Introduction

Children with asthma appear to be at increased risk of behavioral and emotional problems (1). This appears to be particularly the cause for internalizing problems, which include anxiety and depression. A range of socioeconomic, demographic, family, and individual factors are known to influence these relationships (2). Most studies examining relationships between psychosocial and physical factors have been conducted on clinic- recruited children with asthma, and the few prospective studies focus on children at high biological risk of developing symptoms (3-5). Some studies examining medication have suggested that the administration of certain types of corticosteroids may be associated with hyperactive behaviors (6-8). In contrast, a large- scale multicenter trial of children with mild to moderate asthma indicated no elevation in neurocognitive difficulty (9).

It is possible that it is not asthma presence that leads to elevated ratings of psychological difficulties, but that children who are unwell or whose asthma is poorly controlled are at particular risk of being reported as having psychological difficulties. For children with chronic illnesses, poor psychological adjustment (10). It may therefore be the cause that the extent to which the child is unwell with asthma has a significant impact on psychological adjustment. Recently, for example, a cohort study (11) showed that patients of 3-year- olds showing recurrent attacks of severe wheeze and shortness of breath reported significantly higher levels of child behavioral problems.

In their meta- analysis of studies of behavioral adjustment in children with asthma, ***(McQuaid et al., 2001)***, (1) noted a number of methodological difficulties in the field. The samples of convenience and clinic samples making up the majority of studies are not as methodologically sound as large random samples. Furthermore, where comparison groups are used, these are usually health controls, so that the effects of poor health per se are not assessed. Studies

do not always control for socioeconomic status or other important demographic factors. The majority of studies rely on parent reports, and few studies use standardized teacher reports. Self- report of adjustment by children is rarely included.

Analysis of data from the 1999 UK nationwide child mental health survey of children aged 5 to 15 (12) allowed us to examine relationships between the presence or absence of asthma and reported psychological disturbance within a large population sample, while controlling for other actors. The data set allowed us to investigate the impact of the children's overall health status on parental ratings, teacher ratings, self-report by the child, and psychiatric diagnosis. The measure of asthma, that is, parental report of presence or absence, was basic, but parents also gave a rating of general health of the child. It has already been established that a wide range of variables has an impact on the child's adjustment. Prior analysis of the contribution of a range of variables, including child, family, school, and neighborhood factors within the sample (13) enabled us to anticipate a wide range of variables that might potentially have a bearing on any statistical relationships found between asthma and psychological adjustment, and these were controlled for in analysis. We therefore controlled for a range of factors, including gender, socioeconomic factors, and parental mental health, enabling us to assess the independent effect of asthma and general health on risk for behavioral and emotional disturbance and psychiatric diagnosis for behavioral and emotional disturbance and psychiatric diagnosis for the child. The survey data enabled us to test the hypothesis that children with asthma are at increased risk of hyperactivity on a large population sample.

Children with asthma are more likely to experience psychological difficulties than are healthy children ***(Kashani, , 1988; Maclean, 1992)*** with estimates of psychopathology among these children ranging from 25% to 42% ***(Marazke, 1992).*** The psychological difficulties of these children most

commonly include symptoms of depression ***(Gizynski , 1990; Nelms, 1989). Bennett (1994)***, in a meta – analytic review of 60 studies, found that children with asthma were at greater risk for developing depressive symptoms even when compared to children with other chronic illnesses such as cancer, cystic fibrosis, and diabetes mellitus. Moreover, depressive symptoms may be particularly problematic for children with asthma because of a possible psychophysiological link between depressive symptoms and asthma morbidity and mortality ***(Miller, 1987; Miller ,1989; Miller, 1997).***

Despite numerous studies examining the association between asthma and depression, pathways by which depressive symptoms arise in children with asthma have not been identified. Current research has focused mainly on the medically related aspects of asthma, investigating asthma severity as a primary risk factor. Although some evidence suggests that asthma severity is associated with depressive symptoms, overall, the findings have been inconsistent and sometimes contradictory ***(Kashani et al., 1988; MacLean et al., 1992; Padur et al., 1995).*** This suggests that factors beyond the biological parameters of the illness may be operating as well.

Family functioning has been implicated in the psychosocial outcomes of children, including those children experiencing chronic illness ***(Eiser, 1990),*** with 20% - 25% of children exhibiting a psychiatric disorder in poorly functioning families, compared to 7% of children exhibiting a psychiatric disorder in well functioning families ***(Rutter, 1981).*** Furthermore, **Jessop and Stein (1985),** investigating the familial environments of children with chronic illness, found that children with high illness- related functional status came from higher functioning families and exhibited fewer emotional problems. Functional status is defined as the degree to which a child can function in his or her normal activities despite current symptoms of asthma. Although functional status is inversely related to disease severity, which refers to the intensity and frequency

of symptoms, other factors likely influence the degree to which a child actually is impaired by the illness. Depression, for example, may lead a child to be less motivated, or more pessimistic, about coping effectively with the disease, even if it is not very severe. Conclusions from these studies underscore the importance of family factors and suggest that the functional impact of an illness may be more predictive than illness severity alone in the psychological adjustment of children with chronic illness.

The developmental literature indicates that, within the family context, parent- child relationships specifically may influence the emotional well- being of children. Positive parent- child relationships may be particularly important for children facing adversities related to chronic illness, potentially lessening the risk of depression in these children ***(Gizynski, 1990).*** Attachment theory has guided the conceptualization of parent- child relationships in this regard ***(Hubner , 1995; Masten, Best, 1990).*** Secure attachment relation ships allow the child to regulate his or her emotions in response to environmental challenges ***(Cassidy, 1994),*** with the disruption of attachment relation ships leaving the child ill prepared to negotiate such adversities ***(Cicchetti, 1991).*** We propose that the quality of children's attachment relationships with their caregivers will be implicated in the extent to which asthma- related functional impairment evokes depressive symptoms.

Although few well- validated and widely accepted instruments for assessing attachment in school-age children exist**,(lynch and Cicchetti 1991,1997)** have approached the role of attachment in studies of emotional well- being in children by using an adapted version of **Connell's (1990)** concept and measure of "relatedness" relatedness describes the quality of the child's self-reported relationship patterns with his or her caregivers ***(Connell, 1990).*** It encompasses dimensions of emotional proximity seeking and emotional quality, which together yield five categories of relatedness (two secure and three

insecure) ***(Lynch & CIcchetti, 1991, 1997).*** These relatedness patterns parallel attachment patterns ***(Cicchetti, 1995),*** representing a profile of parent- child interactions tat typify qualitatively distinct positive and negative relationship types.

Early literature on psychological adjustment in children with asthma often focused on emotional difficulties and disturbed parent- child relationships ***(Franch 1941).*** Perhaps in response to these observations, two classic epidemiological studies investigated the prevalence of psychiatric disorders in children with asthma ***(Graham, 1967; McNicol, Williams, 1973).*** Both studies concluded that the psychiatric disorder or behavioral disturbance found in children with asthma did not exceed that found in children without asthma. However, more recent research efforts have often reported increased levels of behavior problems among children with asthma as compared to children without asthma ***(Hamlett, , 1992; 1988; MacLean, 1992).*** Different measurement approaches may account for these varying estimates of the prevalence of psychological problems. Research indicating higher levels of psychological problems in children with asthma than in healthy children is derived primarily from parent report data ***(Hamlett et al., 1992; Maclean et al., 1992).*** Furthermore, when differences are found, the difficulties reported are generally minimal and fall in the range between normal behavior and diagnosable disorder ***(Kashani et al., 1988).***

Studies that obtain information about child functioning from informants other than the parents are less consistent regarding increased levels of psychopathology in children with asthma. In the study by Graham and colleagues ***(Graham et al., 1967),*** teachers did not report higher levels of behavior problems among children with asthma. In a more recent study including both parent and child structured interviews, findings indicated children with asthma did not differ from matched controls in number or type of

psychiatric diagnoses ***(Kashani et al., 1988).*** However, parents of children with asthma reported higher levels of overanxious symptoms for their children than parents of controls. No group differences were found on levels of symptoms by child interview ***(Kashani et al., 1988).***

Hence, the finding that children with asthma have increased behavior problems relative to their peers appears to derive specifically from parent report measures. Parents tend to report higher levels of behavior problems for children with asthma; other informants (teachers and the children them- selves) rarely report such differences. Recent research has emphasized the need for utilizing multiple informants in any assessment of child behavior problems, given that parents, children, and other adults may all provide unique perspectives on child functioning ***(Achenbach, 1987; La Greca 1996).***

Illness severity and psychological

Functioning Among children with asthma

Findings have been contradictory as to whether increased difficulties in emotional and behavioral adjustment. Early research suggested that behavioral disturbances occurred at a significant level only in the small group of children with severe and continuing asthma ***(Graham et al., 1967; McNicol etal., 1973).*** Some recent studies have found greater asthma severity to be associated with increased adjustment problems ***(Bussing, 1995; Maclean et al., 1992)*** and more difficulties in the mother- child relationship ***(Hermanns, 1989).*** This pattern is consistent with reports of high levels of psychiatric disorder among adolescents with very severe asthma ***(& Wamboldt, 1996).*** However, others have found no relationship between asthma severity and psychological functioning ***(Kashani et al., 1988).*** Yet others have found a curvilinear effect, with the greatest psychological dysfunction occurring among children with both severe and mild asthma ***(Perrin, 1989).***

Asthma severity is a complex construct defined by dimensions such as symptom frequency and severity, response to treatment, and effect of the illness on life activities. Inconsistent results regarding the relationship between children's psychological functioning and asthma severity may be caused, in part, by variations in assessment. Objective indices such as measures lung functions may be included, but most psychological studies rely on reports of medications required to control asthma symptoms, frequency and severity of symptoms, or functional indices such as school days missed. Several studies that have used medication level as a measure of asthma severity have found no relation ship to psychological adjustment ***(Kashani et al., 1988; Norrish, 1977).*** In contrast, asthma severity measures that include functional status items such as number of school days missed have more frequently been related to psychological problems ***(Graham et al., 1967; MacLean et al., 1992).*** This may be true because the management of asthma, including the extent to which it negatively affects children's functioning ***(Stein & Jessop, 1984).*** Finally, number and severity of symptoms, in isolation from medication levels required, might be expected to be related to psychological functioning because the latter is related to compliance ***(Mil-grom, 194).*** In this study, we have distinguished between medication level and symptom control to clarify the potentially differing relations between these variables and child adjustment.

Emotion regulation in children with asthma:

We propose that difficulties in emotional regulation may provide a useful heuristic for understanding the behavioral and interactions difficulties reported in children with asthma. The process of emotional regulation includes access to the range of emotions and the flexible modulation of the intensity, duration, and transitions between emotions ***(Cole, 1994).*** Developmentally, emotion regulation is influenced not only by intrinsic factors such as temperament but also by repeated interactions with caretakers. The manner in which caretakers

modulate emotions for their young children and teach (e.g., though modeling or providing consequences) the regulation of emotional behavior has been shown to play a major role in children's emotion regulation (Thompson, 1991). Events that stress the child and caretakers, such as when young children develop significant illness, may contribute to dysregulatory aspects of emotional regulation that may impede adaptive coping; emotional and behavioral difficulties may then result.

The examination of emotion regulation among children with asthma complements the measures provided by behavioral ratings. Assessments of emotion and emotion regulation focus on the key areas of behavior that often have been described, through a variety of measures, as problematic for individuals with asthma. Emotional symptoms such as anxiety or depression ***(Kashani et al., 1988; Wamboldt et al., 1996)*** and parent- child interaction problems ***(Block, 1964; Hermanns et al., 1989; Marazek, 1985; Schobinger, 1992)*** may be reinterpreted as difficulties in emotion regulation. In this view, negative emotion may disrupt the child's internal equilibrium as well as the parent- child relationship can result in the negative emotional climate noted in certain observational studies of children with asthma ***(Block et al., 1964; Marazek et al., 1985)*** and may also result in increased parental report of some child behavior problems ***(Hamlett et al., 1992; Malean et al., 1992).***

When a child develops asthma several changes in his /her behavior ,in his /her family and his / her social environment begin ,all the children answered positively at least one of question which detect data related to depression in the questionnaire .**(H. Robles , et al 2002)**