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The Influence of Parent-Child Relatedness and Social Support on Depressive Symptoms in Asthmatic Children: Tests of Moderation

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THE INFLUENCE OF PARENT-CHILD RELATEDNESS AND SOCIAL SUPPORT

ON DEPRESSIVE SYMPTOMS IN ASTHMATIC CHILDREN: TESTS OF

MODERATION

by

LAWANDA CUMMINGS

Under the direction of Roger Bakeman

ABSTRACT

The Brofenbrenner(1979) ecological theory was applied to examine the relationship between parent and child depressive mood and the moderation of relational quality at two levels; 1) parent-child (within family) and 2) family-social support (outside family) levels. It was hypothesized that both levels would buffer the predictive association of parent to child depressive mood. At the first level, the parent-child depressive mood association was qualified by an interaction with relatedness (categorized as inadequate and adequate) that approached a conventional level of significance, $R^2 = .023$, $F(1,101) = 2.77$, $p = .099$.   At the second level, the addition of social support as a moderator yielded a $R^2 = .028$, $F(1,101) = 3.11$, $p = .081$.   Exploratory analyses were performed to clarify each moderation. The findings suggest that relational quality within and outside the family have the potential to serve as protective factors in regards to depressive symptoms for children with asthma.

INDEX WORDS: Relatedness, social support, pediatric asthma, childhood
                 depression, chronic illness, ecological theory

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Chapter I: Introduction

Asthma is the most common chronic illness for children in the United States.

Approximately 4.8 million Americans under 18 years of age are diagnosed with asthma

[Centers for Disease Control and Prevention (CDC), 1996; Gillaspy, Hoff, Mullins, Pelt,

& Chaney, 2002]. According to the National Heart Lung and Blood Institute (1997),

asthma is defined as a "chronic inflammatory disorder resulting in recurrent episodes of

wheezing, breathlessness, and coughing." Historically, scientists believed that asthma

attacks in children were physical manifestations of the psychological distress caused by

the children's dysfunctional relationships with their mothers. Children's asthma attacks

were conceptualized as an inhibited-suppressed cry for their mothers. The mothers of

these children were portrayed as smothering, wavering in their child rearing practices,

and rejecting toward the child (Miller & Baruch, 1948 as cited in Celano, 2001; Parker,

1985).

Into the 1980's and 1990's, the redefinition of asthma as a medical problem

received national attention. The medical definition of asthma gained more acceptance,

which diffused the focus on psychological components associated with the illness

(Celano, 2001). Instead, evidence was found for an inflammatory process underlying

asthma symptoms, and treatment was focused on prevention of inflammation as well as

amelioration of bronchial constriction. Asthma is a complicated illness that presents

difficulties in diagnoses and treatment due to the variation in treatment presentation

across and within individuals. These challenges are not new to the arenas of treatment for

asthma. Well-documented research on asthma attacks and symptomatology confirm that the illness varies from child to child and within each patient. These variations manifest within (a) the severity of attacks (b) the frequency of attacks, and (c) medication regimens. Also attack severity can vary from mild episodes of chest tightness to steadily worsening asthma that can result in death (Williams, 1993; as cited in Creer, Harm, & Marion, 1988).

Meanwhile, a national debate sought answers to the following question: Is asthma a disease that children outgrow? Many adults who were asthmatic children report no asthma symptoms in adulthood, which supports the affirmative position. Conversely, the theory of a life-long condition is supported by research in which adult patients claim normal breathing but who nonetheless demonstrate considerable physical abnormalities in their pulmonary system functioning (Creer, Harm, & Marion, 1988). Asthma symptoms of phlegm build-up and swelling of the walls in the lungs can occur without physical attacks. This process compromises the pulmonary system with limited awareness of the patient to decreases in air intake and pulmonary constriction. These physiological symptoms are controllable with preventative measures such as avoiding allergens and taking preventive medications. The need for more effective management and treatment of childhood asthma to minimize lifelong respiratory complications and death is urgent.

Prevention and Treatment

Provision of an accurate asthma diagnosis is a challenge to managing and treating childhood asthma. Such a diagnosis is challenging because many of the defining characteristics of asthma are present in other types of respiratory conditions. For

example, two observable respiratory signs of asthma are coughing and wheezing, which also occur in bronchitis (Creer, Harm, & Marion, 1988). In general, the indices used by physicians include a history of wheezing, wheezing during a physical examination, self-reports of chest tightness, and breathlessness. Differentiating between asthma and other respiratory conditions is necessary to provide appropriate treatment.

Asthma is generally treated with preventive and rescue medication as well as avoidance of triggers such as allergens and smoke (Creer, Harm, & Marion, 1988). Symptom management requires patients to monitor and manage their preventative and rescue medications responsibly. In addition, consistent medical check-ups are required to assess changes in medication needs due to changes in environmental triggers and physical limitations (Creer, Harm, & Marion, 1988). Nonadherence leads to greater morbidity from asthma], with some ending in death, may occur from poor medication compliance, especially in less affluent urban minority populations (Klinnet, 1997). According to Baum & Creer (1986), avoidance or escape behaviors are evident beyond parent care within children with asthma in which they engage in self-care to prevent attacks by evading known triggers. For example, the child may avoid a room where a parent smokes to prevent an asthma attack. Avoidance of precipitating factors, when possible, is the major preventative measure used by asthmatic patients (Creer, Harm, & Marion, 1988). Other preventative measures include the immediate family and require that they eliminate home triggers such as smoking, dust, or mold.

Care for asthma in children requires a large amount of parental involvement in facilitating preventative medication adherence, regular medical visits, and control or avoidance of precipitating factors. Asthmatic children's level of dependence on parental

assistance for compliance and symptom control calls for a closer look at parental

psychological components in asthma control. Psychological factors such as depression,

stress, and amount of perceived social support could very well affect parental capacity to

provide required care and to function as an effective family helper. The chronic nature of

asthma creates a health issue for the entire family in the prevention and management of

the symptoms. For example, tobacco smoke is a trigger for asthma attacks and

preventative care may require the family members to change their smoking behaviors.

Additionally, parental structure around asthma care has been shown to contribute to

compliance to complicated medication regimens. Positive yet strict guidance is needed

with illness management so that children optimally benefit from prescribed treatment

(Kurnat & Moore, 1999).

Demographic Factors

Asthmatic patients are disproportionately represented within minority

populations, and with more negative consequences (Weitzman, Gortmaker, & Sobel,

1990, Schwartz et al., 1990). The morbidity and mortality rates are higher for racial and

ethnic minority groups than non-minority groups (Schwartz, Gold, Dockery, Weiss, &

Speizer, 1990; Gillaspy et al., 2002). Many low-income families seek out Emergency

Room care only when complications arise and have little to no routine care (Celano et al.,

1998; Farber et al., 1998; Klinnert, 1997). According to Farber (1998), "most young

children that visit inner-city emergency rooms for asthma have poorly controlled and

poorly managed chronic asthma.(p. 549)"

The mortality rate of inner city asthmatic patients has influenced researchers and

health providers in their efforts to identify characteristics of the asthmatic population and

factors that might increase the risk of having asthma attacks. Additionally, efforts have increased to isolate certain protective factors that may aid in managing the illness such as parenting style and home based interventions with action plans (Celano et al., 1998).

In regard to asthma attacks, a list of common precipitating factors are well known. Environmental tobacco smoke, dust, molds, smog and pollution, cockroaches, and allergies are common precipitating factors. Environmental triggers like smoke, roach droppings, pet dander, and dust exacerbate bronchial inflammation and increased secretions in the bronchial tubes, creating a greater risk of complications and increased symptoms (Vamos & Kolbe, 1999). Many of these triggers are endemic to living in urban poverty. Sub-optimal low-income housing makes controlling many of the triggers associated with asthma difficult if not impossible (Celano et al., 1998; Farber et al., 1998; Klinnert, 1997).

Psychological Factors

There are two leading psychological precipitants for asthma attacks: anxiety and stress. Asthma has three characteristics that are important to psychologists and behavioral scientists: (a) the intermittent nature, (b) the reversible nature, and (c) variable nature of asthma. The intermittent nature of asthma refers to the unpredictable onset of attacks. Attack frequency varies between-patient and within-patient. Asthma attacks can occur suddenly without warning due to internal or external triggers, causing illness uncertainty for the family, the parents, and the patient (Hommel et al., 2003). Illness uncertainty keeps the patient in a state of anticipation of illness manifestation without the predictive ability to know when it will occur (Hommel et al., 2003). This state of arousal increases the anxiety and depression that may further exacerbate the asthma condition.

Additionally, patients develop expectancies of how asthma will manifest itself due to seasonal changes and seek out treatment accordingly. For example, during pollen season there is an increase in emergency care usage for asthma complications.

The reversible nature of asthma refers to the appearance of a complete remission of symptoms after an attack ends. This unique feature of asthma facilitates uncertainty and anxiety (Creer, Harm, & Marion, 1988; Mrazek & Klinnert, 1998). Patients may experience the disappearance of symptoms and decide that they no longer need preventative medications. Less care taken to manage the illness logically lead to more morbidity symptoms (e.g. more hospital visits, more missed days of school), that inevitably negatively affect patients' quality of life. Physical limitations and lower capacity for functioning have been associated with psychological disturbance and depression for pediatric populations with asthma (Mrazek & Klinnert, 1998).

The variable nature of asthma refers to the wide continuum of severity from mild to severe attacks that is found between-patient and within-patient attacks (Creer, Harm, & Marion, 1988). This variability in attack severity contributes to certain physical limitations associated with asthma, which may range from avoiding triggers (e.g., not attending physical education classes) to a limitation of physical activity (e.g. not being allowed to play outside to avoid pollen). Quality of life can be compromised on two levels within this dimension of asthma: 1) severe attacks or symptoms may cause direct physical limitations or 2) uncertainty of attack severity may incite anxiety and psychological strain for the patient and parent. Physical limitations have been associated with increases in depressive reactions (Mrazek & Klinnert, 1998). Lethargy, lack of motivation, and hopelessness are characteristics of depression that may manifest in

patients with asthma (Bartlett, Krishnan, Riekert, Butz, Malveaux, & Rand, 2004).

Asthma patients, whether child or adult, must take deliberate measures toward self-care

by establishing systems to promote medication compliance and active avoidance of

precipitating factors. Ultimately, depressive symptoms contribute to less self-care,

perpetuating complications linked to the illness (Mrazek & Klinnert, 1998). Illness

uncertainty exacerbates high levels of anxiety and worry due to the inability to predict,

prepare for attacks, or both (Mrazek & Klinnert, 1998). Anxiety and stress are

psychological phenomena frequently found with pediatric asthma with a bidirectional

relationship in which they can operate as both triggers and outcomes. Prevalence rates of

depression in individuals with asthma have been reported at 21% (Chaney et al., 1999)

and 25 % (Badoux & Levy, 1994). Research has shown that children with asthma have a

higher incidence of internalizing behavior problems, including anxiety and depression, in

comparison to children without chronic illnesses (Hommel, Chaney, & Wagner, 2003).

Norrish, Tooley, and Godfry (1977) found no significant association between asthma

severity and psychological disturbance, but a significant association of emotional and

conduct disorders with poorly controlled asthma. Death from asthma, according to Strunk

et al. (1985), was related to social and emotional factors as well as poor medication

compliance and illness management.

Despite the many efforts to examine the association between asthma and

depression, there has been no model to depict the developmental process of depression in

children with asthma (Bleil, Ramesh, Miller, & Wood, 2000). Greater illness severity

would seem a logical predictor of increased depressive symptoms, due to increased

physical limitations and greater illness intrusion in everyday life activities. Surprisingly, a

strong association between depression and asthma severity is not consistently supported in the literature. Such findings have led researchers to look beyond the medical and biological constraints of the illness for other contributing factors, such as family composition and social support (Key, Brown, Marsh, Spratt, & Recknor, 2001; Kashani et al. 1998).

According to Thompson and Gustafson's (1996) meta-analysis, there is no evidence of a direct association between disease severity and psychological adjustment in pediatric populations across several chronic illness groups including asthma. Conversely, Vila and colleagues (1999) assert that asthmatics evidence greater incidences of psychological disorders than children and adolescents with insulin-dependent diabetes mellitus (IDDM) and non asthmatics (Vila, Nollet-Clemencon, Vera, Robert, de Blic, Jouvent, Mouren-Simeoni, & Scheinmann, 1999). Their study reported that approximately one third of individuals with asthma met the Diagnostic and Statistical Manual of Mental Disorders (DSM III and DSM IV) diagnostic criteria for an anxiety disorder with greater prevalence than those without asthma (Vila et al., 1999).

In recent years, asthma care providers have begun to recognize that medical treatment and education are not enough to lower morbidity rates for all patients (Celano, 2001; Vamos & Kolbe, 1999). The Vamos and Kolbe (1999) study had a sample of 80 adult patients diagnosed as severely asthmatic. Both medical treatment and educational components were adequately addressed for the patients. Upon testing, the patients had low medication adherence and exhibited less than optimal knowledge on appropriate responses to a worsening asthma attack . High anxiety and depressive reactions were

observed in this sample with low self-reported social support discussed as a confounding

concept (Vamos & Kolbe, 1999).

Family Relational Functioning

The coping capacity of families of children with asthma would seemingly be

dependent on parent capacity to manage the pediatric illness, the quality of the

relationship of the parent to the child, and the amount of support the family can expect to

receive from outside entities (e.g. extended family, institutions, and friends).

Acknowledging the interchange between the organism and the environment,

Brofenbrenner's (1976) ecological model explicitly identifies four contexts of

development; the microsystem, the mesosystem, the exosystem, and the macrosystem.

Reframing support as a construct that spans across multiple contexts allows multilevel

investigation of its contributing role in mental health outcome for minority children with

asthma. This framing acknowledges the transactional nature of support that contributes to

the developing persons capacity to manage and cope with a chronic illness. For example,

within a high quality network, a parent could have more resources or time to seek

specialized care because someone cares for the other children.

The support investigated for the current families of children with asthma can be

investigated at the lower two levels within the constraints of the present dataset. At the

microsystem level, which includes the processes and structures within the immediate

setting of the developing person, the quality of the relational context of the parent-child

dyad could be investigated (Brofenbrenner, 1979). This within-family construct would be

logically linked to the parental responsiveness to the child and illness. At the

mesosystem level, which includes the links between two or more settings of the

developing person, the quantity and quality of supportive relationships that contribute to the family context could be investigated (Brofenbrenner, 1979). This without-family construct taps into the perceived quality of global social support and its documented positive contribution to overall health outcomes (Lara & Leader et al., 1998; Vandervoot, 1999).

Relatedness.

Developmental research within the family context demonstrates the strong influence of the parent-child relationship on the psychological well being of children within the family (Bleil, Ramesh, Miller, & Wood; 2000). Current findings suggest that a positive parent-child relationship is particularly beneficial to children facing adversities related to chronic illness because it provides greater resistance to child depression and anxiety (Chaney et al., 1999; Bleil et al., 2000). Connectedness facilitates more responsive and caring behavior from the parent for the child's chronic asthma.

Relatedness as a concept includes attachment related issues of proximity seeking and emotional intimacy (Lynch & Cicchetti, 1992). Attachment theory provides the structural basis for looking at parent-child relationships as a factor in the child's capacity to negotiate environmental and health issues. In the Toth and Cicchetti (1996) study of relatedness patterns for maltreated children, participants with poor patterns of relatedness to their mother exhibited greater depressive symptomatology and impaired perceptions of social acceptance. Participants with poor relatedness to their mother, and those with confused patterns of relatedness, revealed the highest levels of depressive symptoms (Toth & Cicchetti, 1996). Additionally, parental psychological health would seemingly contribute to the quality of care they could provide to their children with asthma. From

this vantage, relationships outside the family unit that provide support to both parent and child may be important in facilitating psychological well-being for the family as a unit.

Social support.

Interest in the concept of social support, which occupies a level above the family or individual unit for psychological research, has grown in popularity. Research efforts show that the availability of support may improve a person's psychological and physical health (Sherbourne & Stewart, 1991). Social support is defined as the amount of care a person can count on or believe is available through family and friends (Sherbourne & Stewart, 1991). In current research, there are two main dimensions of social support that focus on either the quality of relationships (functional aspect) or the quantity of relationships (structural aspect; Vandervoot, 1999; Hall, Williams & Greenberg, 1985). Although both poor functional and structural support are related to depression and anxiety, functional support is more strongly associated with depression (Vandervoot, 1999; Hall et al., 1985). Vandervoot's (1999) study of 280 undergraduate students showed that both dimensions of social support contribute to mental and physical health. In comparing structural and functional support, their hypothesis was supported that the quality of social relationships is more important than the quantity of relationships for optimal mental and physical health. The conclusion reached supports the intuitively positive association between good social support and better adjustment to stress and quicker recovery from depression and other psychiatric disorders associated with asthma (Lara & Leader et al., 1998; Vandervoot, 1999).

The psychological characteristics of anxiety, stress, and depressive reactions with asthma attacks require steady social support from family, friends, and institutions to the

patient and family, with or without consistent manifestation of the illness. With the complicated regimens for medication and efforts to control or avoid triggers, social support is necessary to manage daily components of the illness. Social support is especially relevant for the urban minority population because the majority of their homes have only one parent, who functions as both the breadwinner and primary caregiver. In these homes a number of issues affect the ability to keep regularly scheduled doctor appointments to manage and control the illness. Social support is more than what is actually available, but what is perceived as available by the parent and family.

Questions and Hypotheses

Based on this review of the literature, the present study is designed to investigate the association between the primary caregiver's depressive symptomatology and the child's depressive symptoms within low-income families of children diagnosed with persistent asthma. It is hypothesized that this relationship will be moderated by the child reported relational quality with the parent and the amount of perceived social support to the parent. The following questions will be addressed in this study

1. Is parental depressive symptomatology related to child depressive symptoms in children with moderate to severe persistent asthma?

2. Does the child's perceived connection to the parent moderate the association between the parent's depressive symptomatology and the child's depressive symptoms?

3. Does level of perceived available social support moderate the association, if any, between parental depressive symptoms and child depressive symptoms?

I hypothesize that:

1. Parental depressive symptomatology will have a positive association with child depressive symptoms. As parental depressive symptoms increase so will the child's depressive symptoms.

2. I also hypothesize that the association between parent depressive symptoms and child depressive symptoms will be weakened to nonexistent with positive relational patterns between the caregiver and child, but that negative relational patterns between that caregiver and child will be associated with higher child depressive symptoms.

3. Finally, I hypothesize that the association between parent depressive symptoms and child depressive symptoms will be weak to nonexistent when there are high levels of social support, but that higher parent depressive symptoms will be associated with higher child depressive symptoms with low social support.

Chapter II: Method

Participants

Participants were 107 children who participated in NIMH funded Project

S.T.A.R.: Support for Children of Asthma Research (Celano et al., 2001). This sample

consisted of African American children 7 to 12 years old (mean = 9.1, SD = 1.3); 66%

were male. The primary caregivers were all female: 87% were mothers and 13% were

grandmothers, aunts, or other relatives. The mean age of the caregivers was 37.3 years

(SD = 9.70). Child age restrictions were imposed to ensure that developmental

manifested differences are minimized in regards to conceptually understanding the

measures administered. The population's income ranged from less than $11, 000 (46%)

to $37,000 annually. Using the Global Initiative for Asthma (GINA) guidelines (2002),

the asthma severity of the population was moderate persistent (22%) to severe persistent

(78%).

Recruitment.

Each of the 107 participants that met eligibility criteria and did not meet

exclusion criteria was recruited from Hughes Spalding Children's Hospital, a Grady

Health System hospital serving an urban, primarily low-income population. Two-thirds of

the participants were recruited from the Pediatric Continuity Clinic (PCC) or the Pediatric

Asthma and Allergy Clinic (PAAC). The remaining third of participants were recruited

from the Pediatric Emergency Center (PECC). A research team member serving as a

 recruiter reviewed each potential participant's medical record prior to recruitment to identify patients that fulfilled eligibility criteria. Inclusion criteria included: (a) child is 6 to 11 years of age, (b) the child is currently prescribed an anti-inflammatory agent delivered via metered-dose inhaler (MDI) and spacer (placing his or her category of asthma severity in the persistent range), (c) the child is living with a primary caregiver (mother, father, grandmother, etc.) who has been taking care of the child for at least the 2 previous years, and (d) the family must speak and understand English.

Exclusion criteria included: (a) the child is currently taking systemic steroids on a regular basis (i.e., on more than 14 days during the last 28 days), (b) the family is currently participating in another asthma research project, (c) the child has a co-morbid, non-atopic, nonpsychiatric chronic medical condition other than reflux, and (d) the caregiver is homeless. If the caregiver had two or more children present that meet eligibility criteria, the older child was recruited.

Consent procedures.

If a child met the eligibility criteria, the recruiter discussed the study in detail with the child and his or her caregiver. During this time the consent form was reviewed with the caregiver and the verbal assent was explained to the child. Both the caregiver and child were given the opportunity to ask questions. Written consent was collected from the parent and verbal assent from the child. A follow-up letter with a copy of the signed consent form was later mailed or given to each participant. For those recruited at the PECC, potential participants were contacted by phone the shortly after their PECC visit. The recruiter explained to each caregiver the details of the study and asked for permission

to send a nurse data collector to review the informed consent form with the caregiver and verbal assent with the child in the home.

Procedure

Each recruited family was asked to participate in two baseline visits. The first visit was in the participant's home. During the home visit, a nurse verbally administered questionnaires to the caregiver and child, and the child was asked to provide a urine sample for cotinine testing. Approximately two-weeks after the home visit, the family attended an office visit ("lab visit") in the Child and Adolescent Psychiatry Outpatient Clinic associated with the hospital. During the lab visit, two research team members verbally administered self-report measures to the parent and child separately. Caregivers were interviewed by a female research team member. Children were interviewed by male and female research assistants: psychology graduate students, child psychiatry fellows, a psychologist or a child psychiatrist A videotaped family interaction assessment was conducted during the lab visit. Of interest to this study are the lab visit measures: the Child Depression Inventory (CDI), the Beck Depression Inventory (BDI), the Medical Outcomes Study (MOS) Social Support Scale, and the Relatedness scale.

Measures

Children's Depression Inventory (CDI).

The CDI (Kovacs, 1980/1981, 1992) is a 27-item self-report scale designed for school-age children and adolescents ranging in age from 7 to 17. The questionnaire items are designed to assess specific symptoms of depression or its school related consequences (Stark and Laurent, 2001). In the present study both parents and children completed the CDI questionnaire (the parent version was re-formatted so that items asked about

depressive symptoms of the child). The depressive symptoms included in the CDI are

disturbances in mood and hedonic capacity, vegetative functions, self-evaluations, and

interpersonal behaviors (Worchel, Rae, Olson, & Crowley (1992). The child was

instructed to choose from three statements descriptive of the last two weeks that range

from no symptoms to severe symptoms. Each item was coded 0, 1, or 2, with 2 being the

most severe. A total score ranging from 0 to 54 was computed to indicate the level of

depressive symptoms. Among normative adolescent data, girls report a greater number

of symptoms than adolescent boys. Of particular interest to the age of the population

under study, Nelson and colleagues found that there were no gender differences for

younger children in depressive symptom endorsement (Nelson, Politano, & Fitch, 1987).

The CDI is the most widely used measure of childhood depression, demonstrating high

validity and reliability for this population (Kazdin, 1990). Internal consistency reliability

for a normative sample was 0.86 (Jensen et al., 1996), and test-retest reliabilities ranged

from 0.38 to 0.87, depending on the length of the retest interval (Reynolds and

Kamphaus, 1994). Within the current sample, the child version of the scale evidenced

moderate internal consistency, with a Cronbach's alpha of .74 (N=105). The internal

consistency reliability of the parent version had a Cronbach's alpha of .87.

Beck Depression Inventory (BDI).

The BDI (Beck, Steer, & Brown, 1996) is a 21-item self-report measure designed

to assess depressive symptoms in persons 13 years or older. Parents were asked to choose

one of four descriptive statements that most closely reflected their thoughts, functional

status, and feelings in the past 2 weeks (Gillaspy et al., 2002). Each item has statements

that reflect a 4-point scale ranging form 0 to 3 in severity. A total score is tallied for the

21 items with a range of 0 to 63. There are four categories for rating BDI scores; 0-13 = minimal depression, 14-19 = mild depression, 20-28 = moderate depression, and 29-63 = severe depression. The BDI measure has high internal reliability (r = .93) and moderate to strong convergent validities (rs > .50) with other self report and clinical rating scales of depression in adult psychiatric patients, college students, and normal adults (Beck et al., 1996). The BDI-II has excellent internal consistency reliability (alpha coefficient = .90) and adequate concurrent and discriminant validity (Osman et al., 1997). The BDI reliability for the current sample was similar to that of the normative sample (.92).

The Relatedness Scale.

The Relatedness Scale (Lynch & Cicchetti, 1997) used in this study was a subscale for mothers comprised of 17 items specific to the primary caregiver. There are two subscales within the measure to assess emotional quality and psychological proximity-seeking. Eleven items focus on the positive or negative emotional quality children attribute to their relationship with the primary caregiver. Children rate each item on a 4-point scale with statements like: "When I'm with my mother, I feel happy." There are 10 emotional probes: relaxed, ignored, happy, mad, bored, important, unhappy, scared, safe, and sad; with the addition of love for the primary caregiver. Six items focus on psychological proximity-seeking, that is, the desire of the child for psychological closeness. Children rate each item on a 4-point scale with statements like: "I wish my mother knew me better." Using a cut-off scores derived from previous empirical studies a matrix was developed in which both subscales are used to derive one of five relational patterns: optimal, adequate, deprived, disengaged, or confused (see Table 1). Within the present study these categories were dichotomized into adequate and inadequate patterns.

The alpha reliabilities of internal consistency from previous studies of normative samples are .75 to .84 for emotional quality items and .86 to .88 for psychological proximity-seeking (Mellor-Crummey, 1989). In the present sample, Cronbach's alpha coefficients were .71 for emotional quality items and .80 for proximity items.

Table 1.

Relatedness Scale Score Matrix

Groups	Emotional Quality	Proximity Seeking	Relational Pattern
Adequate	> 3.0	<= 1.75	Optimal
	> 3.0	> 1.75 and < 3.0	Adequate
Inadequate	<= 3.0	> 2.5	Deprived
	<= 3.0	<= 2.5	Disengaged
	> 3.0	>= 3.0	Confused

Note. $N = 107$

Social Support.

The Medical Outcomes Study: Social Support Survey (MOS; Sherbourne & Stewart, 1991) is a 19 item self-report measure designed to assess five dimensions of social support: (a) emotional support, (b) informational support, (c) tangible support, (d) positive social interaction, and (e) affectionate support (Sherbourne & Stewart, 1991) and also produces a global score, which is used here. Two additional items were appended to the original questionnaire by the Principal Investigator of Project STAR to assess

participants' perceived social support from religious sources. The various types of

support are measured without consideration to its specific origin (e.g. family,

community). Each item asks mothers how often each kind of support is available to them

when they need it. Each item is rated on a 4 point scale in which: 1 = none of the time, 2

= a little of the time, 3 = some of the time, 4 = most of the time, 5 = all the time. The

MOS measure has a high internal reliability (r = .97) and moderate to strong convergent

validities (rs >.69; Sherbourne & Stewart, 1991. The current sample mirrored the

normative sample with a high Crombach's alpha of .96.

Chapter III: Results

Descriptive Statistics

Descriptive statistics for demographic (child age and gender) and outcome

variables are given in Table 2: each outcome is discussed in subsequent paragraphs.

Table 2.

Means, Standard Deviations and Ranges of Demographic and Outcome Variables

Variables	Mean	SD	Range
Child age	9.1	1.3	7-11
Child depression (CDI)	7.1	5.3	0-24
Child depression per parent (PCDI)	5.9	6.3	0-33
Parent depression (BDI-II)	12.8	11.6	0-50
Relatedness (dichotomous)	.54	.5	0-1
Social support (MOS)	83.6	18.1	24-105

Note. $N = 107$

Child depression.

Scores on the CDI (Kovacs, 1980/1981, 1992) were derived from a sum of all the

items given with higher scores implying greater depressive symptom endorsement by the

child. Eighteen children (16%) were above the clinical cut-off score (greater than 11 raw score) on the CDI (Smucker et al., 1986; as cited in Bliel et al., 2000).

The PCDI (parent version of CDI) data distribution was skewed ($S = 2.11$) with a high kurtosis ($K = 5.65$) indicating a pile-up on one side of the distribution with 24% of the sample reporting 1 or fewer depressive symptoms. Parent report of child depressive symptoms was significantly correlated with the child's own report of his or her depressive symptoms ($r = .25$).

Parent depression.

Endorsement of depressive symptoms was high for caregivers within this sample, with approximately 21% falling within the moderate to severe range.

Social support.

The Medical Outcome Study: Social support survey (MOS; Sherbourne & Stewart, 1991) was designed to measure self-perceived global social support, which includes aspects of functional and structural support available to the family. As anticipated, social support revealed a strong negative correlation with parent depressive symptoms ($r = -.451, p < .001$).

Relatedness.

The Relatedness Questionnaire (Lynch & Cicchetti, 1992) had five subscales that were re-categorized into adequate and inadequate relations. Forty-five percent of the children reported adequate relationships with their female caregivers. Ninety-three (87%) children answered the questionnaire for their mothers, 9 (8%) for their grandmothers and 5 (5%) for aunts and other female relatives. All participants were the primary caregivers within the home of the child.

Correlations.

Zero-order correlations for demographic and outcome variables are given in Table 3. Within an earlier review, Bennet (1996) reported that demographic variables rarely correlated with depression in children with chronic illnesses. In agreement with Bennet, these variables did not correlate in the current sample. However, parent's report of their child's depression increased with their child's age. As stated in Baron and Kenny (1986) testing a moderator model requires that the predicted relationship between the moderator variables and both the independent and dependent variable be uncorrelated ($r < .80$) for clear interpretation of any interaction term. The independent variable (parental depressive mood) and dependent variable (child depressive mood) in respect to the moderator variables (relational quality and social support) correlated below the conventional level of concern (see Table 3).

Table 3.

Zero-Order Intercorrelations for Child Depressive Mood, Parent Depressive Mood,

Social Support, and Relatedness

Variable	1	2	3	4	5	6
1. Child age	—					
2. Child gender	.07	—				
3. Child depression (CDI)	−.06	.08	—			
4. Child depression per parent (PCDI)	.21*	−.02	.25**	—		
5. Parent depression (BDI–II)	.09	−.001	.21*	.60**	—	
6. Relatedness	−.02	−.12	−.34**	−.15	−.12	—
7. Social support (MOS)	.02	−.04	−.10	−.19	−.45**	.12

Note. $N = 107$.

$^{**}p < .01,$ $^*p < .05$

Tests of Moderation

To test for moderation, data analysis in respect to the relationship of parental

depressive mood and child depressive mood (child and parent report) and the impact of

parent-child relational quality and social support were performed using Hierarchical

Multiple Regression (HMR) methods as specified by Baron and Kenny (1986). In

response to the gender and age differences in depressive mood endorsement within the

literature, these constructs were entered as covariates in all the following analysis

(Bartlett et al., 2004; Bennett, 1993; Hommel et al., 2003; Villa et al., 1999).

Within all tests of moderation, after controlling gender and age (step1), the

dependent variable was regressed on the independent variable (step 2). Next the

dependent variable was regressed on the moderator variable (step 3) and lastly on the

interaction term, which is the product of the centered independent and moderator variable

(step 4). The moderation model is confirmed by finding a statistically significant relation

of the interaction term (step 4) to the dependent variable despite control of the main

effects. The current test of moderation focused on relatedness (parent-child relational

quality) and the MOS (social support) moderation of the parent-child depressive mood

association. The models tested can be seen in Figure 1.

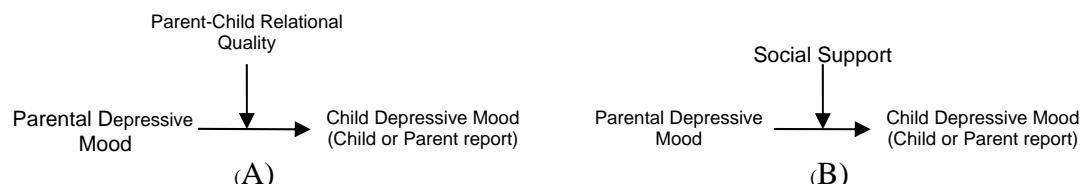*Figure 1.* **Path Diagrams Predicting Child Depressive Mood Endorsement**

Relatedness.

Two separate HMRs were performed for relatedness to assess the model fit

predicting child depressive mood, with one post hoc analysis. Parent depressive mood

was associated with child reports of his or her own depressive mood ($r = .21$), but as

predicted this association was qualified by an interaction with relatedness (categorized as

inadequate and adequate) that approached a conventional level of significance. The increase in R^2 when an interaction term (Relatedness x BDI) was added to the regression was .023, $F(1,101) = 2.77$, $p = .099$ (see Table 4).

Table 4.

Hierarchical Regression Analysis Predicting Child's Report of His or Her Own Depressive Mood From Parental Depressive Symptoms and Moderation Affects of Relatedness

Step Variable	Step 1 β	Step 2 β	Step 3 β	Step 4 β	ΔR^2
1 Child gender	.08	.08	.05	.04	
Child age	−.07	−.09	−.09	−.10	.01
2 Parent Depression (BDI-II)		.22*	.18	−.35	.05*
3 Relatedness			−.31**	−.32**	.09**
4 Interaction Term (BDI-II x Relatedness)				−.55	.02

Note. $N = 107$.

** $p < .01$, * $p < .05$

Unsurprisingly, parent depressive mood was associated with parent reports of the child's depressive mood ($r = .59$), but the predicted association was not qualified by an interaction with relatedness (categorized as inadequate and adequate). The strong association between parent depressive mood and parent reports of child depressive mood may be attributed to shared variance of parent report on both measures. The increase in

R^2 when the interaction term (Relatedness x BDI) was added to the regression was .005, $F(1,101) = .75, p = .39$ (see Table 5).

Table 5.

Hierarchical Regression Analysis Predicting Parent-Reported Child Depressive

Symptoms From Parental Depressive Symptoms and Moderation Affects of Relatedness

Step Variable	Step 1 β	Step 2 β	Step 3 β	Step 4 β	ΔR^2
1　Child gender	−.03	−.03	−.04	−.04	
Child age	.21*	.15	.15	.15	.04
2　Parent Depression (BDI-II)		.59**	.58**	.34	.34
3　Relatedness			−.08	−.08	.006
4　Interaction Term (BDI-II x Relatedness)				−.25	.005

Note. $N = 107$.

** $p < .01,$ * $p < .05$

Social Support

Social support was hypothesized as the second level within the model applied to relational analysis that would provide a buffer to the parent-child depressive mood association. The predicted moderation of parent depressive mood with the child's report of his or her own depressive mood ($r = .21$) by social support approached a conventional

level of significance. The increase in R^2 when the interaction term (MOS x BDI) was
added to the regression was .028, $F(1,101) = 3.11$, $p = .081$ (see Table 6).

Table 6.

*Hierarchical Regression Analysis Predicting Child Report of His or Her Depressive
Symptoms From Parental Depressive Symptoms and Moderation Affects of Social
Support*

Step Variable	Step 1 β	Step 2 β	Step 3 β	Step 4 β	ΔR^2
1 Child gender	.08	.08	.08	.10	
Child age	−.07	−.09	−.09	−.08	.01
2 Parent Depression (BDI-II)		.22*	.23*	.19	.05
3 Social Support (MOS)			.01	.11	.01
4 Interaction Term (BDI-II x MOS)				−.21	.03

Note. N = 107.

** $p < .01$, * $p < .05$

The association of parent depressive mood with parent report of child depressive
mood ($r = .59$) was expected to have an interaction with social support but no significant
moderation was found. The increase in R^2 when an interaction term (MOS x BDI) was
added to the regression was .03, $F(1,101) = .87$, $p = .35$ (see Table 7).

Table 7.

Hierarchical Regression Analysis Predicting Parent-Reported Child Depressive Mood

From Parental Depressive Mood and Moderation Affects of Social Support

Step	Variable	Step 1 β	Step 2 β	Step 3 β	Step 4 β	ΔR^2
1	Child gender	–.03	–.03	–.03	–.03	
	Child age	.21*	.15	.15	.14	.04
2	Parent Depression (BDI-II)		.59**	.63**	.64**	.34
3	Social Support (MOS)			.09	.05	.006
4	Interaction Term (BDI-II x MOS)				.09	.005

Note. $N = 107$.

** $p < .01$, * $p < .05$

Exploratory analyses

Relatedness Post Hoc

To further explicate the significant moderator relationship of parent-child relatedness on the parent-child depression association, a t-test was done to identify any significant difference between those with adequate and inadequate relationships. When relatedness was categorized as inadequate, parent and child depressive mood scores correlated .28 ($p = .03$), however when relatedness was categorized as inadequate, parent and child depressive mood scores both reported by the child correlated –.04 ($p = .80$; see Figure 1).
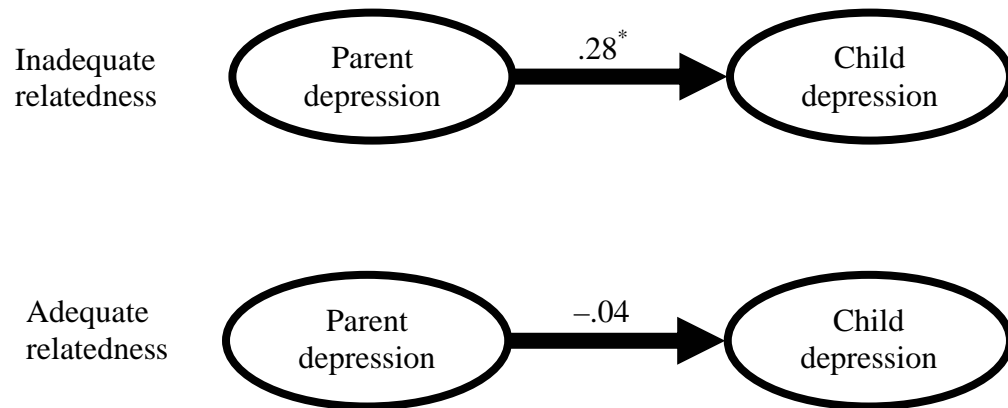
Inadequate relatedness — Parent depression → .28[*] → Child depression

Adequate relatedness — Parent depression → −.04 → Child depression

Figure 2. **The moderating effect of relatedness approached, but did not reach, a conventional level of statistical significance, *p* = .099**

Social Support Post Hoc

To further understand the influence of social support, two groups of scores were calculated from the model equation, creating low, medium, and high predicted scores. The predicted low and high groups were one standard deviation above and below the mean. These predicted scores were graphed to illustrate the buffering affect of social support on the parent child depressive mood association. With high social support predicted, depressive mood in parents had little predictive power for child depressive mood. Families within the low to medium social support groups evidenced a more predictive association in which higher levels of parental endorsement of depressive mood predicting higher child depressive mood as reported by the child.
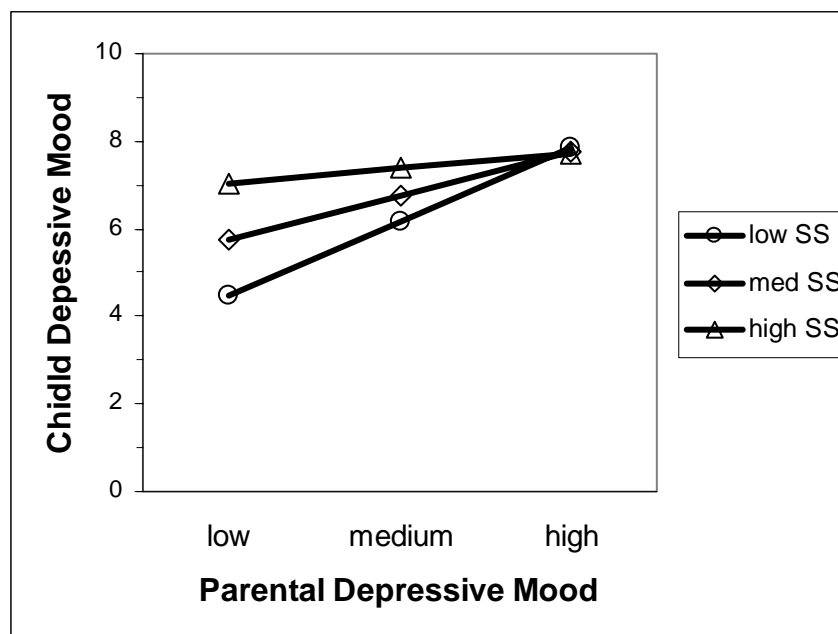
Figure 3. SS = Social Support. The moderating effect of social support approached, but did not reach, a conventional level of statistical significance, *p* = .081. The low and medium social support groups evidenced a more predictive association than the high social support group.

Chapter IV: Discussion

This study is a step toward elucidation of the role of relationship quality, inside and outside the family and its impact on the mental health of pediatric asthma patients. The psychological health of these individuals, in turn affect their capacity for self-care and health resource utilization (Bartlett et al., 2004). The current sample of low-income African American families represents the most adversely affected group in regards to pediatric asthma morbidity and mortality (Kattan et al., 1997).

I identified two levels of relational influence that may contribute to the child's psychological health beyond the disease factors of asthma. I used the ecological framework established by, which frames development as a joint function of the developing person and their environment. I specified the initial level as the quality of the parent–child relationship. I hypothesized that positive relational quality would function as a buffer against parental depressive mood for improved psychological health for children with asthma. This hypothesis was partially supported with the child's report of his or her own depressive mood with findings that approached a conventional level of significance with $p = .099$. Analysis of the parent report of child depressive mood yielded an anticipated strong relationship with parent depressive mood. Parent –child relational quality did not significantly moderate the association between parental depressive mood and child-reported depressive mood.

The second level of relational influence investigated was quality of the family's relationship to their social environment. This level was conceptualized as the caregiver's self-perceived global social support, or the amount of support that she could depend on from entities outside of the family unit (Lara et al., 1998). I hypothesized that the quality of the familial relationship with the environment (i.e., social support) would moderate the association of parent and child depressive mood. Greater social support reported for the family was anticipated to buffer the influence of parental depression on the child's manifestation of depressive mood. This hypothesis was partially supported for child's report of his or her own depressive mood, with findings that approached a conventional level of significance with $p = .081$. Parent reports of child depressive mood did not yield a significant moderation of social support.

The overall findings of this study emphasize the impact of relational quality on the mental health of pediatric asthma patients, supporting that a more holistic approach to investigating and understanding the emergence of emotional disturbances frequently seen in this population beyond the medical model focus on disease factors. In some research, pediatric asthma patients evidenced higher levels of depression and behavior problems than patients with many other chronic illnesses (Bennett, 1993).

Results of the exploratory analysis analyses suggest that within the tested moderation model with quality of parent-child relationship (relatedness) there may be different correlations between child and parent depressive symptoms for the two groups (adequate and inadequate relationship quality). A T-test analysis revealed very different patterns for the children who reported more negative relational quality (inadequate) with

their mothers than for those with adequate relational patterns. For those with inadequate

relational quality, the association between parent depressive mood and child depressive

mood was more predictive. This means that when there is poor relational quality,

depressed parents were more likely to have depressed children ($r = .28$; $p = .03$). For

children who reported positive relational quality (adequate), the association was weaker

between parent and child depressive mood ($r = -.04$; $p = .80$). This difference between the

groups supports the original hypothesis of a buffering function of positive relational

patterns at this initial level within the overarching ecological theory (Broffenbrenner,

1976).

The finding of the post hoc analysis of relational quality as a moderator elucidates

the actual predicted buffering effect of a positive relationship between the child and

parent and points out the need for medical care and research focused beyond the

individual patient to family and community levels. Research has identified that parents

and families of children with asthma endure a host of different stressors based on the

presence of the child with asthma that may involve the consumption of energy, time, and

financial resources (Kurnat & Moore, 1999; Svavarsdottir & Rayens, 2005; Whyte,

1992).

This study acknowledges that the findings cannot account for a directional

relationship between parent depressive mood and child depressive mood. Nor can it

account for the influence of depressive mood on parent report of social support or child

depressive symptoms. Depressed mothers may have under-reported available social

support or over-reported child depressive symptoms, as evidenced in past research

(Bartlett et al., 2004; Vandervoort, 1999). Over-estimation of child depressive symptoms

may be attributed to parents inferring higher levels of the depressive symptoms in their child due to their own depression or experiencing the child's behavior through their depression as more pronounced or problematic (Bartlett, Krishnan, Riekert, Butz, Malveaux, & Rand, 2004,).

A strength of the present study is the use of both parent and child report to measure depressive symptoms. Analyses were conducted on for both reports to determine the predictive power of parent depressive mood and the two hypothesized moderators (relatedness and social support). Within the analysis of the parent depressive mood association with parent report of child depression there may have been some shared variance due to the shared source for both measures. Additionally, shared variance may have impacted the child's report on the relatedness questionnaire and the child's report of their own depressive mood.

The relationship between poverty and depression has been positively correlated throughout the literature (Kurnat, 1999). With close to half the sample reporting less than $11,000 for household income, it is no surprise that 1 out of 5 of our parents endorse moderate to severe depressive mood. The rationale for examining depressive symptoms in this population of low-income, urban, African American families of pediatric asthma patients is couched in the influence of mental health on parents' capacity to manage their child's asthma and prevent development of co-morbid psychological disorders for children (Vila et al., 1999). Establishing positive relational quality as a buffer of child depressive mood presents a natural place for intervention and investigation of family level psychological factors that may aid in asthma management. In efforts to battle the morbidity and mortality due to asthma, these findings suggest effort toward establishing

better relationships between parents and their children (e.g. scaffolding of parenting

skills) and an increase in meaningful social support for the mothers within the

community.

In looking at social support as a buffer between parent and child depressive mood,

the current study focused on global support as reported by the parent. Social support

theoretically is comprised of functional and structural components. The literature shows

that these two aspects of social support have different effects on mental and physical

health outcomes (Cohen & Wills, 1985, Vandervoot, 1999). Future research should

further investigate the components of structural (network size) and functional (quality of

relationship) support. For families of children with chronic illnesses like asthma, the

stress associated with the illness can vary significantly due to unpredictability of attacks.

How support manifests may range from emotional support to actual functional assistance

toward the child's asthma (e.g. taking child to doctor visits). Current research has shown

that the effectiveness of social support is related to situation specificity varying in stress

and need levels (Vandervoot, 1999). For example, social support for a parent of a child

with acute asthma that need frequent visit to a specialist would be most effective if it

addressed the need for transportation or a proxy adult to take the child while the parent

worked. The effectiveness would be lost if support manifested as an encouraging call

because it would not address the specific need of the parent and child.

The strong association between parent and child depressive mood was found in

both parent and child reports of the child's depressive symptomatology. According to

Bennett's (1994) meta analysis on depression in children with chronic illnesses, children

with asthma, recurrent abdominal pain, or sickle cell appeared to be more at risk for

depressive symptoms than children with cancer, cystic fibrosis, or diabetes. Increases in

depressive symptoms for these groups may be due to greater pain, or uncertainty around

when the next attack or flare up of their illness will occur. Greater family involvement is

usually required in the care of cancer, diabetes, and cystic fibrosis; and this greater

presence has been hypothesized to lower the incidence of depressive symptoms (Bennett,

1994). Specifically for pediatric asthma patients, family functioning and negative life

events were highly correlated with psychopathology compared to normative samples

(Bennett, 1994). Further study of family and contextual contributors to depressive mood

endorsement is needed to differentiate the illness specific characteristics from the

psychological aspects associated with asthma.

Applied Implications

This study further elucidated the strong connection between parental and child

psychological health for pediatric asthma patients. This relationship was anticipated in

light of the high level of involvement required of parents in the care and maintenance of

their child's chronic illness, especially when they are young. The more promising finding

was that despite the contextual threats to parental mental health for this population (e.g.

poverty), a buffering effect was found for positive parent-child relational quality and

greater social support, albeit of marginal statistical significance. Better child-reported

relational quality reaped a weaker association of child and parent depressive mood. This

interconnected nature of parent and child health supports a paradigm shift from the

standard medical model that focuses on the individual to assessing pediatric illness as a

component of family health. This information has applicability to the treatment of

pediatric asthma by the medical community acknowledging the important role that

parents have in the care of the child and routinely assessing the quality of the parent-child relationship at doctor visits.

Whyte (1992) evaluated the role of family nursing in the care of children with chronic illness and found that nurses and medical staff play a role in the family's illness acceptance, management, and trajectory. She discussed a paradigm shift needed in the medical field to meet the contemporary health care needs. Within this shift, the capacity to intervene would be capitalized at this point of required contact for health care services to impact health outcomes.

Political Implications

The association identified in this study between the mental health of parents and children begs for a more comprehensive treatment of the family as a unit within the healthcare system. With the majority of the current sample reporting a household income below $11,000 a year, it is probable that the majority are eligible for Medicaid benefits for their children. To receive state assistance, applicants must be low-income expectant mothers, children in families with low income, individuals eligible for SSI benefits, and families with less than $2000 in total assets. This system creates a void in care for the working poor. With this focus on the individual patient, the irreplaceable need of parents in the care of pediatric populations is overlooked. Additionally, the recent welfare budget cuts have left many families with no medical provision for parents. Pediatric illnesses require so much of parents in care and maintenance, that it is a logical connection that parental health will affect the child's psychological health. The intertwined nature of family health seems to point to a more holistic vantage of the family as a unit for care.

Limitations

As with many studies in this area of investigation, both sample size and the homogeneity of the sample presented problems for both detecting significance and generalizing to the larger pediatric asthma patient population (Wood et al., 2000; Bartlet, Krishan, Riekert, Butz, Malveaux, & Rand, 2004; Vamos & Kolbe, 1999; Bleil et al., 2000). The limiting of the sample to focus on African American pediatric patients limited generalizability but was valuable due to the focus on the most adversely affected group. Additionally, the location of this research was in an inner-city hospital that provided care to the urban poor, typically African American.

This study employed self-report measures to assess the constructs of interest. Self-report measures are susceptible to shared variance from the same respondent, reporting biases, and measure misinterpretation. Individual administration of the questionnaires provided some opportunity for clarification of questionnaire items. In addition to these limitations, there was a lack of investigation on the reactive affects of race, gender, and age (e.g. adults administering child interview) of the interviewer on the answers given.

The Relatedness questionnaire also had five possible outcomes that were grouped into adequate and inadequate relational patterns. Of these five, confused relational patterns reflected high proximity and emotional quality needs and was categorized into the inadequate relational category. Deprived, disengaged, and confused groups reflected a negative appraisal of the mother child relationship per the child, indicating the child's needs for relatedness were not being met (Lynch & Cicchetti, 2002).The high number of confused relational patterns found within the sample (N = 42) may indicate a confound in measuring the construct of relatedness. The measure was designed and tested on a similar

sample of children around the same age (8–12) with results that indicated some differences in reporting in for low socioeconomic maltreated versus non-maltreated children (Lynch & Cicchetti, 1991). Toth and Cicchetti (1996) also used the measure with a culturally diverse sample comprised of 70% African American and Hispanic children with similar outcomes. The present sample may have experience inflation in the confused category due to inclusion of 7 year olds, of which 68 % endorsed the confused relatedness category. Current research endeavors within Project S.T.A.R. addressing relational quality are employing observational measures of relational quality to provide convergent validity beyond self-report measures (Celano, 2002).

Social support as a second level of relational quality added an additional level of relational investigation. The measure employed to represent this construct looked at a global assessment of social support that included both functional and structural support. The limitation with use of a global measure of social support is the lack of specificity of type of support provided. Functional and structural supports provide different responses to the needs of a family with a pediatric asthma patient. The counter-argument for the use of the global measure points out the intermeshed nature of social support in which many kinds of support are provided by the same people. Future research endeavors could focus on understanding the differing impact of type of social support reported and its effectiveness in promoting psychological health within the families. Additionally, the role of social support in the development of sustainable behaviors, such as integrated family action plans, for families of children with chronic illnesses is needed to address the consistent nature of asthma as a chronic illness.

Conclusion

Within this population of low-income, urban African American families, asthma occurs with greater frequency and with worse outcomes. This study further supports that pediatric asthma cannot be viewed outside of the family context in which the actual care processes occur. The psychological capacity of parents and children to provide care cannot be ignored within the efforts of the medical and social science community to address the challenges of the worsening impact of asthma on the African American community. There are many well-documented rationales for the high incidence of depressive symptom endorsement in this population, but the hope of this research endeavor is to identify protective factors that can be harnessed and nurtured to combat negative health outcomes. The high morbidity and mortality evidenced in this population due to asthma begs for a more thorough understanding of the association of the parent and child depressive mood and modalities of intervention to address the problem. The relational quality experienced within the family and the amount of social support reported may buffer any relationship between parental and child depressive mood and may provide a logical place for intervention. Changing the paradigm of the medical community to shift from individual care to treating the family as a unit of care will require more research on this level of analysis. Research reflective of Whyte's (1992) study of family nursing helps elucidate the role of the medical community as a helper and participant in the family context toward illness management. Research efforts are needed to further understand the positive psychological components within families with similar demographic characteristics that contribute to successful asthma management.

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