of 8- to 10-year-old healthy juveniles to

similarly aged juveniles with asthma and diabetes and found that groups did not differ in psychosocial functioning according to parent and self ratings of social skills and perceived social competence. In addition, no sex differences were observed with regard to social skills, social competence, or psychosocial adjustment. Graetz and Shute (1995) also found no significant differences when they compared the quality of peer relationships and emotional adjustment of 8- to 13-year-old healthy juveniles and similarly aged juveniles with diabetes.

In contrast, Zbikowski and Cohen (1998) compared the social competence of healthy juveniles to juveniles diagnosed with asthma in grades 1 through 3 and observed that juveniles with asthma received significantly lower social competence ratings from their parents than those without asthma. Given findings such as these, Drotar (1981) suggested that juvenile chronic illness should be viewed as a stressor that may contribute to increased risk, but not the sole cause of adjustment problems.

PEER INTERACTIONS

Social Skills and Social Competence

To gain a better understanding of the pathways toward emotional adjustment in juveniles with chronic illness, it is important to locate variables that play a role in the development of social competence. Certain parent-child relationship and peer interaction variables have been found to impact the development of social competence. For example, variations in the adequacy of social skills have been posited to influence the quality of peer relationships in juveniles. Social skills constitute the specific identifiable skills that some believe form the basis of social competence (Spirito et al., 1991). For this purpose, *social skills* may be defined as socially acceptable learned behaviors that enable a person to interact with others in ways that elicit positive responses and assist in avoiding negative responses (Gresham et al., 1984). Elliot and Erschler (1990) identified five major clusters of social skills that can be characterized as follows:

1. *Cooperation* – behaviors such as helping others, sharing materials with a peer, and complying with rules.
2. *Assertion* – initiating behaviors such as asking others for information and behaviors that are responses to others' actions such as responding to peer pressure.
3. *Responsibility* – behaviors that demonstrate ability to communicate with adults and concern about ones property.
4. *Empathy* – behaviors that show concern for a peer's or significant adult's feelings.
5. *Self-Control* – behaviors that emerge in conflict situations such as responding appropriately to teasing or to corrective feedback from an adult.

In contrast, Guevremont (1990) suggested an alternative approach that involves four major skills clusters: (a) social entry skills, (b) conversational skills, (c) conflict resolution and problem solving skills, and (d) anger control skills. Moreover, in reference to chronically ill juveniles, deficits in social skills can be identified which may be related to lack of knowledge, insufficient practice, lack of relevant contextual cues, or lack of reinforcement for socially skilled behaviors (LaGreca, 1990).

Although the relations between poor social skills, deficient social functioning, and subsequent maladjustment has received empirical scrutiny, few theoretically derived databases exist that describe the operation of these variables. Buhrmester (1990) assessed social skills, peer relationships, social competence, and emotional adjustment in preadolescent (ages 10-13) and adolescent (ages 13-16) juveniles and found that juveniles whose friendships were rated more positively described themselves as more active and competent socially, less hostile, less anxious, and less depressed compared to participants involved in less intimate friendships. Further, the detrimental effects of inadequate social skills became more prominent as adolescents aged. Buhrmester (1990) observed no sex differences with regard to interpersonal competence, self-esteem, and socioemotional adjustment, although female participants rated their friendships as more intimate across age groups.

Similarly, Engels, Dekovic, and Meeus (2002) surveyed peer activities of younger (ages 12-14) and older (ages 15-18) juveniles. Although no significant relation was observed between social skills and perceived relational competence in younger adolescents, a main effect of social skills on perceived relational competence was

observed in older juveniles. Also, adolescents who felt anxious about acting and reacting to others were found to be less involved in peer activities and reported feeling less attached to friends while juveniles whose parents were more tolerant and stimulated children to be autonomous and independent, as well as juveniles who were more strongly attached to their parents, were less anxious in social situations. Sex differences also emerged across both age groups, with female participants reporting more positive peer relationships and males reporting lower parental monitoring (Engels et al., 2002).

Few empirical investigations, however, have examined the influence of chronic medical illness on social skills. As previously described, Nassau and Drotar (1995) compared the social skills of 8- to 10-year-old healthy juveniles to juveniles with asthma and diabetes and found that the three groups did not differ on self ratings of social skills.

Social Anxiety and Social Competence

Social anxiety (i.e., fear of embarrassment or humiliation in social situations) is another variable posited to play an important role in the development of social competence. Social anxiety may result from negative, aversive, or exclusionary experiences with peers, and lead to impairment in social interactions that are necessary for psychosocial development (La Greca, 1999). More specifically, socially anxious juveniles often restrict opportunities for social interactions and behave in less assertive ways with peers, contributing to social impairment (Ginsburg, La Greca, & Silverman, 1998). Ginsburg and colleagues (1998) examined social anxiety, peer activities, and perceptions of self competence in juveniles ages 6 to 11. Juveniles who reported high levels of social anxiety also perceived their social acceptance and global self-worth to be

low, and reported more negative interactions with peers. Further, socially anxious females viewed themselves as having less adequate social skills. Ginsburg and colleagues (1998) observed no sex differences in social anxiety on subscale or total scores on the Social Anxiety Scale for Children – Revised (SASC-R). Similarly, Strauss, Frame, and Forehand (1987) compared anxious and withdrawn versus non-anxious 2nd through 5th graders. Results suggested that teacher-identified anxious juveniles displayed a broad range of psychosocial difficulties relative to non-anxious juveniles in the areas of peer relations, depression, self-esteem, attention, school performance, and social behavior.

Only a handful of studies have examined the construct of social anxiety in chronically ill juveniles. This is surprising considering that many juveniles with chronic medical illnesses may feel stigmatized by their disease and distort the degree to which others are aware of their physical imperfections (Potter & Roberts , 1984). Vera and colleagues (1997) compared social anxiety, peer activities, and emotional adjustment in diabetic and non-diabetic girls between the ages of 13 and 19, and noted no differences between diabetic and non-diabetic girls in terms of the amount of time involved with social activities or diagnosis of anxiety disorders. Similarly, Meijer and colleagues (2000) examined social anxiety, peer activities, and self competence in 8- to 12-year-old juveniles with chronic illnesses in comparison to a normative group of healthy juveniles and observed no differences in terms of social activities, social self-esteem, or social anxiety, concluding that social consequences of a chronic medical illness were not

related to diagnosis. However, sex differences did emerge in this study, with female participants evidencing more prosocial behavior and social anxiety than males.

Developmental Issues

Although empirical evidence does not robustly support the contention that chronic illness plays a significant role in the development of peer interaction problems, limitations in the available literature affect the viability of this conclusion. The most pervasive limitation inherent in the literature is the lack of attention paid to the role of developmental issues in the expression of these constructs.

Developmental issues are of great importance when evaluating the appropriateness of specific social skills at various ages, as the complexity of skills necessary to achieve social goals changes across the developmental span. For example, early childhood friendships often center on play activities and group acceptance, where appropriate social skills consist of knowing how to enter ongoing games, being a sharing and helping play partner, and refraining from aggression (Buhrmester, 1990). In contrast, adolescent friendships demand greater facility in a number of interpersonal competencies, such as initiating conversations, appropriately disclosing personal information, providing emotional support to friends, and effectively managing conflicts (Buhrmester, 1990).

Very few studies have explored the differential impact of age on the relation between social skills and social competence. As previously described, Buhrmester (1990) assessed the quality of peer relationships, social skills, social competence, and emotional adjustment in preadolescent (ages 10-13) and adolescent (ages 13-16)

juveniles and found that the detrimental effects of inadequate social skills became more prominent with age. Similarly, Engels and colleagues (2002), in their study of peer activities of younger (ages 12-14) and older (ages 15-18) juveniles observed that the relation between social skills and perceived relational competence varied as a function of age. These findings support the contention that juveniles deficient in social skills are likely to experience increasing peer relationship difficulties with age because more complex peer interaction strategies are required to achieve social goals (Burhmester, 1990).

Likewise, relatively few studies have examined developmental changes in the association between social anxiety and social competence. Vera and colleagues (1997) found no significant differences between younger diabetic girls (ages 12-15) and older diabetic girls (ages 16-19) on measures of anxiety or depression. However, differences were observed in self-consciousness, which was higher for younger girls. In contrast, Engels and colleagues (2001), in a comparison of 12- to 14-year-olds and 15- to 18-year-olds, noted that associations between attachment, social skills, social anxiety and relational competence were significantly weaker in early adolescents. In addition, no significant gender differences were observed in either age group in the strength of associations among parental attachment, social skills, social anxiety, social competence, and emotional adjustment (Engels et al., 2001). Therefore, empirical evidence for a differential impact of development on the relation between social anxiety and social competence has been equivocal to date.

PARENT-CHILD RELATIONSHIPS

Parental Protectiveness and Social Competence

Parent-child relationship variables have also been suggested to influence the development of social competence. For example, the quality of parental protectiveness is one parent-child relationship variable thought to impact this association (Spirito et al., 1991). Parents must invariably balance the need to foster autonomy and initiative in the child with their responsibility to protect the child from harm and unnecessary suffering. However, *parental overprotection* is described as a level of maternal or paternal protection that is excessive, taking into account the developmental level and abilities of the child (Thomasgard et al., 1995). Parenting characteristics associated with this construct include increased levels of supervision, discouragement of independent behavior, and authoritarian parenting styles.

Protective parenting behaviors can be reinforced many ways. For example, they can be negatively reinforced by serving to avoid difficult situations for the child and thereby reducing the parent's emotional discomfort (Power, Dahlquist, Thompson, & Warren, 2003). In addition, parental self-esteem may be maintained through controlling behaviors aimed at discouraging the development of autonomy in the child (Thomasgard & Metz, 1993). In any case, protective parenting behaviors serve to limit the types of peer interaction experiences required to develop social competencies and promote psychosocial adjustment (Spirito, et al., 1991).

Thomasgard and Metz (1996), in a longitudinal study of the effect of perceptions of child vulnerability and parental protectiveness in mothers of juveniles ages 4 to 7,

found that overprotected children exhibited lower school competence scores. In addition, results suggested that although both perceived child vulnerability and parental protectiveness tended to abate as the preschool child reached school age, a substantial percentage (20%) of mothers who initially perceived their children as vulnerable subsequently became overprotective. Similarly, Noom, Dekovic, and Meeus (1999) surveyed autonomy, academic competence, and self esteem in juveniles ages 12 to 18, and observed all aspects of autonomy to be significantly and positively related to social competence, academic competence and self-esteem. In addition, no sex differences were observed in this study with regard to social competence.

The risk of parental protectiveness for juveniles with a chronic medical illness is particularly noteworthy, as overprotection in this population may develop as a response to high levels of illness-related anxiety in parents (Parker & Lipscombe, 1979). A high degree of parental involvement is often adaptive, as many of these illnesses require intensive medical management. However, excessive (less adaptive) protection can develop as a parent's investment in facilitating positive health outcomes conflicts with the juvenile's developing autonomy (Holmbeck et al., 2002). Through this mechanism, chronic illnesses sometimes reinforce excessive parental involvement and undermine autonomy development in juveniles. Such inhibition of autonomy is expected to impede the development of social competence.

Although numerous authors have commented on the risks associated with protective parenting received by juveniles with chronic illness, empirical support for this notion is limited. Holmbeck and colleagues (2002) compared 8- to 9-year-old juveniles

with spina bifida to able-bodied juveniles on measures of parental protectiveness, autonomy, and emotional adjustment. They found that mothers and fathers of children with spina bifida were significantly more protective than their counterparts in the able-bodied sample. Further, measures of parental protectiveness (i.e., maternal and paternal) were negatively associated with autonomy and positively associated with externalizing and internalizing problems. In addition, for the spina bifida sample, a mediational model was supported such that parental protectiveness was associated with less behavioral autonomy, which was, in turn, associated with more externalizing problems.

Cappelli and colleagues (1989) compared juveniles ages 7 to 18 with cystic fibrosis to healthy juveniles on parent measures of parenting style and behavior problems. Although no differences were observed in overall levels of parental care or protectiveness between healthy children and children with cystic fibrosis, protectiveness was associated with greater behavioral problems only in juveniles with cystic fibrosis. Also, for healthy children, greater behavioral problems were associated with either maternal lack of care or lack of parental control. In addition, sex differences emerged with regard to parental protectiveness, with mothers of female participants with cystic fibrosis rating themselves as more protective than mothers of males with cystic fibrosis.

In contrast, Thomasgard and Metz (1997), in a survey of parents of juveniles 5 to 10 years old, found no significant association between parental protectiveness and presence of a medical condition. However, parents who reported the presence of a medical condition in their child were significantly more likely to view their child as vulnerable. Similar to previous findings (e.g., Thomasgard & Metz, 1996), 35% of

juveniles considered vulnerable by their parents were also categorized as overprotected, compared to 13% among those not considered vulnerable, again suggesting a possible link between perceived child vulnerability and subsequent protective parental behavior.

Attachment Security and Social Competence

Attachment security represents another parent-child relationship variable thought to impact the development of social competence. An *attachment* has been defined conceptually as an important long-term relationship that a juvenile has with certain specific persons, usually primary caregivers (Rice, 1990). Attachment theory grew out of the work of Bowlby (1977), who argued that a strong causal relationship emerges between an individual's early experiences with parents and later capacity to make affectional bonds.

Researchers have suggested that an early attachment relationship results in the juvenile developing an internal working model of the self in relation to others (Booth, Krasnor, & Rubin, 1991; Engels, et al., 2001; Noom, et al., 1999; Weinfield, Ogawa, & Sroufe, 1997). For example, perceptions of available and responsive parenting are suggested to promote feelings of security, confidence and self-assuredness when the juvenile is introduced to novel settings, leading to active exploration of the social environment. In turn, exploration of the social environment leads to the types of peer interaction experiences that are crucial in the development of social competencies. Alternatively, insecure attachment may promote the development of internal working models associated with cognitions of a distressing and unpredictable environment, leading to uneasiness or avoidance behavior in peer interactions. The influence of

attachment on the development of social competence is posited to be persistent and resistant to change (Mrazek, Casey, & Anderson, 1987). Indeed, Bowlby (1977) originally conceptualized attachment as a lifespan construct, with attachment styles enduring across childhood and into adulthood.

Unfortunately, no studies to date have examined the construct of attachment in juveniles with chronic illness. However, ample studies have supported the conjecture that secure attachment is associated with social competence and emotional adjustment in healthy juveniles. Rice (1990), in a meta-analysis of 24 studies, found that the attachment relationship consistently and positively corresponded to social outcomes well into adolescence. More specifically, juveniles who reported secure, trusting attachment relationships with their parents also reported high levels of social competence and general life satisfaction. The finding that attachment to parents contributes to adolescent adjustment suggests continuity in the importance of parent-child relationships well into late adolescence.

Several subsequent studies have examined this association. For example, Verschueren and Marcoen (1999) evaluated the attachment security and social competence of juveniles between the ages of 4 and 7, and observed significant associations between attachment (both mother and father) and social competence. Similarly, DiTommaso et al. (2003) examined attachment security and peer relationships in university students, and noted higher security scores to be significantly related to indices of psychosocial adjustment. In addition, DiTommaso and colleagues found support for a mediational effect of social skills on the relation between attachment

security and social loneliness. Sex differences also emerged in this study, with female participants showing more preoccupation with attachment than males.

Developmental Issues

As with peer interaction variables, the influence of parent-child relationship variables on social competence is best understood from a developmental perspective. With respect to parental protectiveness, a model is emerging of autonomy development as a normative part of juvenile development, but one that also presents significant challenges. With age, overcontrolling parental behavior becomes increasingly developmentally inappropriate, and evidences a progressively negative impact on psychosocial development (Steinberg et al., 1994). Adolescence, in particular, represents a time of significant changes in children's relationships with both their peers and their parents. Adolescents place greater emphasis on peer relationships, while at the same time spending less time with parents. These simultaneous processes seem to be important components in the negotiation of the power balance and authority in parent-child relationships that takes place during adolescence (Fulgini & Eccles, 1993). In support of this view, Steinberg and colleagues (1994) sampled parenting style and psychosocial adjustment in 14- to 18-year-old juveniles and their parents and found that adolescents growing up in authoritarian homes showed an increase in problem behavior over a 1-year period.

Responsibilities for medical treatment shift gradually from parent to a shared status with the chronically ill child during middle childhood, as juveniles become more competent participants in the treatment process (Anderson & Coyne 1991). However,

parental involvement in treatment is frequently challenged during adolescence, when needs for autonomy and peer acceptance abruptly shift. Therefore, researchers have speculated that the transition to full responsibility for illness-management will be smoother by facilitating gradual shifts toward independent self-care at developmentally appropriate rates (Miller & Wood, 1991).

Unfortunately, few studies have investigated developmental differences in the relation of attachment and social competence in juveniles, and none have explored these differences in juveniles with chronic illness. However, Engels and colleagues (2001) observed significantly weaker associations between attachment, and social competence (i.e., social skills and social anxiety) in early adolescents compared to older adolescents.

INTEGRATION OF FINDINGS

Although the current literature review has discretely explored several key variables influential in the development of social competence, these phenomena rarely occur in isolation within the environmental context. Therefore, it is only by examining concurrent relationships among these variables that a bridge can successfully be made between knowledge and application.

Although no studies to date have examined developmental differences in the relation between parent-child relationship variables, peer interaction variables, and psychosocial adjustment in chronically ill juveniles, empirical investigations of the simple associations between parent-child relationship variables and peer interaction variables do exist. Regarding parental protectiveness, Melby, Conger, Conger, and Lorenz (1993) evaluated parental childrearing strategies in juveniles ages 12 to 14 and found parental strictness and a lack of flexibility in rearing practices to be related to “deviant” behavior and a distorted development of social skills. In addition, Engels and colleagues (2002) assessed mechanisms linking parenting style and adolescent functioning in 12- to 18-year-olds. Although results provided some evidence that juveniles' social skills mediated the effects of autonomy and parental attachment on the degree of psychosocial adjustment, direct parental influence on peer relations remained apparent even after controlling for the effects of social skills. In these scenarios, the authors proposed that by reinforcing dependency, restricting individual freedom, and “protecting” the child from the consequences of his or her disease, protective parenting styles limit a child’s opportunities to gain skills in interpersonal relationships, thus

interfering with the development of the social skills needed to function effectively in the social environment (Power et al., 2003). Moreover, these skill deficits potentiate increasing peer relationship difficulties with age as more complex peer interaction strategies are required to achieve social goals (Buhrmester, 1990; Engels et al., 2002).

The influence of parental protectiveness on the development of social anxiety has also been examined. Bruch (1989) assumed three parental practices that may foster social fears: (a) parents' concern with other people's evaluation; (b) parent's social isolation of the child; and (c) lack of family sociability. In this regard, encouraging autonomy is important because it increases exposure to novel social situations leading to the extinction of social fears (Bruch, 1989). Engels and colleagues (2002) found that children (ages 12 to 18) of parents who stimulated autonomous and independent behavior were less anxious in social situations. Other researchers (Arrindell et. al, 1983; Parker, 1979) observed social phobics to describe their parents as significantly more protective compared to non-diagnosed control groups. In contrast, Boegels et al. (2001) compared socially anxious and non-anxious juveniles and noted that although females reported higher levels of social anxiety overall, socially anxious juveniles did not differ from non-anxious juveniles with respect to parental protectiveness.

Researchers hypothesize that, similar to parental protectiveness, attachment security predicts better social skills and less social anxiety over time because secure attachment relationships make available a secure base from which environmental and social exploration is promoted. Also, a secure attachment organization may allow juveniles to process and integrate social experiences more effectively, allowing them to

better read subtle emotional cues in interactions with peers over time (Allen et al., 2002). Therefore, secure attachment not only enhances opportunities to practice social skills with peers, but also provides increased exposure to peer models, allowing for appropriate management of social anxiety.

Empirical studies have shown that attachment security is positively related to social skills. Allen and colleagues (2002) investigated attachment security and social skills in 16- to 18-year-old juveniles with academic risk factors (e.g., absences, suspensions, or poor grades). Results indicated that attachment security was a significant predictor of social-problem-solving skills at age 18, even after accounting for levels of skills at age 16, such that attachment security predicted skill gains. In addition, sex differences were observed in problem-solving skill gains, with female participants making larger gains than males. Similarly, Weinfield and colleagues (1997) assessed attachment styles and social skills in adolescents ages 15 to 16 and noted that securely attached juveniles were rated higher on social skills than either avoidant or anxious/resistant juveniles.

Few empirical studies have investigated the relation of parental attachment and social anxiety. However, Engels and colleagues (2002) surveyed younger (ages 12-14) and older (ages 15-18) juveniles, and observed that respondents who were more strongly attached to their parents were less anxious in social situations.

Although relatively little data exists on developmental differences in attachment behavior from late childhood to early adolescence, Engels and colleagues (2001) found that although indicators of parental attachment were not related to social skills or anxiety

to perform social skills in early adolescents (12-14 years), indicators of parental attachment were related to these constructs in older (15-18 years) adolescents. They suggested that in middle adolescence, with the increasing complexity and diversity of peer relations, perceived parent-adolescent interactions are helpful in providing less anxiety to perform social skills as well as in improving the actual performance of skills required for the initiation and maintenance of satisfactory peer relations (Engels et. al, 2001).

As stated previously, no studies to date have examined developmental differences in relations among parent-child relationship variables, peer interaction variables, and psychosocial adjustment in chronically ill juveniles. This is peculiar given empirical evidence suggesting that chronically ill juveniles may be especially vulnerable to deficits in psychosocial adjustment due to problems specific to these areas (Cappelli et. al, 1989; Holmbeck et al., 2002; La Greca, 1990; Thomasgard & Metz, 1997; Vera et. al, 1997; Zbikowski et al., 1998). Given these findings, it may be that, compared to healthy juveniles, chronically ill juveniles provide researchers a more focused sample in which to observe the interaction of these variables. In addition, the prevalence of chronic illnesses such as asthma and diabetes in juveniles also speaks to the need for further research to promote psychosocial adjustment in these young people.

HYPOTHESES

The purpose of this study was to extend the literature by exploring developmental differences in patterns of interaction among variables predicted to influence social competence in juveniles with asthma or diabetes. Specifically, parent-child relationship variables and peer interaction variables were expected to influence these relations. Peer interaction variables thought to influence social competence included social skills and social anxiety. Parent-child relationship variables included parental protectiveness and attachment security. Adolescents were defined as persons aged 12 to 16 years and pre-adolescents were defined as persons aged 7 to 11 years. Specific hypotheses were:

1. Social skills would be more highly correlated with social anxiety and social competence in adolescents than in preadolescents.
2. Both social anxiety and social skills would mediate the relation between the quality of parental protectiveness and social competence in adolescents. In contrast, social anxiety, but not social skills, would mediate the relation between the quality of parental protectiveness and social competence in preadolescents (see Figure 1).
3. Social skills would mediate the relation between the quality of parental protectiveness and social anxiety in adolescents, but not in preadolescents (see Figure 2).
4. Both social anxiety and social skills would mediate the relation between attachment security and social competence in adolescents (see Figure 3).

5. Social skills would mediate the relation between attachment security and social anxiety in adolescents (see Figure 4).

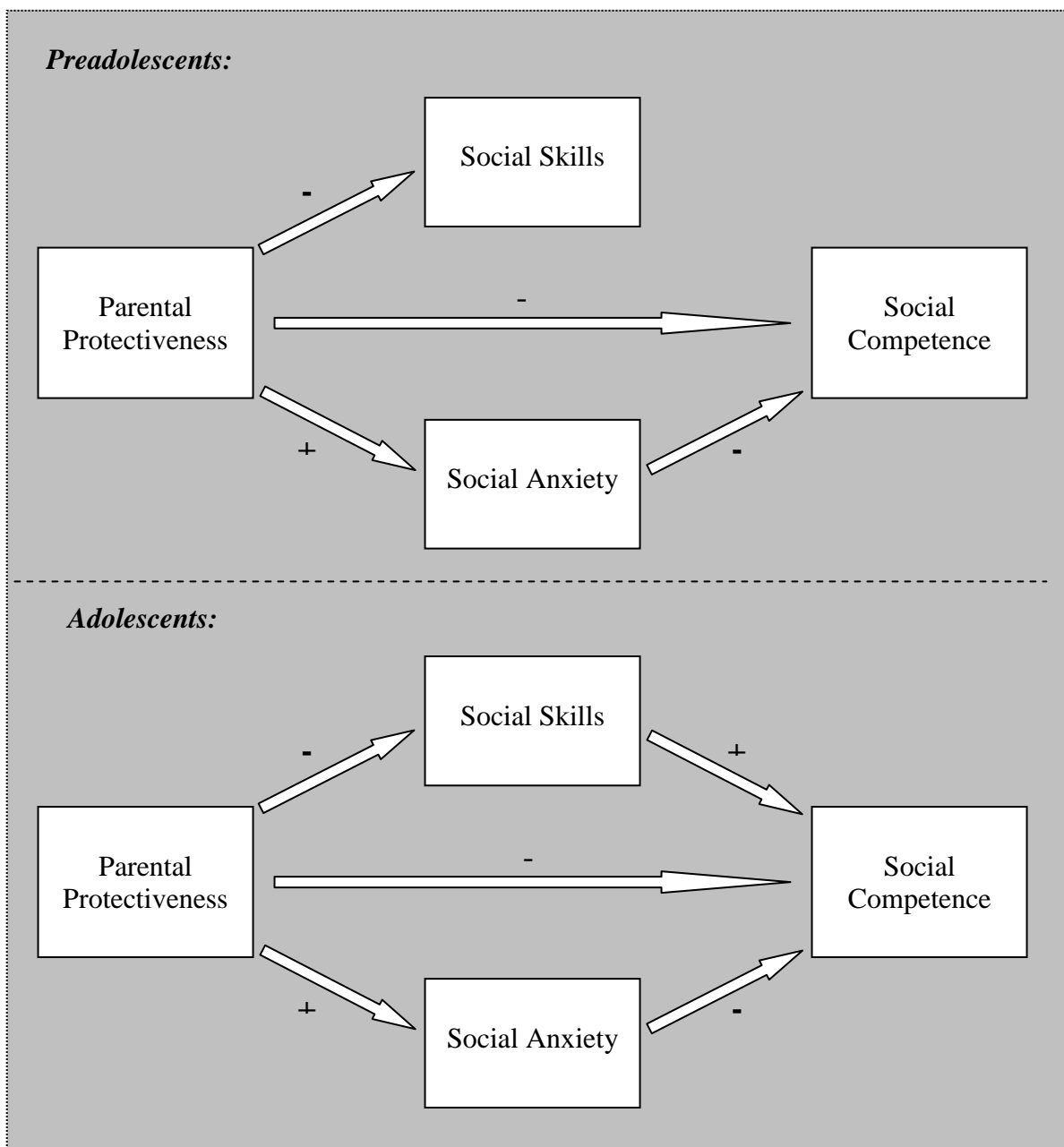


Figure 1. Key variable relations in the association of parental protectiveness and social competence for preadolescents and adolescents.

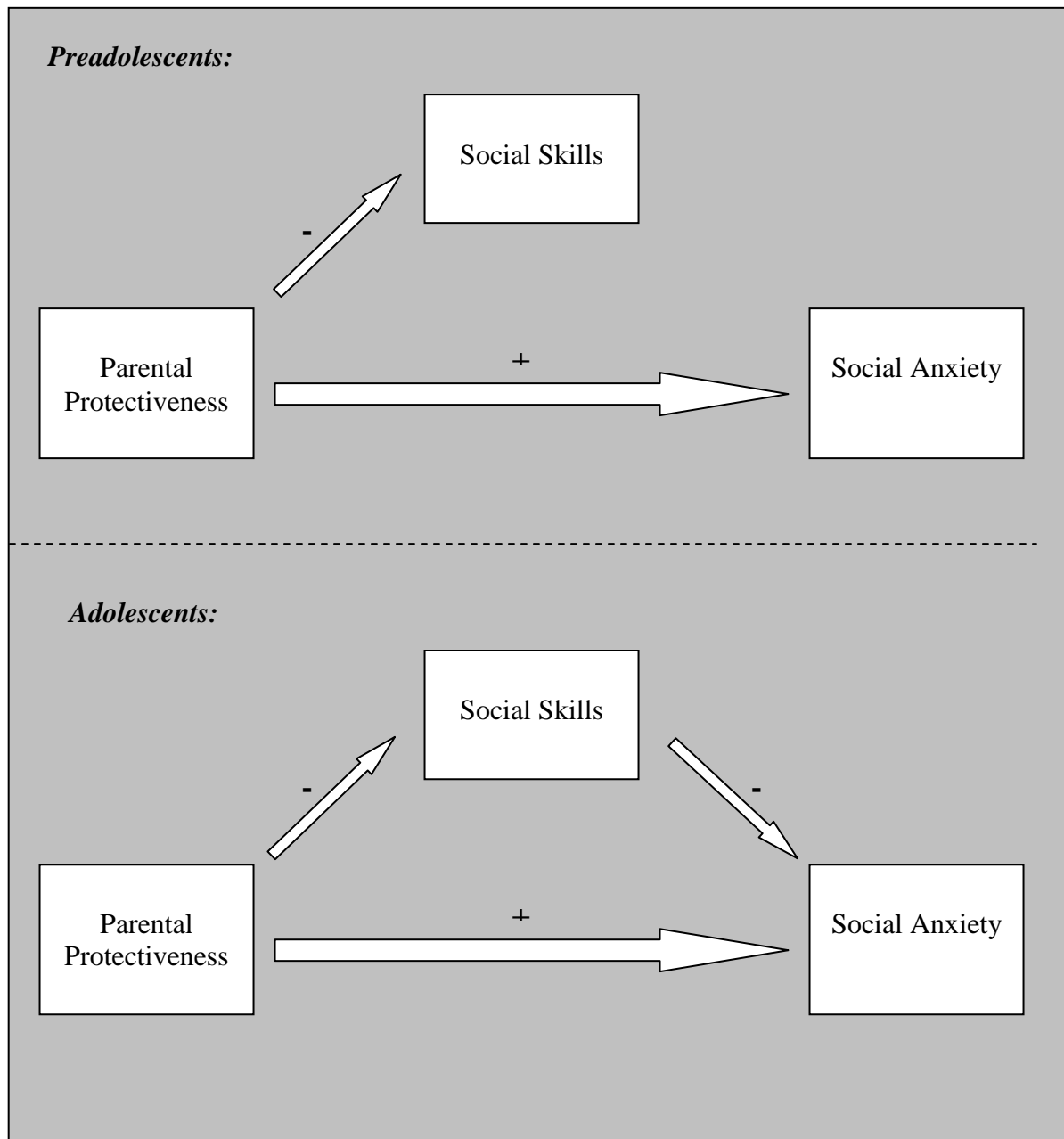


Figure 2. Key variable relations in the association of parental protectiveness and social anxiety for preadolescents and adolescents.

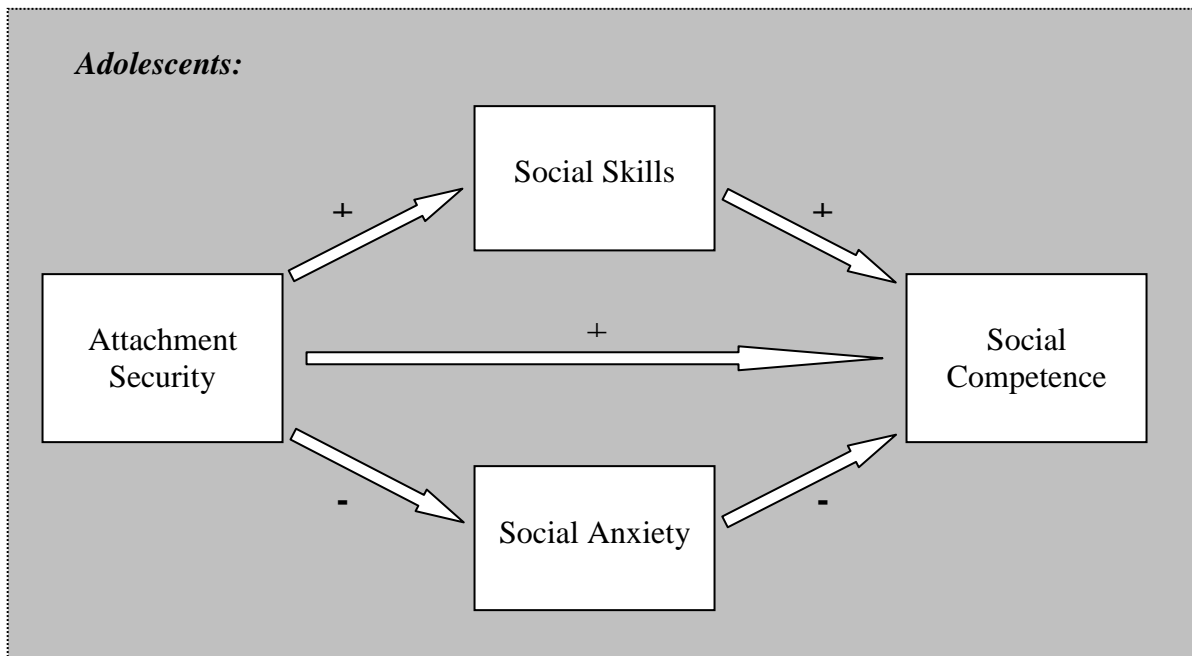


Figure 3. Key variable relations in the association of attachment security and social competence for preadolescents and adolescents.

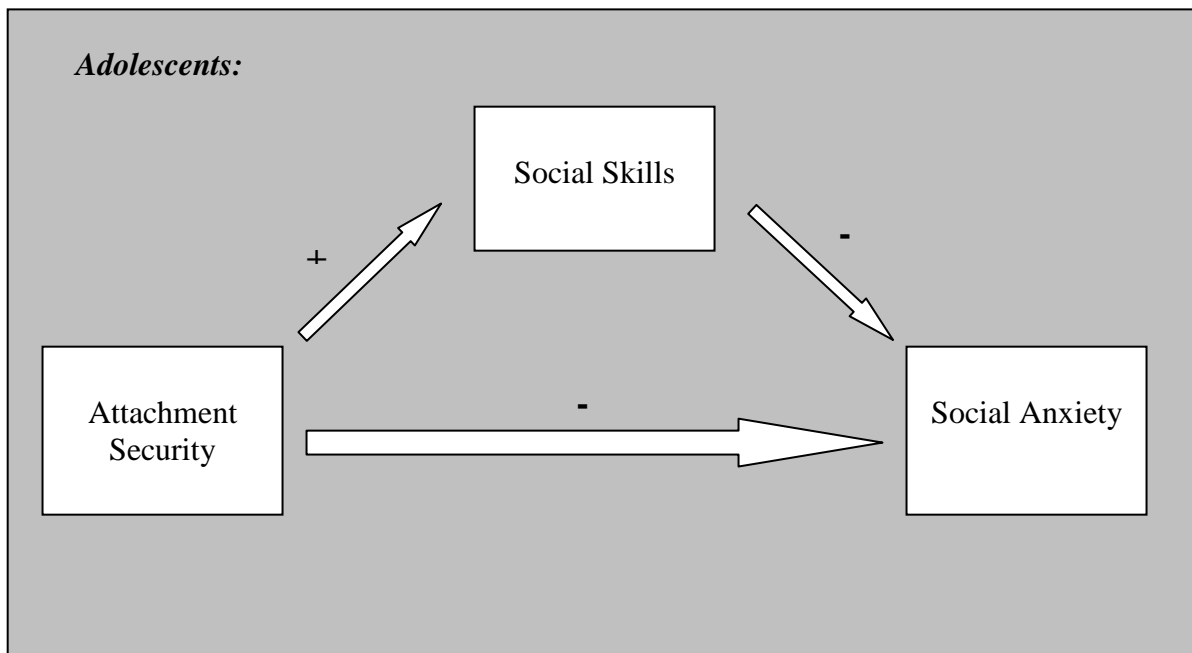


Figure 4. Key variable relations in the association of attachment security and social anxiety for preadolescents and adolescents.

METHOD

Participants

Completed measures were obtained by 61% of 292 consenting parent/child dyads. As such, the current sample was composed up 178 juveniles ages 7 to 16 years and their parents. Participants were recruited from four summer camp sessions for juveniles with asthma and diabetes located in the states of Texas and Oklahoma. Table 1 includes demographic characteristics of the sample. Each parent-child dyad was given a \$10.00 gift certificate to Wal-Mart for their participation in the study.

Procedure

Camp registration materials included a letter of consent inviting the participation of parents whose children would be attending the camps. At the time of consent, parents completed a demographic questionnaire and child medical history questionnaire. These materials were returned by mail to the researchers. All remaining parent questionnaires were then completed either by mail, at a parent orientation meeting, or on the first day of summer camp. Children of consenting parents completed questionnaires in supervised group administration format on the first day of camp. Undergraduate students from Texas A&M University assisted in data collection at the camps.

Measures

Demographic information. A demographic questionnaire was created to gather basic information about the participating child and parent (see Appendix A).

Child medical history. A child medical history questionnaire (see Appendix B, C) was created to gather information about participating juveniles with regard to medical

Table 1

Sample Demographics

Demographic variable	Asthma (N=38)	Diabetes (N=139)	Male (N=77)	Female (N=98)	Total sample (N=178)
Camp attended					
Camp Sandcastle	--	11 (7.9)	6 (7.8)	5 (5.1)	11 (6.2)
Texas Lions Camp 1	--	58 (41.7)	27 (35.1)	31 (31.6)	58 (32.6)
Texas Lions Camp 2	--	43 (30.9)	15 (19.5)	26 (26.5)	43 (24.2)
Weenoweez	12 (31.6)	--	18 (10.4)	4 (4.1)	12 (6.7)
Camp Endres	--	27 (19.4)	11 (14.3)	16 (16.3)	27 (15.2)
Broncho	26 (68.4)	--	10 (13.0)	16 (16.3)	26 (14.6)
Diagnosis					
Asthma	38	--	18 (23.4)	20 (20.4)	38 (21.5)
Diabetes	--	139	59 (76.6)	78 (79.6)	139 (78.5)
Comorbid health Conditions	5 (13.1)	24 (17.3)	--	--	29 (16.4)
Age in years					
<i>M (SD)</i>	11.0 (1.9)	12.1 (2.1)	11.6 (2.1)	12.1 (2.1)	11.9 (2.1)
Range	7-14	8-16	8-16	7-16	7-16
Sex					
Male	18 (47.4)	59 (42.4)	--	--	77 (43.3)
Female	20 (52.6)	78 (56.1)	--	--	98 (55.1)
Ethnicity					
Euro-American	17 (41.7)	105 (75.5)	51 (66.2)	70 (71.4)	122 (68.5)
African-American	8 (21.1)	6 (4.3)	8 (10.4)	6 (6.1)	14 (7.9)
Biracial	4 (10.5)	8 (5.8)	4 (5.2)	8 (8.2)	12 (6.7)
Hispanic	3 (7.9)	7 (5.0)	7 (9.1)	3 (3.1)	10 (5.6)
Native-American	--	5 (3.6)	1 (1.3)	4 (4.1)	5 (2.8)
Other	--	2 (1.4)	1 (1.3)	1 (1.0)	2 (1.1)
Parent marital status					
Married	21 (55.3)	99 (71.2)	46 (59.7)	73 (74.5)	120 (67.4)
Separated/Divorced	6 (15.8)	26 (18.7)	17 (22.1)	15 (15.3)	32 (18.0)
Single	5 (13.2)	7 (5.0)	7 (9.1)	5 (5.1)	12 (6.7)
Widowed	--	3 (2.2)	2 (2.6)	1 (1.0)	3 (1.7)

Table 1 (continued)

Demographic variable	Asthma (N=38)	Diabetes (N=139)	Male (N=77)	Female (N=98)	Total sample (N=178)
Family's annual income					
<\$25,000	7 (18.2)	22 (15.9)	14 (18.2)	15 (15.3)	29 (16.3)
\$25,000-49,999	6 (15.8)	39 (28.0)	28 (35.1)	17 (17.3)	45 (25.3)
\$50,000-75,999	4 (10.5)	27 (19.4)	9 (11.1)	22 (22.4)	31 (17.4)
\$75,000-99,999	2 (5.3)	21 (15.1)	8 (10.4)	15 (15.3)	23 (12.9)
>\$99,999	10 (26.4)	17 (12.3)	11 (14.3)	16 (16.4)	27 (15.2)
Unknown	9 (23.7)	13 (9.4)	8 (10.4)	13 (13.3)	23 (12.9)
Parent's level of education					
Less than G.E.D.	2 (5.3)	6 (4.3)	2 (2.6)	6 (6.1)	8 (4.5)
High school graduate/ G.E.D.	3 (7.9)	16 (11.5)	9 (11.7)	10 (10.2)	19 (10.7)
Some college or vocational/ technical school	10 (26.3)	41 (29.5)	27 (35.1)	24 (24.5)	51 (28.7)
2-year college or vocational/technical school graduate	6 (15.8)	21 (15.1)	10 (13.0)	17 (17.3)	27 (15.2)
4-year college graduate	5 (13.2)	35 (25.2)	14 (18.2)	26 (26.5)	40 (22.5)
Graduate degree	5 (13.2)	15 (10.8)	9 (11.7)	10 (10.2)	20 (11.2)
Unknown	7 (18.4)	5 (3.6)	6 (7.8)	5 (5.1)	13 (7.3)

Note. Values listed are Frequency (percentage) unless otherwise indicated.

diagnosis, time since diagnosis, presence of comorbid chronic health conditions, information about all medications prescribed for asthma or diabetes within the past year, history of medical problems related to asthma or diabetes, and morbidity variables for the past year (see Table 2).

Social skills. The Social Skills Rating System (SSRS; Gresham & Elliot, 1990) was used to assess social skills. The SSRS includes both parent and student forms sampling social skills on the domains of cooperation, assertion, responsibility, empathy, and self-control. In addition, the SSRS is designed to be sensitive to developmental differences among juveniles, such that forms are available for specific developmental levels. Elementary (grades K-6) and secondary (grades 7-12) school levels were used in the present study.

Gresham and Elliott (1990) have proposed a 2-dimensional model, conceptualizing social skills as the product of the interaction between specific skills and interfering problem behaviors. Therefore, for the purposes of the current study, only the assertion and self-control subscales were employed. The assertion subscale samples initiating behaviors, such as asking others for information, introducing oneself, and responding to the actions of others, while the self-control subscale samples behaviors that emerge in conflict situations, such as responding appropriately to teasing, and in nonconflict situations that require taking turns and compromising (Gresham et al., 1990). Both the assertion and self-control subscales consist of 10 items apiece across parent and student forms.

Although the SSRS includes two types of ratings based on frequency and

Table 2

Child Medical History Information

Variable	Asthma (N=38)	Diabetes (N=139)
Duration of illness in years	7.62 (3.47)	--
Comorbid health conditions	5 (13.1)	24 (17.3)
Number of school days missed	6.15 (8.95)	2.81 (4.41)
Number of times taken to the doctor	1.84 (2.68)	.32 (1.09)
Number of times taken to the ER	.85 (1.89)	.34 (.85)
Number of times hospitalized	.40 (.90)	.28 (.70)

Note. Values listed are Frequency (percentage) unless otherwise indicated.

importance, only frequency ratings were utilized for the current study. Frequency ratings reflect “How Often” a social behavior occurs using a 3-point Likert rating format (i.e., Never, Sometimes, or Very Often). The current study utilized frequency ratings for the assertion and self-control subscales by additively combining scores across parent and student forms. The SSRS was standardized using a nationally representative sample of children and parents.

Gresham and Elliot (1990) reported good internal consistency across the parent and student forms of the SSRS, ranging from .83 to .90, with test-retest reliability coefficients ranging from .77 to .84 for parents, and from .52 to .66 for students. Collapsed across preschool, elementary, and secondary levels, the average (Fisher’s z transformation) convergent validity coefficient for total Social Skills was .24 ($p < .001$) for parent and student ratings (Gresham et al., 1990). In the current sample, correlations between parent and student form total scale scores were .25 in the preadolescent group and .26 in the adolescent group. Internal consistency data for all measures using the current sample are represented in Table 3.

Social Anxiety. The Social Anxiety Scales for Children and Adolescents (La Greca, 1999) were used to assess social anxiety in the context of peer relations, and included two measures. The Social Anxiety Scale for Children – Revised (SASC-R) was developed for use with preadolescents (ages 6-12), and the Social Anxiety Scale – Adolescents (SAS-A) was developed for use with adolescents (ages 12-18). Both the SASC-R and SAS-A were used in the present study.

Both the SASC-R and the SAS-A contain 18 items and 4 fillers in a 5-point

Table 3

Measure Reliability Indices for the Study Sample

Measure	Number of scale items	Cronbach's alpha
<i>Social Skills</i>		
SSRS Composite (elementary student form)	34	.91
SSRS Composite (secondary student form)	39	.90
SSRS Composite (elementary parent form)	38	.91
SSRS Composite (secondary parent form)	40	.90
SSRS Assertion & Self-control Subscales, combined (preadolescent group)	40	.86
SSRS Assertion & Self-control Subscales, combined (adolescent group)	40	.81
<i>Social Anxiety</i>		
SASC-R (preadolescent group)	22	.89
SAS-A (adolescent group)	22	.92
<i>Parental Protectiveness</i>		
PBI-BC Autonomy/Control Subscale (preadolescent group)	4	.40
PBI-BC Autonomy/Control Subscale (adolescent group)	4	.60
PBI-BC Care/Rejection Subscale (preadolescent group)	4	.58
PBI-BC Care/Rejection Subscale (adolescent group)	4	.53

Table 3 (continued)

Measure	Number of scale items	Cronbach's alpha
<i>Attachment Security</i>		
IPPA Parent Subscales (adolescent group)	50	.96
<i>Social Competence</i>		
BASC-SRP Interpersonal Relations Subscale (elementary student form)	10	.82
BASC-SRP Interpersonal Relations Subscale (secondary student form)	16	.71

Likert rating format. They contain three subscales: Fear of negative evaluation from peers (FNE); social avoidance and distress that is specific to new situations or unfamiliar peers (SAD-New); and social avoidance and distress that is experienced more generally when in the company of peers (SAD-General). Normative means and clinical cut-offs for the composite scores and subscales are provided for both measures.

La Greca (1999) reported adequate internal consistency across all subscales of both instruments, ranging from .69 to .86 for the SASC-R and .76 to .91 for the SAS-A. The 4-month test-retest reliability coefficients across all subscales of the SASC-R ranged from .51 to .63, with the 2-month test-retest reliability coefficients across all subscales of the SAS-A ranged from .54 to .78. Research has supported the validity of the SASC-R (La Greca & Stone, 1993) and SAS-A (La Greca & Lopez, 1998) for use with populations of chronically ill juveniles. Internal consistency data for all measures using the current sample are represented in Table 3.

Parental protectiveness. The Parental Bonding Instrument – Brief Current Form (PBI-BC; Klimidis, Minas, & Ata, 1992) was used to assess juveniles' perceptions of quality of parental protectiveness. The PBI-BC was developed to measure perceptions of current parental characteristics. It consists of two 4-item subscales tapping the dimensions of autonomy/control and care/rejection, and uses a 3-point Likert rating format. For the purposes of the current study, only the autonomy/control subscale was employed. Klimidis and colleagues (1992) reported good internal consistency for both the care/rejection (.75 to .80) and the autonomy/control (.72) subscales. Evidence has also been presented indicating adequate construct validity for the PBI-BC (Klimidis,

Minas, Ata, & Stuart, 1992). Internal consistency data for all measures using the current sample are represented in Table 3.

Attachment security. The Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) was used to assess juveniles' perceptions of parent attachment security. The IPPA was developed as a comprehensive measure of attachment to mother, father, and peers, and is composed of three subscales tapping perceptions of attachment in the domains of trust, communication, and alienation. Composite scores were additively combined from the first two sections of the IPPA measuring maternal and paternal attachment and used for the current study. These sections consist of 50 total items and use a 5-point Likert rating format.

Armsden and Greenberg (1987) reported good internal consistency for the subscales of the IPPA, ranging from .72 to .92, with three-week test-retest reliabilities of .93 for the Parent Attachment measure. Evidence has also been presented indicating adequate convergent validity for the IPPA compared to the Tennessee Self-Concept Scale, the Family Environment Scale, and the Inventory of Adolescent Attachment (Armsden et al., 1987). Internal consistency data for all measures using the current sample are represented in Table 3.

Social competence. The Behavior Assessment System for Children - Self Report of Personality (BASC-SRP; Reynolds & Kamphaus, 1998) was used to assess juveniles' self-perceptions of social competence. The BASC-SRP is a multidimensional measure of the behaviors and emotions of juveniles. BASC-SRP forms for the elementary (grades K-6) and secondary (grades 7-12) school levels were used in the present study.

To sample the construct of social competence, only the Interpersonal Relations subscale of the BASC-SRP was employed. The Interpersonal Relations subscale assesses an individual's reports of success at relating to others and the degree of enjoyment derived from this interaction. Low scores on this subscale indicate that an individual reports problems relating to others. The elementary form of the BASC-SRP contains 10 items for the Interpersonal Relations subscale, presented in a 5-point Likert rating format. The secondary form of the BASC-SRP contains 16 items, also presented in a 5-point Likert rating format.

Reynolds and Kamphaus (1998) reported good internal consistency for the Interpersonal Relations subscale across both the elementary (.81) and secondary (.82-.86) forms. Test-retest reliability coefficients for the Interpersonal Relations subscale were identical (.75) for both forms. Research has supported the discriminant and convergent validity of the BASC-SRP in comparisons with the Minnesota Multiphasic Personality Inventory, Behavior Rating Profile, and Children's Personality Questionnaire (Reynolds et al., 1998). Internal consistency data for all measures using the current sample are represented in Table 3.

RESULTS

Preliminary Analyses

Means and standard deviations for all substantive variables are presented in unstandardized form in Tables 4 and 5. Standard scores and/or *T*-scores for relevant variables are presented in Tables 6 and 7. Of note, there were no *T*-scores above 60 (i.e., “at-risk” range or above) on the BASC-SRP Interpersonal Relations subscale, suggesting no participants in the current sample evidenced significant deficits in social competence. Distributions of all variables were first examined for adherence to distributional assumptions of the inferential statistics used. Parental protectiveness scores and social competence scores were negatively skewed. Prior to analysis, parental protectiveness scores were reflected and transformed with a square root transformation, while social competence scores were reflected and transformed with a natural logarithmic transformation.

A 2 (Gender) x 2 (Age Group) x 2 (Illness Type) multivariate analysis of variance (MANOVA) was conducted to assess for demographic differences on primary variables utilized in the study. A significant multivariate main effect was observed for gender across the primary variables utilized in the study [$F(4,134)=2.74, p=.032, \eta^2=.075$], but no significant multivariate main effects for age group or illness type were found. Also, no significant interactions were observed among gender, age, or illness type. Of note, this analysis may have evidenced reduced power across multiple comparisons due to limited sample size. Tests of between-subjects effects were performed to examine the simple effects of gender across these variables (i.e., social

Table 4

Means and Standard Deviations of Substantive Variables by Age Group and Gender

Measure	Preadolescent		Adolescent	
	Female	Male	Female	Male
Social Skills (SSRS Assertion & Self-Control Subscales)	57.41 (8.87)	54.53 (10.90)	55.88 (10.88)	51.75 (7.63)
Social anxiety (SASC-R; SAS-A)	45.52 (14.21)	47.50 (16.52)	41.75 (17.14)	40.28 (13.15)
Parental protectiveness (PBI-BC Autonomy/Control Subscale)	5.15 (1.44)	4.35 (1.66)	4.40 (1.90)	5.00 (1.29)
Attachment security (IPPA Parent Subscales)	--	--	288.83 (54.63)	278.56 (38.98)
Social competence (BASC-SRP Interpersonal Relations Subscale)	8.85 (2.02)	8.03 (2.21)	14.57 (2.46)	13.27 (3.05)

Note. Values listed are Raw Score (standard deviation) unless otherwise indicated.

Table 5

Means and Standard Deviations of Substantive Variables by Age Group and Illness Type

Measure	Preadolescent		Adolescent	
	Asthma	Diabetes	Asthma	Diabetes
Social Skills (SSRS Assertion & Self-Control Subscales)	54.89 (12.68)	56.16 (9.10)	53.50 (9.75)	56.16 (8.55)
Social anxiety (SASC-R; SAS-A)	48.17 (16.24)	46.05 (15.27)	43.00 (9.49)	38.77 (13.68)
Parental protectiveness (PBI-BC Autonomy/Control Subscale)	4.63 (1.74)	4.74 (1.57)	4.75 (2.50)	4.63 (1.86)
Attachment security (IPPA Parent Subscales)	--	--	309.32 (23.38)	283.56 (49.93)
Social competence (BASC-SRP Interpersonal Relations Subscale)	7.91 (2.20)	8.57 (2.12)	15.50 (.58)	14.22 (2.71)

Note. Values listed are Raw Score (standard deviation) unless otherwise indicated.

Table 6

SSRS Scores and Descriptors by Group

Group	Raw Score	Standard Score	Percentile	Descriptor
<i>Student form</i>				
Preadolescent				
Female				
Assertion	14.12 (3.48)	--	--	Average
Self-Control	13.05 (3.85)	--	--	Average
Total Scale	59.99 (13.26)	106 (23.43)	66 th	Average
Male				
Assertion	13.37 (3.65)	--	--	Average
Self-Control	11.29 (4.25)	--	--	Average
Total Scale	53.19 (14.99)	102 (28.75)	55 th	Average
Adolescent				
Female				
Assertion	13.94 (3.55)	--	--	Average
Self-Control	11.66 (4.03)	--	--	Average
Total Scale	57.66 (10.88)	108 (20.38)	70 th	Average
Male				
Assertion	13.75 (3.05)	--	--	Average
Self-Control	12.36 (3.84)	--	--	Average
Total Scale	52.81 (11.54)	107 (23.38)	68 th	Average
<i>Parent form</i>				
Preadolescent				
Female				
Assertion	15.87 (3.07)	--	--	Average
Self-Control	13.71 (3.67)	--	--	Average
Total Scale	56.16 (10.58)	101 (19.03)	53 rd	Average
Male				
Assertion	16.08 (2.69)	--	--	Average
Self-Control	12.41 (3.98)	--	--	Average
Total Scale	53.96 (11.45)	103 (21.86)	58 th	Average
Adolescent				
Female				
Assertion	15.55 (3.41)	--	--	Average
Self-Control	13.59 (2.75)	--	--	Average
Total Scale	57.77 (11.37)	100 (19.68)	50 th	Average
Male				
Assertion	15.38 (3.22)	--	--	Average
Self-Control	13.16 (2.75)	--	--	Average
Total Scale	55.62 (8.14)	101 (14.78)	53 rd	Average

Note. SSRS Standard Scores have a mean of 100 and a standard deviation of 15.

Table 7

BASC-SRP Interpersonal Relations Subscale T-scores by Group

Group	T-score	
	<i>M</i>	<i>SD</i>
<i>Self Report</i>		
Preadolescent		
Female	52.65	(8.85)
Male	49.02	(10.10)
Adolescent		
Female	52.49	(6.85)
Male	49.31	(10.20)
Preadolescent		
Asthma	49.34	(10.32)
Diabetes	51.47	(9.29)
Adolescent		
Asthma	52.80	(7.77)
Diabetes	51.07	(8.45)

Note. BASC-SRP T-Scores have a mean of 50 and a standard deviation of 10.

skills, social anxiety, parental protectiveness, attachment security, and social competence). Congruent with previous research findings (DiTommaso et al., 2003; Meijer et al., 2000; Gresham et al., 1990), significant effects were observed across gender with respect to social skills, $F(1,134)=5.72, p=.018$, with females endorsing greater social skills than their male counterparts. Attachment security was assessed only in the adolescent group. Therefore, an additional 2 (Gender) x 2 (Illness Type) Factorial analysis of variance (ANOVA) was performed that revealed no significant multivariate main effects for gender or illness type on attachment security in the adolescent group.

Correlational analyses were used to examine the relationships among disease severity and primary variables utilized in the study (see Table 8). Disease severity, as measured by number of days missed from school in the past year, was significantly related to indicators of social skills ($r=-.19, p=.022$) and social anxiety ($r=.15, p=.049$). This supports previous research suggesting that chronic illness, by restricting physical activity and interrupting daily activities, limits juvenile's opportunities to develop social skills (La Greca, 1990).

Pairwise Comparisons of Correlation Coefficients

To perform pairwise comparisons of correlation coefficients between preadolescent and adolescent groups, the sample correlation coefficients were first transformed using the Fisher r -to- Z transformation. Z -test's were then performed, which revealed no significant correlational differences between age groups with respect to correlations between social skills and social anxiety ($z=.47, p>.05$), or social skills and social competence ($z=.30, p>.05$).

Table 8

Correlations among Variables of Interest across Groups

Variable	Disease Severity	Social Skills	Social Anxiety	Parental Protectiveness	Attachment Security	Social Competence
Disease Severity	--					
Social Skills	-.19*	--				
Social Anxiety	.15*	.23*	--			
Parental Protectiveness	-.12	.26**	-.23**	--		
Attachment Security	-.08	.50**	-.38**	.40**	--	
Social Competence	-.12	.43**	-.34**	.20*	.53**	--

* $p < .05$ ** $p < .001$

Mediated Models

Regarding mediation analyses, the following criteria were used to support a mediating link: (a) variations in levels of the independent variable (IV) must significantly account for variations in the presumed mediator (MV), (b) variations in levels of the independent variable (IV) must significantly account for variations in the dependent variable (DV), and (c) when the dependent variable is simultaneously regressed onto both the mediator and independent variable, variations in the mediator must significantly account for variations in the dependent variable. Full mediation is indicated if the independent variable has no effect on the dependent variable when the mediator is controlled (Baron & Kenny, 1986).

Parental protectiveness, social skills, and social competence Multiple regression analyses were computed to test the mediated model of parental protectiveness (IV) → social skills (MV) → social competence (DV) in the preadolescent and adolescent age groups (see figure 5). Parental protectiveness was not significantly related to social competence in the in the preadolescent group ($r=.18, p=.084$), failing to meet criterion “b” for mediation for this group.

However, in the adolescent group, parental protectiveness was significantly related to both social skills ($r=.25, p=.031$) and social competence ($r=.23, p=.023$), meeting criteria “a” and “b” for mediation. When social competence was simultaneously regressed onto social skills and parental protectiveness, social skills remained a significant predictor of social competence ($\beta=-.42; t(70)=-3.84; p<.001$), meeting

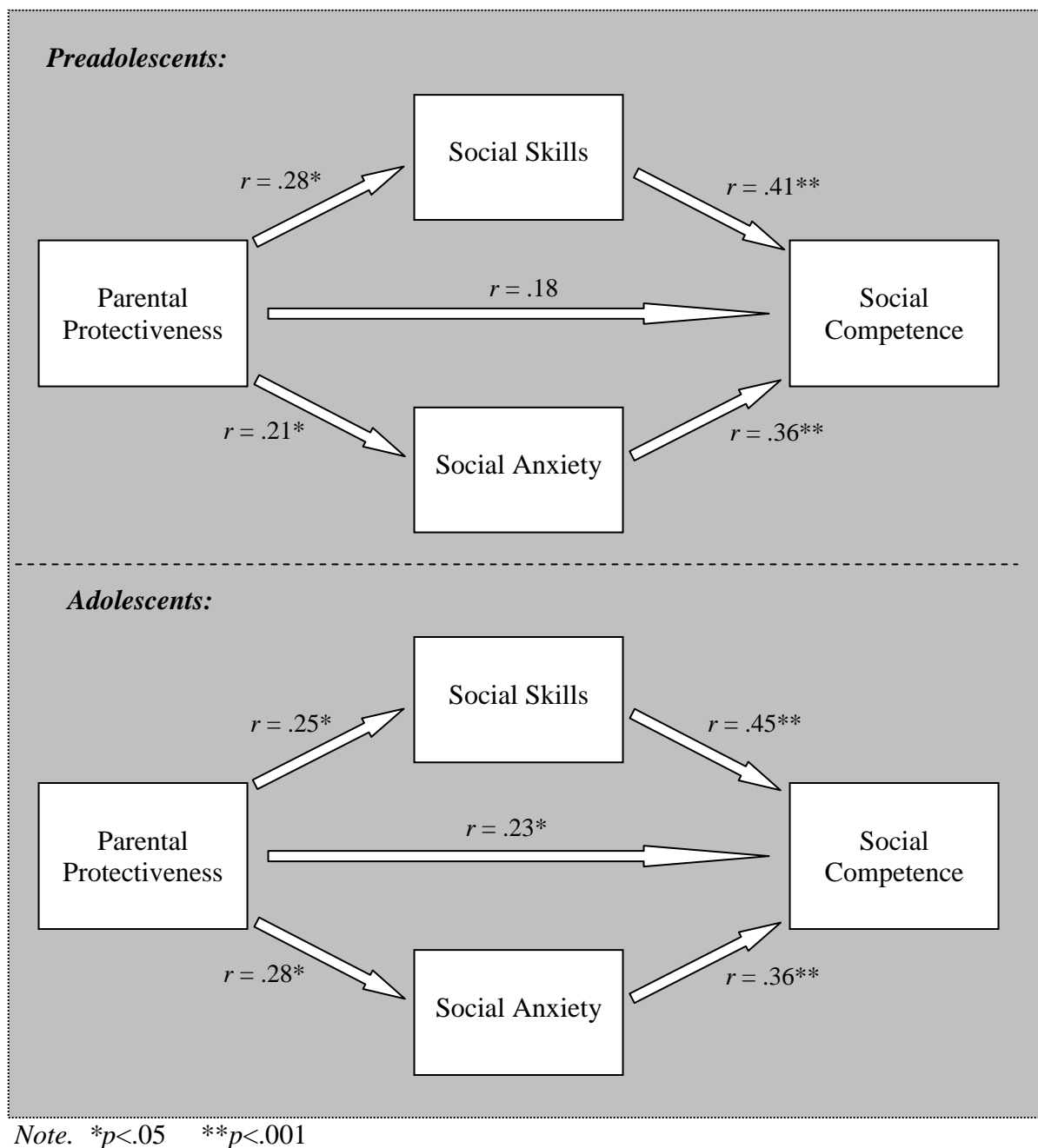


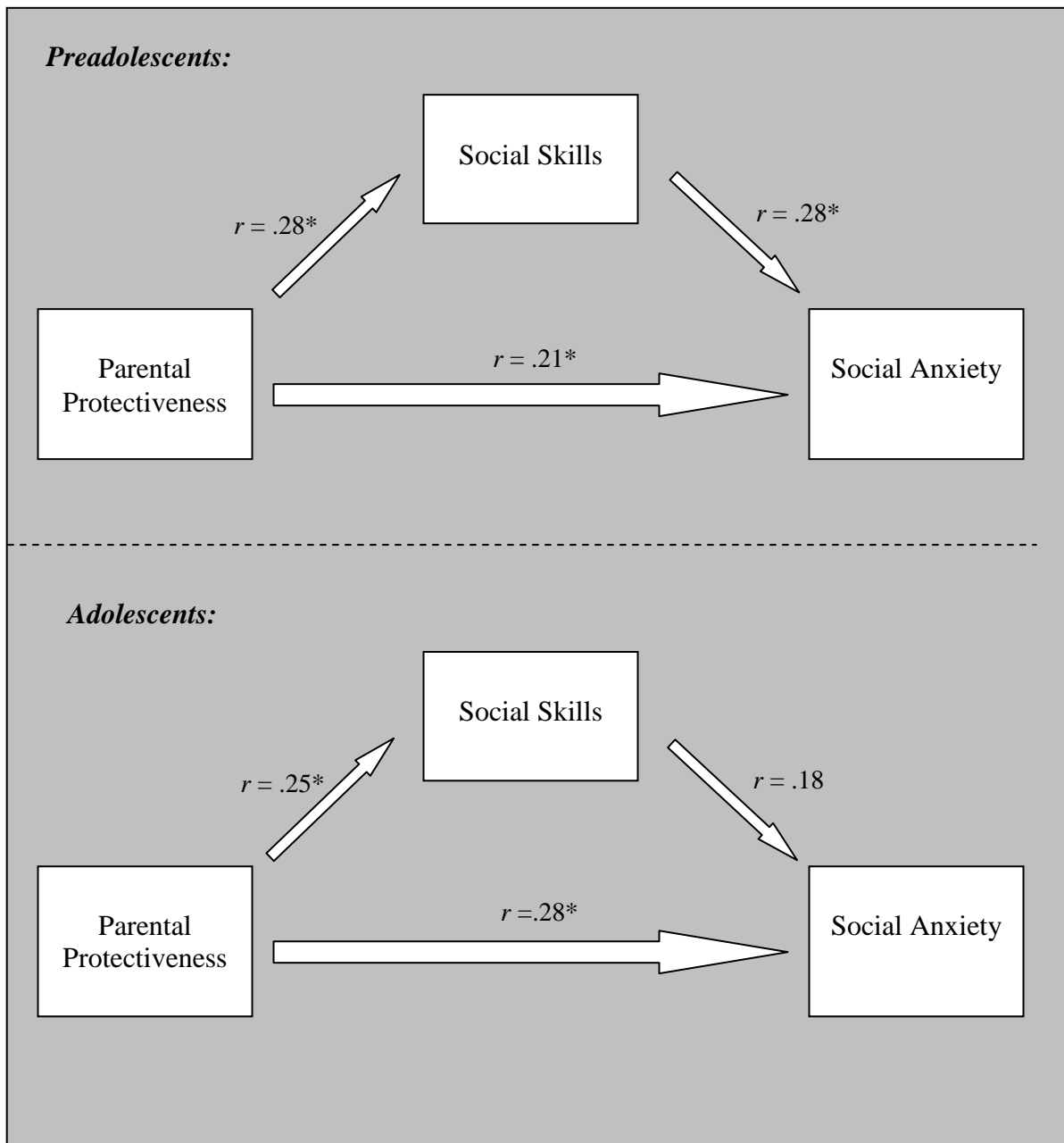
Figure 5. Relations among key variables in the association of parental protectiveness and social competence for preadolescents and adolescents.

criterion “c” for mediation. Further, parental protectiveness did not significantly add to the prediction of social competence after controlling for social skills ($\beta=.15$; $t(70)=1.34$; $p=.184$), suggesting a full mediational relationship for the adolescent group.

Parental protectiveness, social anxiety, and social competence. To test the mediated model of parental protectiveness (IV) \rightarrow social anxiety (MV) \rightarrow social competence (DV) across age groups, multiple regression analyses were again used (see figure 5). As stated above, parental protectiveness was not significantly related to social competence in the preadolescent group ($r=.18$, $p=.084$), failing to meet criterion “b” for mediation for this group.

In contrast, in the adolescent group, parental protectiveness was significantly related to both social anxiety ($r=-.28$, $p=.004$) and social competence ($r=.23$, $p=.023$), meeting criteria “a” and “b” for mediation. When social competence was simultaneously regressed onto social anxiety and parental protectiveness, social anxiety remained a significant predictor of social competence ($\beta=.32$; $t(92)=3.20$; $p=.002$), meeting criterion “c” for mediation. Further, parental protectiveness did not significantly add to the prediction of social competence after controlling for social anxiety ($\beta=.15$; $t(92)=1.51$; $p=.134$), suggesting a full mediational relationship for the adolescent group.

Parental protectiveness, social skills, and social anxiety. Multiple regression analyses were computed to test the mediated model of parental protectiveness (IV) \rightarrow social skills (MV) \rightarrow social anxiety (DV) across age groups (see figure 6). In the preadolescent group, parental protectiveness was significantly related to both social



Note. * $p < .05$ ** $p < .001$

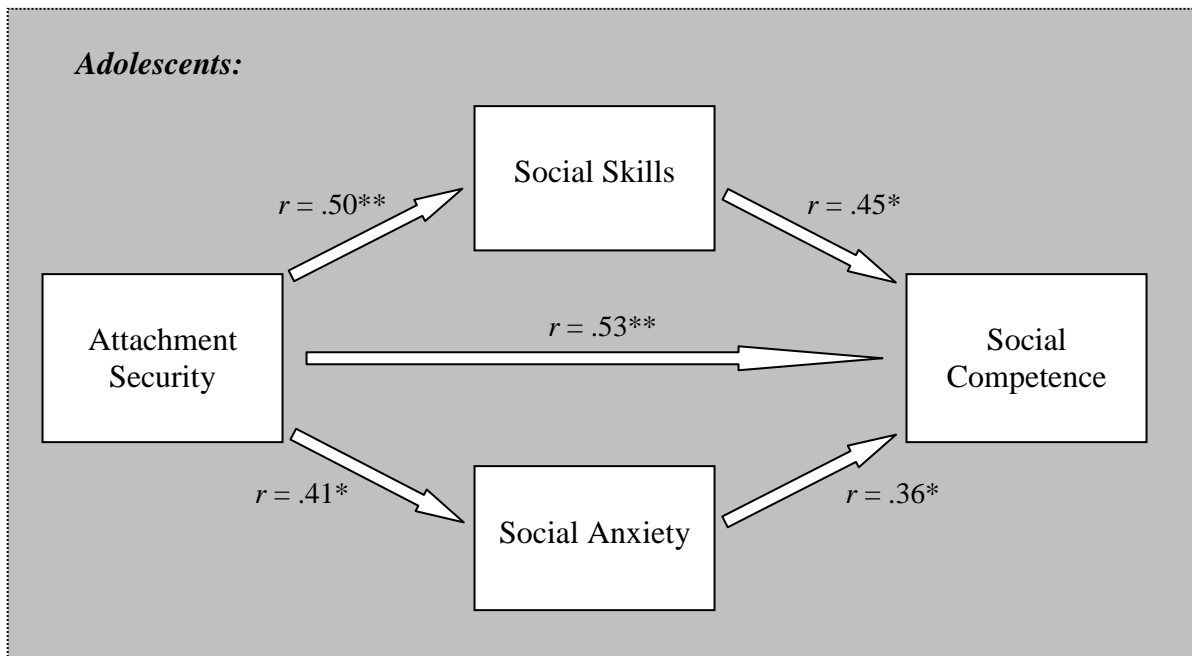
Figure 6. Relations among key variables in the association of parental protectiveness and social anxiety for preadolescents and adolescents.

anxiety ($r=.21, p=.032$) and social skills ($r=.28, p=.013$), meeting criteria “a” and “b” for mediation. When social anxiety was simultaneously regressed onto social skills and parental protectiveness, social skills remained a significant predictor of social anxiety ($\beta=-.25; t(76)=-2.17; p=.033$), meeting criterion “c” for mediation. Further, parental protectiveness did not significantly add to the prediction of social anxiety after controlling for social skills ($\beta=.10; t(76)=.91; p=.364$), suggesting a full mediational relationship for the preadolescent group.

In the adolescent group, parental protectiveness was significantly related to both social anxiety ($r=.28, p=.004$) and social skills ($r=.25, p=.031$), meeting criteria “a” and “b” for mediation. However, when social anxiety was simultaneously regressed onto social skills and parental protectiveness, social skills was not significantly predictive of social anxiety ($\beta=-.09; t(73)=-.812; p=.420$), failing to meet criterion “c” for mediation.

Attachment security, social skills, and social competence. Multiple regression analyses were computed to test the mediated model of attachment security (IV) → social skills (MV) → social competence (DV) in the adolescent group (see figure 7).

Attachment security was significantly related to both social skills ($r=.50, p<.001$) and social competence ($r=.53, p<.001$), meeting criteria “a” and “b” for mediation. When social competence was simultaneously regressed onto social skills and attachment security, social skills was not significantly predictive of social competence ($\beta=-.149; t(50)=-1.10; p=.277$), failing to meet criterion “c” for mediation.



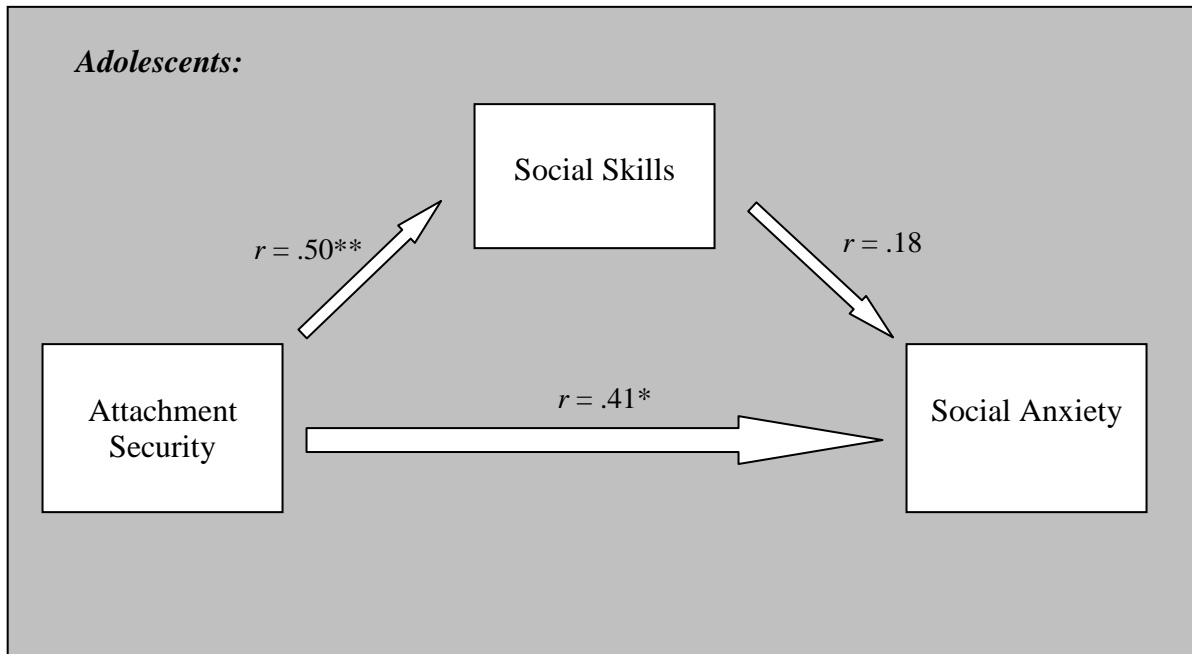
Note. $*p < .05$ $**p < .001$

Figure 7. Relations among key variables in the association of attachment security and social competence for adolescents.

Attachment security, social anxiety, and social competence. To test the mediated model of attachment security (IV) → social anxiety (MV) → social competence (DV) for the adolescent group, multiple regression analyses were again used (see figure 7). Attachment security was significantly related to both social anxiety ($r=.41, p=.001$) and social competence ($r=.53, p<.001$), meeting criteria “a” and “b” for mediation. When social competence was simultaneously regressed onto social anxiety and attachment security, social anxiety remained a significant predictor of social competence ($\beta=.31; t(65)=2.89; p=.005$), meeting criterion “c” for mediation. However, attachment security also remained a significant predictor of social competence after controlling for social anxiety ($\beta=-.40; t(65)=-3.64; p=.001$), suggesting a partial mediational relationship for the adolescent group.

Attachment security, social skills, and social anxiety. Multiple regression analyses were computed to test the mediated model of attachment security (IV) → social skills (MV) → social anxiety (DV) for the adolescent group (see figure 8). Attachment security was significantly related to both social skills ($r=.50, p<.001$) and social anxiety ($r=.41, p=.001$) in this group, meeting criteria “a” and “b” for mediation. However, when social anxiety was simultaneously regressed onto social skills and attachment security, social skills was not significantly predictive of social anxiety ($\beta=-.05; t(50)=-.30; p=.769$), failing to meet criterion “c” for mediation.

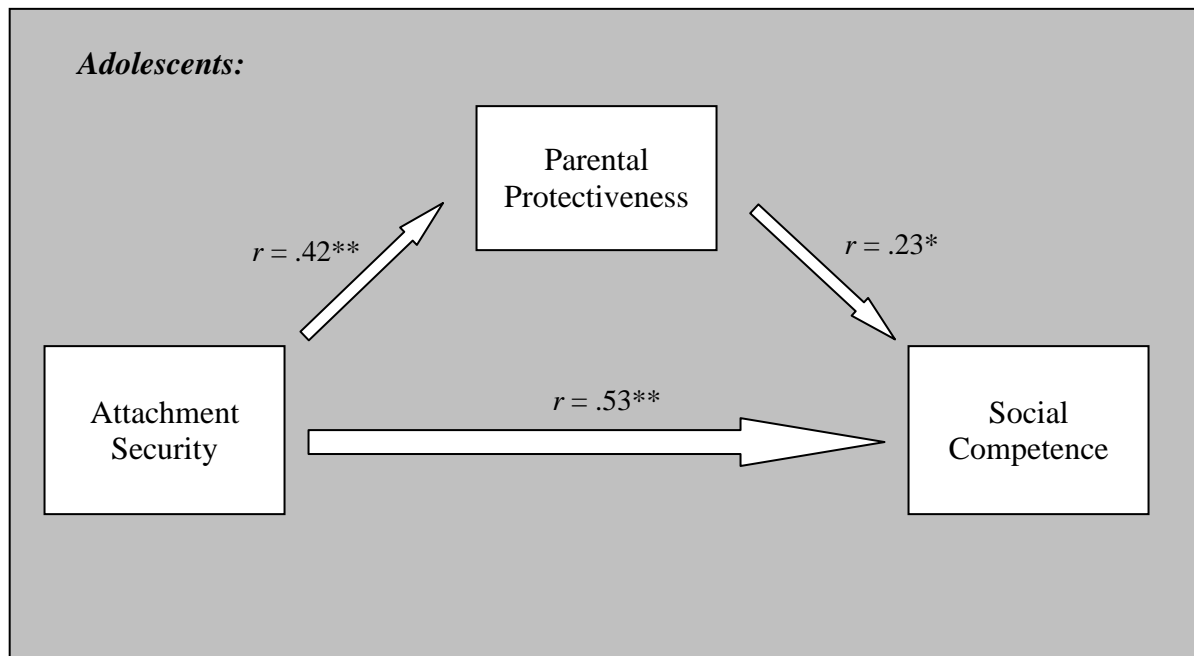
Attachment security, parental protectiveness, and social competence. Multiple regression analyses were computed to test the mediated model of attachment security



Note. $*p < .05$ $**p < .001$

Figure 8. Relations among key variables in the association of attachment security and social anxiety for adolescents.

(IV) → parental protectiveness (MV) → social competence (DV) for the adolescent group (see figure 9). Attachment security was significantly related to both parental protectiveness ($r=.42, p<.001$) and social competence ($r=.53, p<.001$), meeting criteria “a” and “b” for mediation. However, when social competence was simultaneously regressed onto parental protectiveness and attachment security, parental protectiveness was not significantly predictive of social competence ($\beta=-.09; t(65)=-.76; p=.450$), failing to meet criterion “c” for mediation.



Note. $*p < .05$ $**p < .001$

Figure 9. Relations among key variables in the association of attachment security, parental protectiveness, and social competence for adolescents.

DISCUSSION

Social Skills and Social Competence

Pairwise comparisons revealed no significant differences between preadolescent and adolescent groups with respect to correlations between social skills and social anxiety or between social skills and social competence. These results failed to support the hypothesis that developmental level plays a significant role in the impact of social skills on juvenile's social fears or perceptions of success at relating to peers, and are inconsistent with previous research suggesting that social skills become a more central component to juvenile social competence with age (Buhrmester, 1990; Engels et al., 2002). However, given that only self-report measures were used to assess social competence, an alternate interpretation of these results may be that juveniles deficient in social skills simply lack the ability to effectively discriminate these deficits based on reactions from peers. Further, the current study sampled primarily from participants with diabetes (78.5%) who evidenced less daily activity interruption than participants with asthma as reflected by number of school days missed (see Table 2). As a result, participants across age groups displayed levels of social skills (see Table 6) which may have been varied insufficiently to differentially impact psychosocial adjustment.

Parental Protectiveness, Peer Interaction Variables, and Social Competence

In general, simple associations among parental protectiveness and psychosocial outcomes observed in the current sample of juveniles with chronic illness closely parallel findings from previous samples. As hypothesized, parental protectiveness was significantly related to both social skills and social anxiety across preadolescent and

adolescent groups. This is consistent with previous research suggesting that protective parenting styles limit a child's exposure to social situations, impeding the development of social skills and promoting social fears (Arrindell et al., 1983; Engels et al., 2002; Parker, 1979). In addition, both social skills and social anxiety were significantly related to social competence across preadolescent and adolescent groups, supporting previous findings which emphasize the significant impact across juvenile development of the quality of an individual's peer interactions on social competence (Buhrmester, 1990; Ginsburg et al., 1998; Strauss et al., 1987).

Mediated models. In the adolescent group, results indicated support for the hypothesized fully mediated models of (a) parental protectiveness → social skills → social competence and (b) parental protectiveness → social anxiety → social competence, suggesting that both social skills and social anxiety provide mechanisms through which parental protectiveness impacts social competence in adolescents. This is inconsistent with Engels et al. (2002) in which social skills and social anxiety only partially mediated the effects of autonomy on degree of psychosocial adjustment in 12- to 18-year-old adolescents.

In the preadolescent group, parental protectiveness was not significantly related to social competence, a finding which may be partially explained by variance restriction due to the low number of items and generally lower internal consistency for the PBI-BC autonomy/control subscale that was used as an indicator of parental protectiveness (see Table 3). Regardless, results failed to support the hypothesized mediated model that social anxiety (but not social skills) would mediate a significant relation between

parental protectiveness and social competence in preadolescents. This result is inconsistent with previous research findings that parental protectiveness impedes the development of social competence in both preadolescents (Holmbeck et al., 2002; Melby et al., 1993; Steinberg et al., 1994) and adolescents (Noom et al., 1999). Nevertheless, social skills and social anxiety remained significantly and independently related to both parental protectiveness and social competence in the preadolescent group, suggesting that protective parenting styles, although having no direct impact on social competence, still play an important role in negatively impacting the quality of a preadolescent's social interactions by promoting social fears and limiting social skills development.

To gain a better developmental understanding of the mechanism through which parental protectiveness potentiates these problems, the mediated model of parental protectiveness → social skills → social anxiety was investigated for both groups. Results supported this mediated model only in the preadolescent group, as social skills were not significantly related to social anxiety in the adolescent group. This was contrary to the hypothesis that social skills would not become a central component in the management of social fears until adolescence, when more complex skills are required to achieve social goals.

Taken together, these findings elucidate important developmental differences in the relations among parental protectiveness, peer interaction variables (i.e., social skills and social anxiety), and social competence in chronically ill juveniles. A portrait is created of preadolescence as a time when protective parenting styles indirectly impede the initial development of social competence by negatively impacting abilities influential

in promoting positive peer interactions. More specifically, protective parenting styles, by restricting a child's exposure to social situations, limit skill gains integral to the early management of social fears. With age, however, social fears developed in preadolescence become consolidated to the extent that they are unaffected by subsequent increases in social skills. Instead, social skills and social anxiety function as independent mechanisms through which parental protectiveness directly influences social competence.

Overall, these results support previous conceptualizations that protective parenting styles potentiate poorer psychosocial outcomes in juveniles with chronic illness as parent's investment in facilitating positive health outcomes increasingly comes into conflict with the juvenile's developing autonomy (Holmbeck et al., 2002). It should be noted, however, that the current sample was heavily derived from participants with diabetes (78.5%) who evidenced less illness-related stressors than participants with asthma as reflected by number of required medical interventions and number of school days missed (see Table 2). Therefore, sampled parents may have experienced insufficient illness-related anxiety to resort to utilizing protective parenting styles, resulting in negatively attenuated correlations among key variables compared to what might be expected in samples with more severe levels of illness.

Attachment Security and Social Competence

Overall, simple associations among attachment security and psychosocial outcomes observed in the current sample of juveniles with chronic illness parallel findings from samples of healthy juveniles. For example, attachment security was

significantly related to both social skills and social anxiety in the adolescent group, consistent with previous research suggesting that lack of spontaneous social exploration consequent to insecure attachment limits social skill development (Allen et al., 2002; DiTommaso et al., 2003; Engels et al., 2001; Weinfield et al., 1997) and promotes social fears (Engels et al., 2001; Engels et al., 2002). In addition, attachment security was directly related to social competence, a finding also congruent with previous research (DiTommaso et al., 2003; Rice, 1990; Verschueren et al., 1999).

Mediated models. In the adolescent group, results failed to support the hypothesized fully mediated models of (a) attachment security → social skills → social competence and (b) attachment security → social anxiety → social competence. However, social anxiety partially mediated the relation between attachment security and social competence in this group. This is consistent with Engels et al. (2002) in which social skills and social anxiety partially mediated the effects of parental attachment on degree of psychosocial adjustment in adolescents. These findings may be explained by the strong correlation between attachment security and social competence, suggesting that for adolescents with chronic illness, attachment security exerts a strong effect on social competence independent of variables included in the current study.

To further investigate the mechanism through which attachment security, social skills, and social anxiety interact, the mediated model of attachment security → social skills → social anxiety was tested for both groups. Contrary to our hypothesis, results failed to support a mediated model as social skills were not significantly related to social anxiety in the adolescent group. As mentioned previously, it may be the case that for

adolescents with chronic illness, previously developed social fears are consolidated to the extent that they are unaffected by subsequent increases in social skills.

Attachment Security and Parental Protectiveness

To investigate the mechanism through which parent-child interaction variables (i.e., attachment security and parental protectiveness) interact, the mediated model of attachment security → parental protectiveness → social competence was tested for both groups. Results failed to support a mediated model, as the contribution of attachment security to the prediction of social competence increased after controlling for the effects of parental protectiveness. This suggests that attachment security and parental protectiveness, although closely related, represent independent mechanisms in the development of social competence in adolescents with chronic illness. Because peer-interaction variables posited to be directly impacted by chronic illness (i.e., social skills and social anxiety) failed to mediate the relationship between attachment security and social competence, it may be the case that protective parenting styles are a more influential illness-specific determinant of psychosocial adjustment in this population.

Strengths of the Study

Several methodological limitations from previous research were addressed in this study. First, although the current body of literature has discretely examined key variables influencing the development of social competence, very few studies have investigated concurrent relations among these variables. This represents a disjointed approach that has encumbered theory development. Another pervasive limitation inherent in the literature is the lack of attention paid to the role of developmental issues in the

expression of these constructs. The present study highlighted these developmental differences while simultaneously examining the concurrent relations among key variables predicted to influence social competence. As a result, the notion can be forwarded that resulting data may be more contextually valid, integrating and extending relevant findings from previous research while presenting a more elaborate illustration of the diverse mechanisms influencing the development of social competence in preadolescent and adolescent juveniles with common chronic illnesses such as asthma and diabetes.

Limitations of the Study

Several issues specific to the sample are noteworthy. First, no healthy control group was included in the current study, limiting our ability to assess participant's relative level of functioning on psychosocial variables. Knowing this would be helpful in determining whether insignificant findings were simply the result of relatively adaptive levels of psychosocial functioning of participants compared to "healthy" controls. For instance, although illness type appeared to have no systematic effect on outcome variables, the current sample consisted primarily of juveniles diagnosed with diabetes (78.5%) who evidenced less illness-related environmental stress than juveniles with asthma (see Table 2). Also, the current sample consisted primarily of Euro-Americans with relatively educated parents (completed at least a vocational or 2-year college degree or more), leading to complications regarding generalizability to the broader population.

Although measures selected for use in the current study are among the most commonly used by researchers, their psychometric properties have yet to be closely

examined in culturally or medically diverse populations, and as such lack the empirical validation necessary to facilitate forthright interpretation of results. For example, the PBI-BC autonomy/control subscale, which was used to assess parental protectiveness, evidenced low internal consistency in the current sample. Finally, the use of cross-sectional data limits causal interpretation of results from the current study.

Implications for Future Research

To combat misperceptions about illness-related vulnerability and promote more adaptive parenting styles, interventions should focus on parent education regarding social consequences of pediatric problems, appropriate disease management, and strategies for handling typical disease-related social situations. Also, the current findings illustrate the importance of identifying psychosocial problems early in development when interventions are likely to have the most impact. Specifically, therapeutic interventions for chronically ill juveniles should focus on social skills training as well as techniques to address social anxiety.

The current study capitalized on previous research by taking an integrative approach towards examining developmental differences in relations among key variables predicted to influence social competence in juveniles with chronic illness. Future research should more consistently use integrative designs which promote theory development by offering more elaborate illustrations of constructs of interest. In particular, the current findings emphasize the need for future researchers to carefully consider developmental level when evaluating psychosocial outcomes in juvenile populations, as the expression of these constructs vary with age.

CONCLUSION

The current findings elucidate important developmental differences in relations between parent-child interaction variables (i.e., parental protectiveness and attachment security), peer interaction variables (i.e., social skills and social anxiety), and social competence in chronically ill juveniles. Protective parenting styles, by restricting a child's exposure to social situations, limit social skill gains integral in the early management of social fears. With age, protective parenting styles potentiate poorer psychosocial outcomes on juveniles with chronic illness, as parent's investment in facilitating positive health outcomes increasingly comes into conflict with peer interactions necessary in the development of social competence.

While protective parenting styles influence social competence through peer interaction variables posited to be directly impacted by chronic illness (i.e., social skills and social anxiety), attachment security represents a separate mechanism of effect not illustrated by these variables. Therefore, protective parenting styles may represent an influential illness-specific determinant of psychosocial adjustment in this population.

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APPENDIX A

Demographic Information

Dear Parent or Guardian,

The questions below are about you, your child, and your family. If there are any questions you would prefer not to answer, just skip them. Your answers to these questions will be treated in a confidential manner. Your answers will be known only to the researchers at Texas A&M University.

Today's date _____

CHILD INFORMATION

Participating child's age _____

Child's birthday _____

Child's sex (check one): _____ M _____ F

Child's Ethnicity (check one):

- _____ African American or Black
- _____ American Indian or Alaska Native
- _____ Asian-American
- _____ Caucasian or White (Not of Hispanic origin)
- _____ Hispanic or Latino
- _____ Other (please specify) _____

Does the child participating in this study read, write, and speak English?

_____yes _____no

PARENT INFORMATION

Your name:

Address:

City: _____ **State:** _____ **Zip Code:** _____

Phone Number: (area code: _____)

Your sex (check one): M F

Your age: _____

Your Ethnicity (check one):

- African American or Black
 American Indian or Alaska Native
 Asian-American
 Caucasian or White (Not of Hispanic origin)
 Hispanic or Latino
 Other (please specify) _____

Please indicate your marital status (check one):

- Divorced/Separated
 Married
 Single
 Widowed

Are you considered a primary caretaker for this child?

- Yes
 No

What is your relationship to this child?

- Mother
 Father
 Stepmother
 Stepfather
 Grandmother
 Aunt
 Grandfather
 Uncle
 Female other (please specify relationship: _____)
 Male other (please specify relationship: _____)

What is the primary language spoken at home? _____

Please indicate your total annual family income level (check one):

- | | |
|---|--|
| <input type="checkbox"/> Less than \$10,000 | <input type="checkbox"/> \$50,000-\$74,999 |
| <input type="checkbox"/> \$10,000-\$14,999 | <input type="checkbox"/> \$75,000-\$99,000 |
| <input type="checkbox"/> \$15,000-\$24,900 | <input type="checkbox"/> \$100,000-\$149,999 |
| <input type="checkbox"/> \$25,000-\$34,999 | <input type="checkbox"/> \$150,000-\$199,999 |
| <input type="checkbox"/> \$35,000-\$49,999 | <input type="checkbox"/> \$200,000 or more |

How many individuals are supported by this income? _____people

Please list the ages and genders of all children living in your home:
(for example, boys = 4, 6 girl =11)

Please indicate the highest level of education YOU completed:

- _____ Less than high school
- _____ Some high school
- _____ Graduated high school/GED
- _____ Some college or vocational/technical school
- _____ Graduated from vocational/technical school
- _____ Associate's degree
- _____ Graduated from a four-year college
- _____ Some graduate work
- _____ Completed a graduate degree

What is your employment situation?

- _____ Employed full time Job title: _____
- _____ Employed part-time Job title: _____
- _____ Disabled Your disability: _____
- _____ Unemployed
- _____ Retired
- _____ Full time homemaker
- _____ Other (please specify)

APPENDIX B

Medical History Information - Asthma

Child's current height: _____feet _____inches

Child's current weight: _____lbs

When was you child diagnosed with asthma? _____month _____year

Does your child have any other chronic health condition? ___Yes ___No

If yes, please specify _____

Has your child EVER....

Had a near-fatal asthma attack? ___Yes ___No

If yes, how many times? _____times

Been placed on a ventilator? ___Yes ___No

If yes, how many times? _____times

How many times IN THE PAST YEAR has your child.....

had to be taken to the doctor for an urgent visit because of asthma? _____times

had to go to the emergency room because of asthma? _____times

been hospitalized because of asthma? _____times

missed school because of asthma? _____days

been awakened at night because of asthma? _____times

used a peak-flow meter at home to test breathing?

_____seldom or never

_____every few month

_____once per month

_____several times per month

_____once per week

_____every day

Since diagnosis, please estimate how many times your child has used a peak flow meter at home to test breathing:

- seldom or never
 every few months
 once per month
 several times per month
 once per week
 every day

Please list all medications that your child has been prescribed in the past year for asthma, allergies, or to improve breathing. Please include how they are given, and how frequently he/she is supposed to take them. **Please remember to include daily or preventive medication, as-needed or "rescue" medication, nebulizer treatments, etc.**

Name of medicine (e.g., albuterol, allergy shots, theophylline, over the counter decongestants, etc.)	How given (e.g., pill, inhaler, shot, nebulizer, etc.)	How often should take (e.g., as needed, 3 times a day, etc.)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please rate the severity of your child's asthma:

Mild
 Moderate
 Severe

APPENDIX C

Medical History Information - Diabetes

Please indicate the type of diabetes your child has (check one):

_____ diabetes mellitus Type I _____ diabetes mellitus Type II
 _____ diabetes insipidus

What month and year was your child diagnosed with diabetes?

_____ month _____ year

Does your child have any other chronic health condition? ___ Yes ___ No

If yes, please specify _____

Has your child EVER....

Been in a diabetic coma? ___ Yes ___ No

If yes, how many times? _____ times

Been in hypoglycemic insulin shock? ___ Yes ___ No

If yes, how many times? _____ times

Suffered from ketoacidosis? ___ Yes ___ No

If yes, how many times? _____ times

How many times per day has the doctor prescribed that your child:

Test his/her blood-glucose _____ times per day

Have an insulin injection _____ times per day

In the PAST YEAR, how many times has your child....

had to be taken to the doctor for an urgent visit because of diabetes? _____ times

had to go to the emergency room because of diabetes? _____ times

been hospitalized because of diabetes? _____ times

needed to test his or her urine for ketones? _____ times

missed school because of diabetes? _____ days

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EDUCATION

<i>Institution</i>	<i>Major</i>	<i>Degree/Date</i>
Texas A&M University	Clinical Psychology	Ph.D./August 2007
Texas A&M University	Clinical Psychology	M.S./August 2004
University of Texas at Dallas	Psychology	B.S./December 1999

HONORS

2004 Division 54 APA Student Poster Award, Washington. D.C.

2004 TAMU Post-Master's Clinical Psychology Program Scientist-Practitioner Award

2003 TAMU Recipient of departmental merit-based partial tuition remission

2001 Texas A&M University Regent Graduate Merit Fellowship

GRANTS RECEIVED

Heffer, R.W., Grizzle, J., Lane, M., Rosenthal, E., & Fiala, S. (2003, May). *Illness Coping and Adjustment in Childhood Asthma and Diabetes*. Wal-Mart Foundation Community Bonus Grant. (\$1,000).

CLINICAL & RELEVANT WORK EXPERIENCE

08/2006 – 08/2007: Postdoctoral Position
- Primary Care/Health Psychology, San Antonio VA Hospital

07/2005 - 07/2006: Psychology Intern
- Spinal Chord Injury rotation, San Diego VA Hospital
- Smoking Cessation rotation, San Diego VA Hospital
- CAPS rotation, University of California, San Diego

01/2005 – 06/2005: Student evaluator/therapist, CAPS, Brooke Army Medical Center

05/2004 – 08/2005: Clinic Coordinator, Texas A&M Psychology Clinic

05/2004 – 08/2005: MHMRABV Liaison for the Texas A&M Psychology Clinic

05/2002 – 08/2005: Student evaluator/therapist, Texas A&M Psychology Clinic

09/2003 – 05/2004: Student evaluator/therapist, Walker County Probation Office

09/2002 – 08/2003: Student evaluator/therapist, Grimes County Probation Office

05/2002 – 08/2002: Counselor, Brazos County Juvenile Services A.R.M.Y. boot camp

01/2000 – 07/2001: Applied Behavior Analysis behavioral therapist and team leader