DISPOSITIONAL SELF-FOCUSING IN ADOLESCENTS AND YOUNG ADULTS WITH ASTHMA

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NOMENCLATURE

M	Mean
SD	Standard Deviation
PEFR	Peak Expiratory Flow Rate
AS	Asthma group
HC	Healthy Control group
IDD	Inventory to Diagnose Depression
BSI	Brief Symptom Inventory
GSI	Global Severity Index
MAACL	Multiple Affect Adjective Checklist
SCS	Self-Consciousness Scale
VAS	Visual Analog Scale
SFSC	Self-Focus Sentence Completion Task
GPA	Grade Point Average

CHAPTER I

INTRODUCTION

Asthma is recognized widely as the most common chronic illness of childhood (Creer & Bender, 1995). According to data presented by the National Center for Health Statistics (1996), 4.4 million individuals under the age of 18 have asthma. Many pediatricians, general practitioners, and researchers have traditionally viewed asthma strictly as an illness of childhood, holding the belief that children outgrow asthma as they age (Perez-Yarza, 1996). However, increasing numbers of studies have found that asthma is almost as common in adolescents as it is in young children, and is more prevalent in adolescence than adulthood (Price, 1996). Specifically, epidemiological studies have found that asthma symptoms persist in 30-80% of adult patients with childhood onset asthma (Roordan, 1996). Individuals with childhood onset asthma may experience a reduction or remission of asthma symptoms during the second decade of life; however, researchers have increasingly recognized that this pattern does not occur as frequently as previously thought. Further, some researchers argue that while adolescents may appear to be symptom free, asthma may remain present in these individuals in the form of sub-clinical, but significant, airway obstruction and bronchial hyperresponsiveness (Roordan, 1996).

Despite the fact that many individuals with childhood onset asthma continue to experience asthma symptoms during adolescence and young adulthood, these age groups have largely been ignored by medical and research communities (Perez-Yarza, 1996). After providing a brief review of the nature of asthma in general, the present paper reviews literature related to the medical and psychological impact of the persistence of childhood onset asthma into adolescence and young adulthood. Ultimately, it will be argued that specific aspects of the experience and treatment of asthma are associated with a tendency for adolescents and young adults with asthma to be dispositionally self-focused. Dispositional self-focusing, also known as self-consciousness, refers to an individual's tendency to direct his attention towards or away from the self. An individual high in dispositional self-focusing tends to take himself as the focus of his attention more frequently than an individual who is low in dispositional self-focusing (Carver & Glass, 1976; Fenigstein, Scheier & Buss, 1975; Scheier & Carver, 1977, 1982; Smith & Greenberg, 1981). Notably, measures of dispositional self-focusing have been found to correlate positively with measures of depression (Smith, Ingram, & Roth, 1985). Further, research has demonstrated that self-focused attention may intensify the experience of negative affect and increase the tendency to evaluate oneself negatively, to make internal attributions for negative outcomes, and to withdraw from a task after an initial failure (Pyszczynski & Greenberg, 1985). Because asthma management necessitates a high degree of self-focus (e.g., Priel, Heimer, Rabinowitz, & Hendler, 1994), across time individuals with asthma may become more likely to be high in dispositional self-focusing than individuals who do not have asthma. Consequently, adolescents and young adults with asthma who are dispositionally self-focused may experience impaired functioning in

a variety of cognitive, emotional, and behavioral domains, including negative expectations for future outcomes, depressed mood, and failure to persist on a task following failure.

CHAPTER II

REVIEW OF THE LITERATURE

The Nature of Asthma

Disease Characteristics

Physical characteristics. Asthma cannot be defined in terms of its etiology, as the cause of asthma is unknown. Rather, asthma generally is defined in terms of its hallmark characteristics, which include intermittency, variability, and reversibility (Creer & Bender, 1995). Intermittency refers to the notion that the number of attacks individuals with asthma experience varies from individual to individual, and may also vary within the individual across time. Individuals with asthma may have a series of attacks within a short time period, but then may not experience another attack for a significant amount of time (Creer & Bender, 1993, 1995; Young, 1994). The frequency of attacks an individual experiences is a function of numerous variables, including the number and diversity of stimuli that trigger an attack, the degree of hypereactivity of the individual's airways, the degree of control established over the disorder, healthcare variables (e.g., access to asthma specialists), and patient variables (e.g., medication compliance) (Creer & Bender, 1993, 1995).

Variability refers to the overall severity of an individual's asthma as well as the severity of an individual attack (Creer & Bender, 1993, 1995). There is no agreed upon standard for classifying discrete attacks or an individual's asthma in general as mild, moderate, or severe (Creer & Bender, 1993). The lack of a standard for classifying the nature of an individual's asthma makes it difficult to track changes in the severity of the disease over time (Creer & Bender, 1995). Although physicians and scientists may not have an agreed upon standard for classifying the variability of asthma, individuals with asthma may develop expectations about the severity of their asthma. If the individual has had mild attacks throughout the course of the disease, he may be unprepared to cope with a severe attack. An isolated, severe attack may result in psychological and behavioral reactions that both exacerbate the attack and influence the individual's expectations for future attacks (Creer & Bender, 1993, 1995). Thus, the variable nature of asthma makes the disease difficult to predict in both short- and long-term time frames.

Reversibility refers to the fact that the acute airway obstruction associated with asthma can remit either spontaneously or with treatment. Although most patients demonstrate complete reversibility of airway obstruction following proper treatment, this is not necessarily the case for all individuals with asthma. The reversible nature of asthma is what separates it from other respiratory disorders such as emphysema, where the airway obstruction is permanent (Creer & Bender, 1993, 1995).

Creer and Bender (1995) note that two other characteristics of asthma, airway hyperresponsiveness and airway inflammation, are of increasing interest to physicians and behavioral scientists. Airway hyperresponsiveness refers to an exaggerated airway response to a number of different stimuli. In asthma, this response takes the form of a

reduction in small airway diameter due to muscle spasm, mucosal edema or swelling, mucosal inflammation, or increased mucus secretion. The inflammation of the airways associated with asthma is believed to be caused by a complex reaction between tissues and cells present in the airways and inflammatory cells and mediators (Creer & Bender, 1995; National Heart, Lung, and Blood Institute, 1997; Sheffer, 1991).

Asthma prevalence, morbidity, and mortality. An estimated 10-15 million individuals in the United States have asthma (Creer & Bender, 1993) and it is estimated that 4.8 million of these individuals are under the age of 18 (American Family Physician, 1996). The prevalence of asthma has increased during the previous twenty years in the United States and other western countries, which, in turn, has been associated with an increase in morbidity and mortality (Creer & Bender, 1993, 1995). Although the death rate from asthma appears to be rising faster in young children (5 to 14 years of age) than adolescents and young adults (15 to 34 years of age) (Weiss & Wagener, 1990), between 1980 and 1993, the death rate from asthma doubled for individuals between 15 and 24 years of age (American Family Physician, 1996). During this time period, asthma accounted for 3,850 deaths in individuals under the age of 24. Death rates from asthma during this time period consistently were highest among African-American males between the ages of 15 and 24 (American Family Physician, 1996).

Mannino and colleagues (Mannino et al., 1998) analyzed more recent data from the National Center on Health Statistics, finding that between 1993 and 1995, 135 children between the ages of 5 and 14 and 489 individuals between the age of 15 and 34 died from asthma. These incidents yielded death rates of 3.7 and 5.4 per 1,000,000 individuals in the population for the 5 to 14 and 15 to 34 age groups, respectively.

Consistent with Creer and Bender's (1993, 1995) statements, Mannino et al. (1998) note that these death rates from asthma represent an increase compared to previous decades. The increasing morbidity and mortality associated with asthma is surprising given that the medical treatment of asthma has advanced considerably (Creer & Bender, 1993, 1995). Creer and Bender (1993) note that researchers' endeavors to explain this paradox have failed to yield any acceptable explanations.

In terms of economic impact, the total estimated cost of asthma in 1990 was 6.2 billion dollars (Weiss, Gergen, & Hodgson, 1992). Direct medical expenditures, including inpatient hospitalization and prescription medication, account for the largest proportion of the cost of asthma. Indeed, the estimated number of physicians' office visits related to asthma care doubled between 1975 and 1995 from 4.6 million to 10.4 million. In 1995, an estimated 1.8 million emergency room visits occurred as a result of asthma (Mannino et al., 1998).

Indirect costs of asthma include lost workdays for adults who must stay home from work in order to care for a child with asthma, as well as lost productivity within the home when a stay-at-home parent must attend to their child. Between 1983 and 1987, children between the ages of 5 and 17 missed more than 10 million school days as a result of asthma. Individuals eighteen years of age and older missed 3 million work days due to asthma symptoms (Weiss et al., 1992). A study of college students with asthma revealed that students missed, on average, 2.8 days of class during a semester and were expected to miss 5.6 days of class throughout the academic year (Jolicoeur, Boyer, Roeder, & Turner, 1994). Clearly, asthma has an economic impact on individuals and families who attempt to manage this capricious disease. Unfortunately, given recent data

suggesting that asthma persists into adolescence, many of these families will face continued economic effects of asthma well beyond childhood.

Nature of asthma in adolescence and adulthood. The progression of childhood asthma into adolescence and young adulthood is not well understood (von Mutius, 1996). However, some research suggests that the severity of asthma in childhood may predict the persistence of asthma into later life (Roordan, 1996). For example, a prospective study conducted on 323 British children who wheezed in childhood found that half of the participants with a minor wheeze in childhood had stopped wheezing by the age of 21. In contrast, only one-quarter of participants with frequent wheezing in childhood were no longer wheezing at age 21. Finally, only 10% of participants with persistent asthma in childhood did not wheeze at 21 years of age. The authors of the study concluded that individuals with persistent asthma in childhood are likely to continue to suffer from asthma in young adulthood, and that the prognosis for young adults who experienced mild asthma in childhood may not be as favorable as previously thought (Kelly, Hudson, Phelan, Pain & Olinksy, 1987).

Despite the fact that adolescents and young adults continue to suffer from childhood onset asthma, medical care for individuals in this age group is frequently inadequate. Perez-Yarza (1996) notes that adolescents frequently are viewed as "no man's land" (p. 1) in the medical community because they are viewed as too old to be seen by a pediatrician and too young to be treated by a general practitioner who specializes in adult medicine. Consequently, adolescents and young adults with asthma may not receive sufficient medical care. In a review of the literature, Roordan (1996) notes that 80% of adolescents with asthma do not receive regular medical supervision of

their asthma despite experiencing numerous symptoms. A study of forty-six adolescents with asthma in the United Kingdom revealed that only two of the participants were being treated at a pulmonary or allergy specialty clinic, only twenty-five had undergone peak flow measurements at any point during their treatment, and most of the participants had poor knowledge of their asthma and limited understanding of disease management (Price, 1996). A study of college students with asthma indicated that 40% of the sample did not seek medical attention for asthma symptoms despite believing the symptoms were severe enough to warrant medical care. Another 65% of the sample claimed that seeking medical care was inconvenient, and 31% claimed they could not afford medical treatment (Jolicoeur et al., 1994). Collectively, these studies demonstrate that adolescents and young adults with asthma may not be receiving adequate medical treatment necessary to control their disease.

Given that asthma symptoms persist well beyond childhood, coupled with the data suggesting that adolescents and young adults with asthma do not receive adequate medical care, one might expect adolescents and young adults to be the target of considerable research and intervention efforts. Unfortunately, these age groups have been largely ignored by the scientific community. Specifically, the majority of research has been conducted on therapeutic strategies and management approaches for infants, children, and adults (Perez-Yarza, 1996). Asthma education tends to target families with asthmatic children or working adults with asthma; however, asthmatics between the ages of 18 and 25, many of whom are attending college, are rarely included in either of these targeted groups. Each year, a number of college students with asthma are hospitalized as

a result of poor asthma management, but little has been done to examine asthma-related issues among this age group (Jolicoeur et al., 1994).

In sum, asthma is a chronic illness characterized by its intermittent, variable, and reversible nature. Despite significant medical advances in the treatment of the disease, the prevalence of asthma appears to be rising among all age groups, which is associated with an increase in the morbidity and mortality of the disease (Creer & Bender, 1993, 1995). Psychological factors have been included amongst the possible explanations for the increasing prevalence, morbidity, and mortality of asthma (Bussing, Halfon, Benjamin, & Wells, 1995). Indeed, research has documented the role psychological factors appear to play in the onset of asthma, the expression and/or escalation of symptoms, and the individual's response to treatment (Creer & Bender, 1995).

Psychological Factors Associated with Asthma

The importance of psychological factors in the expression and treatment of pediatric asthma has been well documented (Creer & Bender, 1995; Silverglade, Tosi, Wise & D'Costa, 1994). Although a complete review of this literature is beyond the scope of the present paper, several consistent findings related to psychological factors in pediatric asthma are noteworthy. McQuaid, Kopel, and Nassau (2001) recently presented a meta-analysis of twenty-eight samples of children with asthma from twenty-six studies, representing almost 5,000 children with asthma. The results indicated that children with asthma evidenced more adjustment difficulties relative to both comparison groups of healthy children and normative data from standardized psychological distress

inventories for children. Further, children with asthma demonstrated more internalizing and externalizing disorders than children without asthma; however, the former difference was smaller than the latter. The meta-analysis also demonstrated that global adjustment difficulties, as well as problems with internalizing and externalizing symptoms, increased as asthma severity increased. More specifically, adjustment problems as well as internalizing and externalizing problems tended to be negligible for children with mild asthma and became more severe as children moved from moderate to severe asthma. It is important to note that the majority of the findings indicating that children with asthma evidence more psychological distress than children without asthma have been largely based on parental report of child behavior (Klinnert, McQuaid, McCormick, Adinoff, & Bryant, 2000). Children's self-report of their anxiety and depression symptoms, as well as teacher report of behavior problems, has failed to yield consistent differences between children with and without asthma (Klinnert et al., 2000; McQuaid et al., 2001). Overall, however, it appears that children with asthma consistently demonstrate greater levels of psychological distress than children without asthma based on parental report.

Consistent with the neglect of adolescents and young adults with asthma in the medical and research communities, much less is known about the psychological functioning of these two age groups (Chaney, Mullins, Pace, Uretsky, Werden, & Hartman, 1999; Mullins, Chaney, Pace & Hartman, 1997). The lack of information regarding the role of psychological factors in adolescents with asthma is especially troubling given that emotional factors may facilitate the exacerbation of asthma attacks in some patients (e.g., Bussing et al., 1995). The emotional turbulence usually associated with adolescence and the adolescent to adult transition, coupled with the potential

emotional adjustment problems associated with asthma and the limited medical treatment adolescents and young adults with asthma receive, may ultimately yield adverse health outcomes for these age groups.

Psychological Factors and Asthma Mortality

Strunk (1987) compared two groups of children with equal levels of asthma severity, with one group having survived their illness while members of the second group died from asthma-related causes. Strunk (1987) found that ten of the fourteen variables that distinguished the two groups were related to the psychological adaptation of the child or the child's family. He further noted that both his results and those of other investigators found that asthma-related deaths occurred more often in adolescents as compared to younger children. Although reasons for the increased mortality among adolescents were unclear, Strunk (1987) suggests that the psychological factors associated with asthma, combined with the developmental issues of adolescence, may lead to fatal outcomes. It is also possible that the endocrine changes of adolescence may produce a physiological explanation for the increase in asthma severity associated with death in some adolescents (Strunk, 1987). These findings suggest that, for at least some adolescents, the interaction between asthma severity and certain psychological factors may be potent enough to lead to death. Clearly, further research on the role of psychological factors in adolescent and young adult asthma is justified.

Emotional Adjustment of Adolescents and Young Adults with Asthma

A limited amount of empirical work has begun to illuminate the role of psychological factors in adolescents and young adults with asthma. Perez-Yarza (1996) posits that adolescents with chronic illnesses such as asthma may begin to realize that their illness may limit future professional goals and social development. As a result, the adolescent may experience feelings of failure and helplessness, impaired self-esteem, and anger. These feelings, in turn, may be associated with a failure to avoid stimuli likely to trigger asthma, poor compliance with treatment, and a decline in the monitoring of asthma symptoms (Perez-Yarza, 1996).

Research has demonstrated that the relationship between emotional adjustment problems and asthma in adolescence may depend on disease severity (Price, 1996). For example, Silverglade et al. (1994) found that 128 adolescents with asthma scored higher on measures of anxiety, depression, and hostility, and measures of irrational beliefs (e.g., the need for approval from others and the inability to control emotions) than a control group of healthy adolescents. However, these results largely depended on the severity of the asthma. Adolescents with mild asthma were more likely to resemble healthy peers on outcome measures, whereas adolescents with severe asthma were more likely to have adjustment difficulties. The researchers also concluded that a subset of adolescents with asthma appear to display a strong dependency on significant others as well as a sense of helplessness, anxiety, depression, and hostility (Silverglade et al., 1994). Adolescents with asthma are at risk of experiencing emotional adjustment problems, and this is particularly true among adolescents with severe asthma.

Not only has psychological distress been documented in younger adolescents with asthma, research has found that older adolescents and young adults with asthma also experience psychological difficulties. In a study conducted by Mullins and his colleagues (Mullins et al., 1997), forty-nine college students with asthma aged 17 to 26 completed measures of psychological distress, illness uncertainty, and attributional style. The results indicated that the participants' level of psychological distress fell just beyond one standard deviation of the instrument's normative sample, indirectly suggesting elevated levels of psychological distress. Interestingly, the study also found that high levels of illness uncertainty and increased stable attributions for negative events were independently related to psychological distress.

Illness uncertainty refers to the inability of an individual with a chronic illness to determine the meaning of an event related to the illness or to predict outcomes related to the illness accurately due to a lack of appropriate cues (Mishel, 1990). Illness uncertainty may result from ambiguity about the state of the illness, the complexity of treatment, lack of information about the seriousness of the illness or prognosis, and the unpredictability of the illness (Mishel, 1984). Stable attributions for negative events refer to the individual's tendency to view the cause of an adverse outcome as likely to persist across time (Alloy, 1982). Thus, Mullins et al. (1997) found that these two cognitive appraisal processes independently predicted the level of psychological distress in adolescents and young adults with asthma.

Mullins et al. (1997) posited that the intermittent nature of asthma (e.g., the number of attacks varying across time) may increase the individual's level of illness uncertainty, especially in the context of asthma management. In other words, because

the individual may not be able to predict the number of attacks he or she is likely to experience in a given time frame, they may feel uncertain about their illness and doubt their ability to manage the illness effectively. Mullins et al. (1997) argue that, over time, the individual's feelings of uncertainty may become associated with negative outcomes (i.e., poor disease control). Further, the researchers posited that, as a result of repeated exposure to the unpredictable nature of asthma, individuals with asthma may tend to have a cognitive style that includes an expectation of negative outcomes for both asthma-related and non-asthma related events and the expectation that these negative outcomes cannot be avoided. Thus, the researchers argued that uncertainty about asthma management and the expectation of negative outcomes for events may contribute to the psychological distress experienced by individuals with asthma.

Such findings are consistent with results obtained from studies of two other chronic illnesses. First, Kuttner, Delamater, and Santiago (1990) hypothesized that children with diabetes who repeatedly experience poor metabolic control despite compliance with their treatment plan may attribute control problems to factors internal to themselves. In addition, they may see the situation as likely to persist across time and likely to generalize to other events (e.g., internal, stable, global attributions). The researchers argued that these attributions and beliefs would result in a deterioration of the children's self-care, which would lead to a greater decline in metabolic control as well as feelings of helplessness and depression. The results of their investigation indicated that diabetic children who were more likely to make internal, stable, global attributions for a variety of events tended to have worse metabolic control than diabetic children who did

not have this attributional style. These results support the idea that a child's cognitive style is associated with the course of his illness.

In a second related study, Frank, Blount, and Brown (1997) examined the relationship between attributional style and emotional adjustment in eighty-six children with cancer. Results indicated that children with cancer who made internal, stable, global attributions for negative events were more likely to display depressive symptoms, anxiety, and acting out behaviors than children with cancer who evidenced lower levels of this attributional style. Although this study did not examine the effect of attributional style on specific disease variables, the study does support the idea that specific cognitive processes (e.g., internal, stable, global attributions) are associated with psychological distress among children with a chronic illness.

Collectively, the studies by Mullins et al. (1997), Kuttner et al. (1990), and Frank et al. (1997) suggest that an internal, stable, global attributional style is associated with psychological distress and difficulty with disease management across three different types of chronic illnesses, including asthma. The use of internal, stable, global attributions to account for negative outcomes is consistent with reformulated learned helplessness theory (Nolen-Hoeksema, Seligman, & Girgus, 1986; Abramson, Seligman, & Teasdale, 1984). Therefore, it appears that a learned helplessness conceptualization may help explain the psychological adjustment difficulties experienced by individuals with asthma and other chronic illnesses.

The Role of Learned Helplessness in Psychological Adjustment to Asthma

In 1978, Abramson, Seligman, and Teasdale offered a reformulation of the learned helplessness hypothesis as it applies to human behavior. The authors argued that the original model failed to distinguish between universal (outcomes are uncontrollable for all people) versus personal (outcomes are uncontrollable only for the individual) helplessness. Further, the model failed to predict when helplessness would be expected to be general versus specific and chronic versus acute (Abramson et al., 1978).

In order to compensate for these shortcomings, the authors proposed a reformulated model of learned helplessness that heavily invoked the individual's attributions or explanations for his helplessness in order to account for the cognitive, emotional, motivational, and self-esteem deficits commonly observed following experiences with non-contingency (Abramson et al., 1978). Specifically, the authors postulated that there must first be an objective experience of non-contingency in which the individual's efforts to control his environment do not yield the desired outcomes. The individual must perceive this non-contingency and must propose an explanation of why the non-contingency occurred. In other words, the individual must ask himself, "Why am I helpless?" (Abramson et al., 1978). If the individual's explanation of why he is helpless results in the expectation of future non-contingency, then the individual is likely to show the cognitive, emotional, motivational, and self-esteem deficits associated with learned helplessness (Abramson et al., 1978).

The authors argued that individuals form their explanations for why they are helpless along three continuums. The internal versus external continuum involves determining if the individual's failure to obtain a desired outcome is because he does not

posses the necessary behavioral response needed to achieve the outcome (internal), or if no relevant other individual in the environment posses the behavior necessary to obtain the desired outcome (external). If the former attribution is made, the individual may suffer a decrement in self-esteem, whereas self-esteem may be preserved in the latter case (Abramson et al., 1978).

The stable versus unstable continuum involves determining if the cause of the helplessness is due to long-lived or recurrent factors (stable) versus short-lived or intermittent (unstable) factors. Stable attributions are likely to result in chronic helplessness deficits because the individual believes that he will lack the necessary behavioral response into the foreseeable future. However, unstable attributions suggest to the individual that he may be more successful in the future (Abramson et al., 1978).

The global versus specific continuum involves determining if the cause of the helplessness occurs in a broad (global) or narrow (specific) range of situations. Global attributions imply that the individual will be helpless across a myriad of situations, whereas specific attributions imply that helplessness will be confined to the original situation (Abramson et al., 1978).

Abramson et al. (1978) argue that when an individual encounters response-outcome non-contingency, he invokes these three dimensions to explain why he experienced helplessness. The combination of the three dimensions yields eight possible explanations for any given occurrence of helplessness. The selection of specific attribution patterns will determine the individual's expectation of future response-outcome relationships, which, in turn, determines the chronicity, generality, and intensity of the cognitive, motivational, emotional, and self-esteem deficits associated with non-

contingency experiences. For example, an individual who makes an internal, stable, global attribution for the cause of non-contingency believes a factor internal to him caused the non-contingency and that this factor is likely to persist across time and situation. This individual is likely to expect non-contingency in the future and is likely to have long-term learned helplessness deficits. In contrast, an individual who makes an external, unstable, specific attribution for the cause of an event believes the event was caused by a factor external to himself that will not persist across time and situation. This individual is less likely than the previous individual to have expectations for future non-contingency and, therefore, is likely to have less severe learned helplessness deficits (Abramson et al., 1978).

Chaney and colleagues (Chaney et al., 1999) applied learned helplessness theory to the experiences of adolescents and young adults with asthma. Building on the arguments of Mullins et al. (1997), Chaney et al. (1999) argued that adolescents and young adults with childhood onset asthma have a long learning history of experiences with the unpredictable nature of asthma. They argued that these repeated experiences with the capricious nature of asthma may facilitate the belief that their behavior does not exert an influence on the outcome of their disease, thus resulting in helplessness. The perceived lack of contingency between disease-related behaviors and disease outcomes may then lead to negative expectations for future disease outcomes, resulting in emotional adjustment difficulties and problems with disease management. Given the state of helplessness resulting from the illness, Chaney et al. (1999) hypothesized that adolescents and young adults with childhood onset asthma may have been more likely to

develop an internal, stable, global attributional style than their same-aged peers without asthma.

Assuming that experiencing non-contingency would lead to increased susceptibility to future experiences with non-contingency, Chaney et al. (1999) sought to determine if college students with a history of childhood onset asthma would be more susceptible to cognitive difficulties following exposure to non-contingency in an experimental setting than same aged peers who did not have a chronic illness history.

Thirty-nine young adults with asthma and ninety-four same-aged healthy controls participated in the Chaney et al. (1999) study. The experimental manipulation was accomplished by exposing participants to one of two task conditions, one involving a solvable task and one involving an unsolvable task. Participants in the solvable task condition were given feedback contingent upon their performance on a puzzle task. Participants in the unsolvable condition (or non-contingency condition) received random feedback about their puzzle performance that was unrelated to their actual performance. Following the manipulation of contingency, all participants solved a series of anagrams. The results of the study indicated that participants in the unsolvable condition performed more poorly on the anagram task than did participants in the solvable condition; however, participants with asthma in the unsolvable condition performed significantly worse than their healthy peers in the same condition. These results suggest that individuals with asthma are more susceptible to learned helplessness deficits following an experience with non-contingency than individuals who do not have asthma. Such results further suggest that individuals with asthma may be more susceptible to the experience of non-

contingency in the real world environment, and the subsequent cognitive, emotional, and motivational deficits that are likely to follow (Chaney et al., 1999).

Interestingly, Chaney et al. (1999) also found that healthy controls in the unsolvable condition made external attributions for the cause of their poor performance on the anagram task, whereas the asthma participants made internal attributions for their poor performance. Based on this finding, Chaney et al. (1999) offered an alternative interpretation of their findings. Specifically, they noted that previous research on the "depressive self-focusing style" (Pyszczynski & Greenberg, 1987; p. 106) has demonstrated that depressed individuals often make internal attributions for failure and external attributions for success, whereas non-depressed individuals demonstrate an opposite pattern. The depressive self-focusing style has been associated with decrements in problem-solving performance similar to those observed in the Chaney et al. (1999) study (Greenberg & Pyszczynski, 1986). Chaney et al. (1999) noted that asthma management requires a high degree of self-monitoring to observe potential internal signs of an impending asthma attack or triggers within the environment that might lead to an asthma attack. This high degree of self-focus may be adaptive in situations in which the individual's behavior can have an effect on the outcome of an event; however, high degrees of self-focus may not be adaptive in situations in which the individual's behavior is unlikely to have an effect on the outcome (Chaney et al., 1999). In these latter situations, if the individual's attention is directed on himself, he is more likely to make an internal attribution for a negative outcome despite lacking personal control over the situation (e.g., Fenigstein & Levine, 1984). Thus, the Chaney et al. (1994) study

suggested the role of self-focusing as a possible cognitive process associated with the emotional adjustment problems of adolescents and young adults with asthma.

Self-Focusing and Psychological Adjustment to Asthma

Chaney and colleagues (Chaney, Hommel, Uretsky, & Mullins, 2000) explored the relationship between experiences of non-contingency and preferences for self-focusing among college aged students with a history of childhood onset asthma. The researchers argued that the nature of asthma management necessitates a high degree of self-monitoring, which may result in a tendency for individuals with a history of asthma to be more likely to be self-focused than individuals without a history of asthma. In order to investigate this hypothesis, the researchers conducted an experiment with forty college-aged students with a history of asthma and forty same-aged peers without a history of asthma. The study employed the same non-contingency experimental manipulation as was used in the Chaney et al. (1999) study. Following the experimental induction of non-contingency, participants were given the option of working on a set of word puzzles in the presence or absence of a mirror. Working the puzzles in the presence of the mirror was the operational definition of preference for self-focus, while avoiding the mirror was operationalized as avoiding self-focus.

The results of the study indicated that participants with asthma in the unsolvable condition spent more time in front of the mirror than the non-asthma participants in the same condition, and all the participants in the solvable condition. These results suggest that individuals with asthma engage in self-focus after failure. As mentioned previously, Chaney et al. (2000) argue that the development of a self-focusing style may be the

natural result of asthma management. However, such a high level of self-focusing may not be adaptive in situations where the individual does not have control over the outcome. Thus, the emotional adjustment problems observed in some individuals with asthma may be the result of perseverative self-focus (Chaney et al., 2000).

Taken together, the studies conducted by Chaney and his colleagues (Chaney et al., 1999, 2000) offer two potential explanations for the observed emotional difficulties of adolescents and young adults with asthma. Specifically, the Chaney et al. (1999) study suggests that the cognitive deficits observed in that study are the result of an increased vulnerability to the effects of non-contingency due to repeated experiences of non-contingency associated with having asthma. This learned helplessness hypothesis suggests that the cognitive deficits observed in the Chaney et al. (1999) study and the emotional adjustment problems of asthmatics observed in other studies (Mullins et al., 1997) may be due to experiences with non-contingency. However, results from the same study (Chaney et al., 1999) and results from the Chaney et al. (2000) study suggest that individuals with asthma may develop a self-focusing cognitive style due to the high degree of self-monitoring associated with asthma management. Research on individuals with depression who are prone to self-focus have observed cognitive deficits similar to those observed in the Chaney et al. (1999) study and the emotional adjustment difficulties observed in other studies. Thus, both the learned helplessness hypothesis and the self-focusing hypothesis can be used to explain the cognitive deficits and emotional adjustment difficulties of individuals with asthma. The next logical step in this line of research appears to be to determine which of these hypotheses best accounts for the cognitive deficits and emotional adjustment problems observed in individuals with

asthma. However, before discussing how to distinguish between these two hypotheses, a discussion of dispositional self-focusing and its relationship with asthma is necessary.

Dispositional Self-Focusing

Dispositional self-focusing, often referred to in social psychology literature as self-consciousness, refers to the individual's tendency to direct their attention inward or take to themselves as the object of their attention (Carver & Glass, 1976; Fenigstein et al., 1975; Scheier & Carver, 1977, 1982). Although the social psychology literature uses the term self-consciousness, the present study uses the term dispositional self-focusing to represent the same concept. The use of the term dispositional self-focusing will allow the present study to maintain continuity with the previous studies from which the present study stems.

Research indicates that there are individual differences in the tendency to be dispositionally self-focused (Scheier & Carver, 1977; Smith & Greenberg, 1981). Further, dispositional self-focusing (self-consciousness) can be broken down into public versus private self-focusing. Private self-focusing refers to the tendency to focus on one's inner thoughts and feelings while public self-focusing refers to the individual's awareness of oneself as a social object that has an effect on others (Smith & Greenberg, 1981).

Dispositional self-focusing is a salient trait to examine in adolescents and young adults with a history of childhood onset asthma because of the nature of self-management in asthma treatment (e.g., Chaney et al., 1999, 2000). Self-management of asthma usually involves high degrees of self-monitoring or the self-collection and self-recording

of behavior (Creer & Bender, 1993, 1995). One aspect of self-management involves risk-factor analysis, in which the individual detects an internal or external stimulus and determines the probability that this stimulus will lead to an attack based on previous experience with the stimulus. Because an internal or external trigger may occur at any time, individuals with asthma must constantly be aware of both their internal state and their external environment (Creer & Bender, 1993, 1995). Thus, individuals with asthma must constantly be self-focused to determine if they are experiencing any internal cues or external triggers warning that an asthma attack is impending. Over time, it is possible that individuals with asthma will become dispositionally self-focused as a result of their experience with their asthma management.

Further, Creer and Bender (1993) note that individuals with asthma must constantly evaluate both their internal states and their perception of potential environmental triggers as well as signs of respiratory distress observed by other individuals in the environment. Thus, the former experience may increase the individual's tendency to be privately self-focused, whereas the latter experience may increase the individual's tendency to be publicly self-focused because the individual may have consistently been the focus of the attention of concerned parents, medical staff, and teachers.

As Chaney et al. (1999) noted, the increased tendency to be dispositionally self-focused may be adaptive for individuals with asthma in certain situations. Specifically, if the individual's self-focus allows him to detect an internal cue that an attack is coming and the individual is able to avoid the attack, perhaps by taking medication, the individual will make an internal attribution for this success because his attention was focused

inward and he is likely to experience an increase in positive affect. However, the tendency towards dispositional self-focus may not be adaptive in situations in which the individual experiences failure. Specifically, if the aforementioned situation was to occur but the individual was unable to avoid the attack, he will make an internal attribution for his failure and he is likely to experience negative affect. Further, the experience of the negative internal attribution may result in subsequent deficits in problem-solving.

In sum, dispositional self-focusing may be related to asthma given that individuals with asthma must constantly focus on their own internal states and the effect external stimuli may have on their internal states in an attempt to manage their disease. Further, the individual with asthma may be more aware of himself as a social object due to other individuals evaluating the asthmatic's respiratory state. Although dispositional self-focus may lead to positive affect and a sense of mastery in controllable situations, the tendency to be dispositionally self-focused may lead to negative affect and problem-solving difficulties in situations that are not controllable

Distinguishing Between Learned Helplessness and Self-Focusing Hypotheses

Distinguishing between the learned helplessness hypothesis and the self-focusing hypothesis as possible explanations for the results observed by Chaney and colleagues (Chaney et al., 1999; Chaney et al., 2000) is complicated by the similarities between the two theories. First, both theories predict the same pattern of deficits as a result of experiencing each. Specifically, learned helplessness has been associated with deficits in motivation (e.g., dampened initiation of a response to a stimulus and lessened task persistence), cognitive deficits (e.g., inability to perceive one's ability to control

outcomes in certain situations), and emotional deficits (e.g., sadness and lowered self-esteem) (Nolan-Hoeksema et al., 1986). Similarly, a depressive self-focusing style has been associated with deficits in motivation, performance (cognitive) deficits, and emotional deficits, including negative affect and poor self-esteem (Greenberg & Pyszczynski, 1986). Because the two theories predict the same pattern of deficits, it is difficult to design an experiment that is capable of distinguishing which theory is responsible for the observed pattern of results.

Not only do both theories predict the same pattern of deficits, both provide the same explanation for the reason cognitive or performance deficits are observed in each situation. Specifically, learned helplessness theorists argue that decrements in cognitive performance are observed because of an increase in thoughts about the individual's state of mind rather than on the problem the individual needs to solve (Mikulincer, 1986). In other words, the individual experiences cognitive deficits when they encounter learned helplessness because the individual is becoming *self-focused*. This increase in self-focus distracts the individual from cues in the environment that might aid problem-solving. Thus, one expects to observe increases in self-focus when conducting experiments within a learned helplessness paradigm. Similarly, the depressive self-focusing theory would suggest that the individual experiences performance deficits when they are self-focusing following failure because their attention is turned inward rather than directed at the problem to be solved. Thus, it appears it would be difficult to determine which theory is responsible for observed cognitive deficits because one would expect to observe high levels of self-focusing in both a learned helplessness task and tasks that experimentally induce self-focus or elicit dispositional self-focus.

Finally, distinguishing between the learned helplessness hypothesis and the self-focusing hypothesis is confounded by the nature of the attributions associated with each. Specifically, research has demonstrated that individuals make attributions based on where their attention is directed. Thus, if one's attention is focused on the external environment, one would anticipate an external attribution in that situation. If one's attention is focused internally, one would expect an internal attribution (Fenigstein & Levine, 1984; Smith & Greenberg, 1981). This effect occurs regardless of the positive or negative nature of the event or its outcomes (Duval & Wicklund, 1973). Thus, when an individual experiences a learned helplessness paradigm and makes an internal attribution, it is assumed that his attention is focused on himself. Further, if an individual is in a state of self-focus, it is likely that he will make an internal attribution for events that occur while in this state (Pyszczynski, Holt, & Greenberg, 1987; Pyszczynski & Greenberg, 1986). Thus, both the learned helplessness and the self-focusing hypotheses predict that individuals will make internal attributions. When the outcome of the situation is negative, these internal attributions are likely to lead to emotional distress. Therefore, both hypotheses predict the observation of internal attributions and negative emotional states, making it difficult to design a study capable of distinguishing between the two theories.

Taken together, these arguments indicate that distinguishing between the learned helplessness and self-focusing explanations of the results obtained by Chaney and colleagues (Chaney et al., 1999, 2000) would be difficult. Both hypotheses predict the same pattern of deficits, the same reason for why some of these deficits ought to be observed, and the same pattern of attributions and subsequent emotional distress.

However, the two theories can be distinguished partially by examining an assumption made by Chaney and colleagues in their unpublished study. Specifically, Chaney and colleagues (2000) argue that individuals with asthma develop a self-focusing cognitive style due to the high degree of self-monitoring required by asthma management. Therefore, individuals with asthma ought to be more self-focused, in general, than individuals who do not have asthma. Individuals with asthma should display a tendency towards being self-focused across a number of situations, not just following failure. Thus, individuals with asthma should display a dispositional tendency to be self-focused. Although observing a tendency to be dispositionally self-focused may not definitively distinguish between the learned helplessness hypothesis and the self-focusing hypothesis, observing a tendency for individuals with asthma to be dispositionally self-focused lends credence to the basic assumption underlying the application of self-focusing theory to the cognitive and emotional difficulties observed in adolescents and young adults with asthma.

Thus, the purpose of the present study is to explore the tendency for adolescents and young adults with asthma to display higher rates of dispositional self-focus than their same-aged peers without a history of childhood-onset asthma. Further, the present study seeks to replicate the findings from both of the studies conducted by Chaney and colleagues (1999, 2000). Specifically, the study will determine if adolescents and young adults with asthma display cognitive deficits following experience with non-contingency, as well as a preference for self-focus after experiences with non-contingency.

CHAPTER III

THE PRESENT STUDY

The present study sought to determine if older adolescents and young adults with a history of childhood onset asthma were more likely to be dispositionally self-focused than a cohort of same-aged peers without a history of childhood asthma or other chronic illness. Further, the present study sought to replicate the findings of Chaney et al. (1999) and the unpublished study by Chaney and colleagues (2000) by determining if older adolescents and young adults with a history of childhood onset asthma demonstrated (1) cognitive deficits on an anagram task, (2) increased negative affect, and (3) a preference for self-focusing following an experience with non-contingency when compared with a cohort of same-aged peers without a history of childhood asthma or chronic illness. In addition, given previous research demonstrating that asthma severity may be a potential moderating variable between asthma diagnosis and psychological distress (e.g., Strunk, 1987), the present study explored the role of asthma severity in producing cognitive deficits, negative affect, and preference for self-focus following experience with non-contingency. However, due to the limited research focusing on asthma severity and the unknown amount of variance in asthma severity that would be obtained in the present study, no specific predictions regarding the role of asthma severity were made.

In order to experimentally evaluate these ideas, college students with and without a history of childhood onset asthma were recruited. All participants completed a measure of dispositional self-focusing, which included a measure of both private and public self-focusing. Participants were then randomly assigned to one of two conditions. In the solvable condition, participants completed a computerized standard concept formation task during which they received feedback that was contingent on their performance. In the unsolvable condition, participants completed the same computerized standard concept formation task; however, they received random, non-contingent feedback regarding their performance. Following the non-contingency induction, all participants solved a series of anagrams presented by the computer. This served as a measure of cognitive performance following non-contingency. Participants completed measures of their affect and measures of their attributions for their success or failure on the computer concept formation task. Finally, in order to measure the individual's preference for self-focus immediately following failure, individuals were presented with an ambiguous sentence stem and were asked to provide a phrase that completed the sentence. The phrases were coded for references to the self.

Thus, the following hypotheses were proposed:

1. Participants with asthma will show higher scores of dispositional self-focusing, including higher scores on the private and public self-focusing subscales, than participants without asthma.
2. Participants with asthma in the unsolvable condition will demonstrate poorer performance on the anagram task, higher levels of negative affect, and more internal attributions for failure than participants without asthma in the unsolvable

condition and participants with and without asthma in the solvable condition. Participants with asthma in the solvable condition are not expected to differ significantly from the non-asthma participants on the cognitive, emotional, or attributional measures.

3. Participants with asthma in the unsolvable condition will make more references to themselves following an experience with failure when compared with participants without asthma in the unsolvable condition and participants with and without asthma in the solvable condition.

CHAPTER IV

METHOD

Participants

Two groups of participants, one with a history of childhood onset asthma and one group of healthy controls, were recruited from undergraduate psychology and marketing classes at Oklahoma State University. Participants in these groups were matched for age and gender. Participants were informed that the purpose of the study was to examine the relationship between health status and other variables, including religious coping and problem-solving. Standardized recruitment procedures were conducted in accordance with the institutional review board of the university; all participants received either extra course credit or ten dollars in cash for their participation.

Forty-three participants with asthma were recruited into the study. However, two of the participants failed to complete the study and one participant was unable to be matched with a healthy control. Thus, the final asthma sample included 40 (13 males, 27 females) participants with asthma. Descriptive statistics for all variables of interest for the final asthma sample can be viewed in Table 1 in Appendix A. Participants in the asthma group (AS) ranged in age from 18 to 22 (M = 19.46, SD = 1.26) and were predominantly Caucasian (87.5%), with the remainder of

participants endorsing African American, Native American, Hispanic, Asian, or Biracial ethnicity (2.5% each).

All AS participants experienced their first asthma attack prior to the age of 12 (M = 7.64, SD = 3.35) and were diagnosed with asthma prior to the age of 12 (M = 7.82, SD = 3.44). Twenty-four (60%) AS participants reported having perennial asthma, 14 (35%) reported having seasonal asthma, and 2 (5%) did not indicate the type of asthma with which they had been diagnosed. Mean illness severity was determined by combining each asthma participant's highest Peak Expiratory Flow Rate (PEFR) score with his or her self-report of asthma severity, which was on a scale from 1 (mild) to 7 (respiratory failure). Using this method, each participant was given an illness severity rating on a scale from 1 to 4, with higher scores reflecting greater disease severity (O'Hara, 1995). The mean illness severity rating for this asthma sample was 1.6 (SD = .63), indicating that the average participant experienced mild to moderate asthma. Other measures of illness severity also suggested that the AS participants experienced mild to moderate asthma. Specifically, while 82.5% (35 participants) of the AS sample indicated that they had a current prescription for an asthma related medication, only 12 (34.2%) of these participants reported taking medication daily for asthma management, with the remainder indicating that they took medication as needed for asthma management. Further, 32.5% of the sample reported having visited a physician for an asthma-related issue within the six months prior to participating in the study, with the mean number of asthma related physician visits being 1.5 (SD = 1.5). The mean self-report of asthma controllability was 4.67 (SD = 2.01) on a scale from 1 (entirely uncontrollable) to 7 (entirely controllable), indicating that the average AS participant found their asthma to be somewhat to mostly

controllable. Overall, it appears that the average AS participant experienced a mild level of disease severity, perceived their disease to be largely controllable, and necessitated a limited amount of medical intervention for asthma management at the time of participation.

Forty-two healthy control (HC) participants were also recruited into the study. Two of the HC participants completed the study, but their AS matches failed to complete the study, which resulted in the two HC participants being removed from the analyses. Thus, the final HC sample consisted of 40 (13 male, 27 female) participants. Descriptive statistics for all variables of interest for the final healthy control sample can be viewed in Table 2 in Appendix A. The HC participants ranged in age from 18 to 22 years (M = 19.52, SD = 1.32) and were predominantly Caucasian (82.5%), with the remainder endorsing Native American (10%), Asian (2.5%), Biracial (2.5%), or Other (2.5%) ethnicities. Participants were included in the HC group if they (1) reported no history of a chronic illness diagnosis, (2) had never been treated by a physician for a medical condition for more than three consecutive months in any given year and (3) had never been hospitalized continuously for a medical condition for more than one month.

Measures and Experimental Tasks

Measures

Background Information Questionnaire. A questionnaire was designed for the purpose of this study to collect information regarding the participant's gender, age, year

in school, ethnic origin, parents' level of education, and parents' occupational status. In addition, asthma participants were asked to report their age of asthma diagnosis, type of asthma (seasonal versus perennial), current treatment status, and ratings of asthma severity and controllability (Appendix B).

The Inventory to Diagnose Depression (IDD). The IDD (Zimmerman & Coryell, 1987) is a 17-item self-report scale created to document the presence of current major depressive disorder utilizing DSM-III criteria (Appendix C) (APA, 1980). Each IDD item consists of a group of five statements, arranged in order of increasing severity that assesses a single DSM criteria for major depression. A scoring algorithm is used to make decisions regarding the presence of symptoms needed to make a diagnosis of major depression (e.g., Zimmerman & Coryell, 1987).

Research has demonstrated that the IDD is a reliable and valid measure of depression (Zimmerman & Coryell, 1987; Zimmerman & Coryell, 1988; Zimmerman, Coryell, Wilson, & Corenthal, 1986). Specifically, test-retest reliability correlation coefficients range from .91 to .93, Cronbach's alpha has been established at .92, and the split half reliability as measured by the Spearman-Brown coefficient is .90 (Zimmerman & Coryell, 1987; Zimmerman et al., 1986). Further, the IDD has been shown to have high levels of diagnostic concordance with semi-structured interview schedules and clinical ratings of depressive symptoms (Zimmerman & Coryell, 1994; Zimmerman et al., 1986). The IDD was included in the present study in order to examine the relationship between dispositional self-focusing and depression. Cronbach's alpha for this sample was high ($\alpha = 1.00$).

The Brief Symptom Inventory (BSI). The BSI (Derogatis, 1993) is a short version of the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1983). Whereas the SCL-90-R contains 90 items, the BSI consists of only 53 short items (Appendix D). The BSI yields measures of nine clinical dimensions of psychological distress with t-scores ranging from 30 to 80. Research demonstrates that the BSI is highly correlated with the SCL-90-R, has high internal consistency (.71 to .85), and possesses high test-retest reliability (.68 to .91) (Derogatis, 1993). Respondents in the current study were asked to indicate on a 4-point scale the frequency with which they have experienced various psychological or physiological symptoms within the previous seven days. The Global Severity Index (GSI) score from the BSI was used to assess overall psychological adjustment. Cronbach's alpha for this sample was high ($\alpha = .97$).

The BSI also allows researchers to examine *T* scores in terms of caseness (i.e., GSI *T* score ≥ 63, or two or more subscale scores ≥ 63). The BSI caseness criteria is considered to provide a good indicator of a positive case, although research regarding caseness on sensitivity and specificity is better developed for the SCL-90-R (Derogatis, 1993). Caseness criterion for maladaptation with the SCL-90-R has been used in a number of studies examining adaptation to chronic illness (e.g., Mullins et al., 1997; Thompson, Gustafson, Hamlett, & Spock, 1992).

The Multiple Affect Adjective Checklist (MAACL). The MAACL (Zuckerman & Lubin, 1965) is a 132-item adjective checklist that assesses transient mood states (Appendix E). The adjectives used on the MAACL represent three different mood states, including anxiety (e.g., afraid), depression (e.g., wilted), and hostility (e.g., angry). Respondents are given the instructions: "Please check the words that you feel apply to

you right now, at this moment." Mood adjective items are scored as either present (1) or absent (0). Some items contain positive mood adjectives, which are scored if not endorsed. The items representing each mood state are summed and divided by the total number of words available for each mood state (i.e., 21 for anxiety, 40 for depression, and 28 for hostility). The resulting scores represent the respondent's transient level of anxiety, depression, and hostility.

The MAACL was utilized in this study to evaluate participants' affective responses to the experimental manipulation (i.e., contingent versus non-contingent feedback). The experimental manipulation was expected to increase anxiety, depression, and hostility in the non-contingent condition. Previous research has demonstrated that the MAACL is sensitive to changes in transient moods in studies utilizing experimental induction procedures (e.g., Cairns & Norton, 1988; Nagata & Trierweiler, 1988). Silverglade et al. (1994) demonstrated that the MAACL was able to discriminate among moods across varying levels of asthma severity.

The Self-Consciousness Scale (SCS). The SCS (Fenigstein et al., 1975) is a 23-item scale designed to assess individual differences in the tendency to focus one's attention on oneself (i.e., dispositional self-focusing) (Appendix F). Respondents read each statement and rate how much each statement applies to them on a Likert-type scale ranging from 0 ("extremely uncharacteristic of me") to 4 ("extremely characteristic of me"). The SCS yields three factor-analytically derived scale scores including private self-consciousness (i.e., attention to one's inner thoughts and feelings), public self-consciousness (i.e., awareness of the self as a social object), and social anxiety (i.e., measures the individual's level of discomfort in the presence of others) (Fenigstein et al.,

1975). Research has demonstrated the reliability as well as the discriminant and construct validity of the SCS (e.g., Carver & Glass, 1976; Smith & Greenberg, 1981; Turner, Carver, Scheier, & Ickes, 1978). The SCS was included in the present study as a measure of dispositional self-focusing. Cronbach's alpha for this sample was high (α = .84).

Visual Analog Scale (VAS). The VAS is a single, 10-centimeter line on which participants are asked to indicate the extent to which they expect to succeed on an upcoming computer task (Appendix G and H). The scale on the VAS ranges from 0 ("much worse than most people") to 10 ("much better than most people"). Participants in the current study were asked to place an X on the line indicating how well they expected to perform on the upcoming computer task. The same procedure was repeated prior to the anagram task. Participants again were asked to indicate how they expected to perform on an upcoming computer task. The VAS ratings were used to assess the effects of the experimental manipulation on outcome expectancies as a result of experiencing contingent or non-contingent feedback. Specifically, participants who experienced non-contingency were expected to show a decline in their expectation for success on the computerized anagram task as a result of their previous experience with non-contingency. In a review of the literature on the use of visual analog scales, Ahearn (1997) concluded that such scales, in general, have acceptable reliability and validity, are easy for participants to comprehend, and yield high rates of participant compliance.

Internal-External Attributions. A single item assessed participants' internal versus external attributions for their performance on the experimental computerized task both prior to and after completing the task (Appendix G and H). Specifically,

participants were asked, "Do you think that your performance on the computer task (will be/was) due to something about you or due to other circumstances?" The design of this item is similar to items on the Attributional Style Questionnaire (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982). Participants' responses could range from one ("totally due to other circumstances") to seven ("totally due to me"). Higher scores reflect more internal attributions for performance on the experimental computerized task. The use of the internal-external attribution measure allowed for observation of changes in locus of control that occurred due to the experimental manipulation.

Experimental Tasks

Contingency Task. The experimental task that was utilized in the present study was a computerized version of a standard concept-formation task (e.g., Levine, 1971), similar to the task originally used by Hiroto and Seligman (1975) and others (e.g., Benson & Kennelly, 1976). During the experimental task, participants were seated at a computer terminal in a private room and given the following standardized instructions.

> "In this task, you will be presented with several problems. Each problem consists of a series of displays like the one in the bottom right hand corner of the screen. Each display will contain a letter 'Y' and a letter 'Z'. You will also see that one letter will be surrounded by a square and the other by a circle. Also, one background will be red and the other will be blue. Every display will be like this

one except that the letters, the surrounding shapes, and the background colors will be combined in different ways.

One of the two patterns, either the top or the bottom, has been chosen to be the right pattern. For each display, you are to indicate which of these two you think is the right pattern and the computer will tell you whether you are 'right' or 'wrong'. Then you will go on to the next display, again you will make a choice, and again the computer will tell you if you are 'right' or 'wrong'.

In this way, you can learn the reason for the computer saying 'right' or 'wrong'. The reason may be because of the letter, the surrounding shape, or the background color. The object for you is to figure this out as fast as possible so that you can choose correctly as many times as possible.

For each display, you are to indicate which of the two patterns you think is right and the computer will tell you whether you are 'right' or 'wrong'. To choose a pattern, click it once."

Participants were given examples of how the task works. After the examples, the computer presented the participants with forty stimulus patterns grouped into four sets of ten problems. After the tenth problem in each set, the stimulus dimension (e.g., the letter Y) associated with a correct response changed automatically such that the participant had to determine which stimulus dimension was now correct (e.g., the color blue).

As part of the standardized instructions, all participants were lead to believe that the task was solvable and that determining the correct stimulus dimension was attainable. However, only participants in the contingent-feedback condition were given solvable problems with response-contingent correct and incorrect feedback about their

performance. In other words, only participants in the contingent-feedback condition were given feedback that facilitated the discovery of the correct stimulus dimension. Participants in the non-contingent-feedback condition received unsolvable problems with feedback that was not contingent upon their actual performance. The random performance feedback provided to participants in this condition did not allow them to solve the problems successfully.

After completing the concept-formation task, the researcher displayed the participant's score and commented on the participant's performance. For participants in the contingent-feedback condition, the experimenter said, "Hmm, it looks like you did very well. You got 20 correct. That's one of the highest scores that I have ever seen. The average score is about 15." For participants in the non-contingent-feedback condition, the experimenter said, "Hmm, it looks like you did not do very well. You got 15 correct. I guess you're not very good at this sort of thing. The average score is about 20."

Self-Focus Sentence Completion Task (SFSC). The SFSC (Exner, 1973) is a 30-item sentence completion task. The respondent is provided with the first phrase of a sentence and is asked to complete the sentence in any way he or she chooses (Appendix I). Each of the participant's responses was categorized as reflecting self-focus (e.g., I was happiest when *I was alone.*), external world focus (e.g., I was happiest when *I was with Mary*), or neutral responses (e.g., I was happiest when *the sun was shining*). Exner (1973) notes that individuals who provide more self-focus responses than external world responses tend to refer to themselves more often in an interview situation and tend to

spend more time looking at themselves in a mirror than individuals who do not demonstrate this pattern of responses.

The SFSC was used in the present study to assess participants' degree of self-focusing immediately following the computerized concept-formation task. The SFSC has been utilized in other studies (e.g., Greenberg & Pyzczynski, 1986; Carver & Scheier, 1978) to assess spontaneous self-focusing. Categorizing SFSC responses was assessed for inter-rater reliability prior to use in analyses.

Anagram Task. The present study included a computerized anagram-solving task containing twenty anagrams with five letters per anagram. The purpose of this task was to measure changes in performance and motivation following experiencing non-contingency in the concept-formation task. All anagrams were presented in the same scrambled order (i.e., 3-4-2-5-1) and were solvable in the same sequence (i.e., 5-3-1-2-4) (e.g. Alloy, Peterson, Abramson, & Seligman, 1984; Benson & Kennelly, 1976; Hiroto & Seligman, 1975). Participants were given the following standardized instructions to complete the anagram task:

> "You will be asked to solve some anagrams. Anagrams are words with the letters scrambled. The problem for you is to unscramble the letters so that they form a word. When you have found the word, type it into the computer keyboard. Notice that there may be a pattern or principal by which to solve the anagrams. But, that's up to you to figure out.
>
> You will have 100 seconds to solve each anagram before the next one is presented. If you guess incorrectly, you may try again and again until the time is up. If you want to make a correction, use the backspace key."

Participants were then presented with the twenty anagrams and were given 100 seconds to solve each anagram. Each participant's total number of incorrect anagrams and the mean latency between onset of the anagram and providing the correct response were recorded.

Peak Expiratory Flow Rate. In addition to questions about subjective asthma severity ratings presented on the demographic form, objective information about lung functioning was collected from all participants via a measure of peak expiratory flow rate (PEFR). PEFR, measured in L/min, assesses the volume of air that can be forcefully exhaled in a single breath. PEFR varies with age, gender, and height (O'Hara, 1995; Nunn & Gregg, 1989). Lower levels of PEFR imply more significant levels of disease process (O'Hara, 1995).

In the present study, PEFR was assessed with a MiniWright Peak Flow Meter (Model # 3103001). Participants were given one practice trial to ensure proper use of the meter followed by three test trials. The highest value of the three test measurements was used as an objective measure of lung functioning. See Appendix J for the record form used for the PEFR ratings in the current study.

Consent for Follow-Up. At the end of the second session, the experimenter explained that he or she would like to gather some additional information about each participant. Specifically, for the healthy control participants, the experimenter requested consent to obtain the participant's cumulative grade point average (GPA) and GPA for the previous semester from the university's registrar. For individuals for whom the semester of participation was their first semester of college, the experimenter requested to obtain the individual's cumulative high school GPA and last semester of high school

GPA. For the asthma participants, the experimenter requested permission to obtain the same GPA information as well as permission to contact the participant's parents for confirmation of asthma diagnosis, the participant's primary physician for a rating of asthma severity, and permission to contact the participant in the future to obtain follow-up data related to the current project. The experimenter emphasized that consenting to provide this additional information was optional and that the participant's course credit or monetary compensation would not be affected by refusal to consent to provide this information. Further, the experimenter emphasized that the participant had the option of consenting to provide some but not all of this information. Consent forms for the follow-up measures can be viewed in Appendix K.

Procedure

Participants were tested in two individual sessions for this study. The first session included completion of a questionnaire battery and PEFR measures. Upon arrival at the laboratory, each participant was seated at a table and asked to read and sign an informed-consent form (Appendix L). After signing the informed consent, the HC participants completed the practice trial and first trial of the PEFR measure with a two-minute rest period in between trials. HC participants then completed the questionnaire battery, which included the background information questionnaire, the IDD, the BSI, and the SCS. The questionnaire battery included a few other questionnaires that were part of a related, but separate project. After completing the questionnaire packet, the HC participants completed the second and third trials of the PEFR measure, an appointment for the second session was scheduled, and the participant was dismissed.

After signing the consent form, AS participants completed the practice trial and first trial of the PEFR measure with a two-minute rest period in between trials. Following the first PEFR measurement, AS participants completed the questionnaire battery followed by two additional PEFR measurements with a two-minute rest period between measurements. After the last PEFR measurement, an appointment for the second session was scheduled and the participant was dismissed.

The second individual session occurred within four weeks of the first session. The mean number of days between sessions was 8.48 ($SD = 6.40$). Prior to the participant's arrival, the experimenter had randomly assigned the participant to one of the two experimental conditions (e.g., contingent versus non-contingent feedback on the concept-formation task). Prior to beginning the second session, the experimenter reminded the participant that he or she signed an informed consent during the first session and that the participant had the right to discontinue participation at any time without penalty.

The procedure for the second session occurred in five phases: (1) Pre-treatment Phase – participants completed the MAACL (time one), the VAS (time one), and the internal-external attribution question (time one); (2) Treatment Phase – participants were administered the computerized concept-formation task in which they received either contingent or non-contingent feedback about their performance; (3) Post-treatment phase – participants completed the MAACL (time two), the VAS (time two), the internal-external attribution question (time two) and the SFSC task; (4) Performance Phase – participants completed the anagram task; and (5) debriefing – following completion of the experiment, participants were given an explanation regarding the deceptive aspects of

the study and the expected results to be gained from the research. The debriefing statement can be viewed in Appendix M. As part of the debriefing, all participants in the solvable condition were asked to write down an explanation of how they went about solving the problems during the concept formation task (Appendix N). The explanation was reviewed at a later time to ensure that the participant understood he or she was to choose one dimension of the problem as the correct answer and was then to change his or her answer based on the feedback provided by the computer. For all participants, the debriefing also included a review of possible reactions and feelings that participants might have experienced as a result of the study. Referral sources were provided in case follow-up for exacerbated emotional reactions was necessary (Appendix O). After providing the participant with referral information, the experimenter presented information regarding consent for follow-up.

CHAPTER V

RESULTS

Analyses

Preliminary Analyses

Several independent samples t-tests were first conducted to determine if the AS and HC groups differed in their level of depression and general psychological distress prior to the experiment. Means and standard deviations for these analyses can be found in Table 1 of Appendix P. The analyses indicated that the AS and HC participants did not differ in their mean level of depression as measured by the IDD ($t(1,78) = 1.48, p = .14$). Additional analyses indicated that the two groups did not differ in their overall mean level of psychological distress as assessed by T-scores on the BSI's Global Severity Index (GSI) ($t\ (1, 78) = 1.78, p = .08$). Further, the analyses indicated that the AS and HC groups did not differ on their mean T-score on several BSI subscales including Depression, Obsessive-Compulsiveness, Interpersonal Sensitivity, Anxiety, Hostility, Phobic Anxiety, Psychoticism, and Paranoid Ideation. The AS mean T-score on the BSI Somatization subscale was significantly higher than the HC mean T-score for this

subscale ($t(1, 78) = 3.30, p = .001$). Relevant means, standard deviations, and test statistics can be found in Table 2 of Appendix P.

In addition to examining mean differences on the BSI subscales, chi-square analyses were conducted to determine if the frequency with which participants met caseness criteria for the BSI and the IDD differed between the AS and HC groups. Participants met caseness criteria for the BSI if their GSI T-score was greater than 63 or if two individual subscales had T-scores greater than 63 (Derogatis, 1993). The BSI caseness criteria serves as a means of defining clinically significant levels of distress, thereby indicating a potential need for clinical intervention. The results indicated that the rate at which participants met BSI caseness criteria did not differ significantly across the AS and HC groups ($X^2(1, N = 80) = .88, p = .35$). Participants also were classified according to the IDD caseness criteria to determine if each participant met DSM-III-R criteria for depression. The results indicated that the rate at which participants met IDD caseness criteria did not differ across the AS and HC groups ($X^2(1, N = 79) = .50, p = .48$). These result suggest that participants in the AS condition were not more likely to be experiencing psychological distress than the individuals in the HC condition. See Table 2 of Appendix P for relevant frequencies.

Although the frequency with which the AS and HC participants met caseness criteria for the BSI was not significantly different, it is important to note that the rate for meeting caseness criteria across the two groups was higher than what has been previously found in normative samples. Specifically, normative data suggest that 10% of the population should meet caseness criteria at any given point in time (Derogatis & Spencer, 1982). In the current sample, 16 of the 40 (40%) asthma participants and 12 of the 40

(30%) HC participants met caseness criteria. These results suggest that the current sample contained a fairly high number of individuals in both the AS and HC groups who could be considered at risk for psychological adjustment problems. It is noteworthy that the data collection occurred during the six- to nine-month period following the tragic events of September 11, 2001. Thus, the elevated levels of psychological distress in both groups may be attributable to the aftermath of these events.

In order to determine if the AS and HC participants differed in their mean level of lung functioning prior to the experiment, an independent samples t-test was conducted using the mean highest PEFR rating as the dependent variable. The results of the analysis indicated that the AS and HC groups did not differ prior to the experiment in regards to their mean level of lung functioning ($t(1,78) = -.86, p = .39$). These results suggest that the majority of the participants in the AS group may have more closely resembled peers without a history of asthma than individuals with a more severe disease course. These results provide additional evidence that the AS sample utilized in this study may have experienced limited impairment from their illness. See Table 3 of Appendix P for relevant means and standard deviations.

Primary Analyses

Hypothesis 1. The first hypothesis of the present study predicted that participants with asthma would show higher dispositional self-focusing scores (including scores on the private and public self-focusing subscales and the social anxiety subscale), as measured by the Self-Consciousness Scale (SCS), than participants without asthma. In

order to test this hypothesis, four independent samples t-tests were conducted. Three of the HC participants failed to complete this measure. In order to maintain the matched design utilized for the present study, these three HC participants and their AS counterparts were not included in this analysis. Because a specific direction for the nature of the observed differences was predicted, one-tailed significance levels were utilized for this analysis. Relevant means and standard deviations are presented in Table 4 of Appendix P.

The analyses indicated that the AS and HC groups did not differ in their mean scores on the total SCS score ($t(1, 72) = .465, p = .32$). However, the participants in the AS group evidenced significantly higher mean scores on the private self-consciousness subscale than the participants in the HC group ($t(1, 72) = 1.64, p = .05$). In contrast, the analyses indicated that the AS and HC groups did not differ in their mean scores on the public self-consciousness subscale ($t(1, 72) = .703, p = .24$) and the social anxiety subscale ($t(1, 72) = -1.24, p = .11$). These results suggest that AS participants may indeed have a greater tendency to focus on their inner thoughts and feelings than HC participants. However, the two groups do not appear to differ in their tendency to focus on themselves as a social object or in their level of social anxiety.

Hypothesis 2. The second hypothesis of the present study focused on the responses of the AS and HC participants to the experimental manipulation of contingent versus non-contingent feedback. Specifically, the study predicted that AS participants in the non-contingent condition would demonstrate poorer performance on the anagram task, higher levels of negative affect, and more internal attributions for failure than HC participants in the same condition and all participants in the contingent condition. In

order to evaluate this hypothesis a series of Analysis of Variance tests (ANOVAs) were conducted.

The first analysis was a 2 (AS vs. HC) X 2 (contingent feedback vs. non-contingent feedback) ANOVA using the number of anagrams incorrectly solved as the dependent variable. Relevant means and standard deviations are in Table 5 of Appendix P. The analysis revealed no significant main effect of health status ($F(1, 76) = 1.81, p = .18$), no significant main effect of feedback condition ($F(1, 76) = 1.47, p = .23$), and no significant interaction ($F(1, 76) = 1.16, p = .29$). These results suggest that the contingent versus non-contingent feedback did not have an effect on the participants' performance on the subsequent anagram task, regardless of health status.

The second analysis was a series of 2 (AS vs. HC) X 2 (contingent feedback vs. non-contingent feedback) X 2 (time one vs. time two) repeated measures ANOVAs with health status and feedback conditions as between subjects factors and timing of the MAACL measurement as a within subject factor. The three subscales of the MAACL (depression, anxiety, and hostility) served as the dependent variables. Relevant means and standard deviations are in Table 6 of Appendix P. The MAACL was utilized in the present study as a measure of negative affect prior to and after the contingent or non-contingent feedback.

The analysis of the depression subscale revealed a significant time by condition interaction ($F(1, 76) = 12.93, p < .01$). This result suggests that the individuals in the non-contingent feedback condition experienced higher levels of transient depression than the participants in the contingent condition after the experimental manipulation. The analysis of the depression subscale revealed no significant main effect of health status

($F(1, 76) = .85, p = .36$), no significant main effect of feedback condition ($F(1, 76) = 1.36, p = .25$), no significant main effect of time ($F(1, 76) = 3.39, p = .07$), no significant health status by feedback condition interaction ($F(1, 76) = .005, p = .94$), no significant health status by time interaction ($F(1, 76) = .17, p = .68$), and no significant health status by feedback condition by time interaction ($F(1, 76) = .19, p = .66$). Thus, taken together, these results suggest that while the experimental manipulation appeared to increase transient depression in the participants in the non-contingent condition, this effect did not have a differential impact on participants with asthma in the non-contingent condition when compared to healthy control participants in the same condition and all participants in the contingent condition as predicted.

The analysis of the anxiety subscale revealed a significant time by condition interaction ($F(1, 76) = 15.45$, $p < .01$). This result suggests that the individuals in the non-contingent feedback condition experienced higher levels of transient anxiety than the participants in the contingent condition after the experimental manipulation. The analysis of the anxiety subscale revealed no significant main effect of health status ($F(1, 76) = .65, p = .42$), no significant main effect of feedback condition ($F(1, 76) = 1.21, p = .28$), no significant main effect of time ($F(1, 76) = 1.39, p = .24$), no significant health status by feedback condition interaction ($F(1, 76) = .005, p = .94$), no significant health status by time interaction ($F(1, 76) = .62, p = ..43$), and no significant health status by feedback condition by time interaction ($F(1, 76) = .04, p = .85$). Thus, taken together, these results again suggest that while the experimental manipulation appeared to increase anxiety in the participants in the non-contingent condition, this effect did not have a differential impact on participants with asthma in the non-contingent condition when compared to

healthy control participants in the same condition and all participants in the contingent condition as predicted.

The analysis of the hostility subscale revealed a significant main effect of time ($F(1, 76) = 14.18, p < .01$) However, this effect was qualified by a significant time by condition interaction ($F(1, 76) = 11.23, p < .01$). This result suggests that the individuals in the non-contingent feedback condition experienced higher levels of transient hostility than the participants in the contingent condition after the experimental manipulation. The analysis of the hostility subscale revealed no significant main effect of health status ($F(1, 76) = .05, p = .83$), no significant main effect of feedback condition ($F(1, 76) = .51, p = .48$), no significant health status by feedback condition interaction ($F(1, 76) = .003, p = .95$), no significant health status by time interaction ($F(1, 76) = .02, p = .90$), and no significant health status by feedback condition by time interaction ($F(1, 76) = .62, p = .43$). Thus, taken together, these results suggest that while the experimental manipulation appeared to increase hostility in the participants in the non-contingent condition, this effect did not have a differential impact on participants with asthma in the non-contingent condition when compared to healthy control participants in the same condition and all participants in the contingent condition as predicted.

In order to determine if the AS participants in the non-contingent condition made more internal attributions for failure following the experimental manipulation than HC participants in the same condition and all participants in the contingent condition, two 2 (AS vs. HC) X 2 (contingent feedback vs. non-contingent feedback) X 2 (time one versus time two) ANOVAs were conducted. Relevant means and standard deviations are in Table 7 of Appendix P. The first ANOVA used the participants VAS scores as the

dependent variable. As mentioned previously, the VAS is a measure of the participant's expectation for success on an upcoming task, with higher scores reflecting higher expectations for success. The VAS was administered immediately prior to the contingency manipulation and immediately prior to the anagram task. Thus, the first measure reflected the participant's expectation for success on the contingency task and the second measure reflected the participant's expectation for success on the anagram task. The analysis revealed a significant main effect of feedback condition ($F(1, 76) = 15.22$, $p < .01$) and a significant main effect of time ($F(1, 76) = 31.69$, $p < .01$). These effects were qualified by a significant time by feedback condition interaction ($F(1, 76) = 52.57$, $p < .01$). These results indicate that the participants did not expect to do as well on the second task, but this effect only occurred for the participants in the non-contingent condition. The analysis revealed no significant main effects of health status ($F(1, 76) = 2.02$, $p = .16$), no significant time by health status interaction ($F(1, 76) = .01$, $p = .01$), no significant feedback condition by health status interaction ($F(1,76) = 1.87$, $p = .18$), and no significant time by feedback condition by health status interaction ($F(1, 76) = 2.37$, $p = .13$).

The second ANOVA utilized the participants' internal attributions as the dependent variable. Prior to the contingency task and the anagram task, participants were asked to indicate the extent to which their success on the next task was due to something about the circumstance or something about themselves. Higher scores reflected the belief that success was due to the self. The analysis revealed a significant main effect of time ($F(1, 76) = 4.54$, $p = .04$). This result suggests that prior to the second task, the participant's believed that their success would be more dependent on external factors than

on internal factors. The analysis revealed no significant main effect of feedback condition ($F(1, 76) = .16$, $p = .69$), no significant main effect of health status ($F(1, 76) = .14$, $p = .70$), no significant time by feedback condition interaction ($F(1, 76) = .04$, $p = .84$), no significant time by health status interaction ($F(1, 76) = .002$, $p = .97$), no significant feedback condition by health status interaction ($F(1, 76) = .53$, $p = .47$), and no significant time by feedback condition by health status interaction ($F(1, 76) = 1.01$, $p = .32$).

Overall, the analyses related to the participants' reaction to the experimental task suggest that the experimental manipulation was effective. Specifically, the contingent and non-contingent conditions did not differ in their mean level of negative affect, expectation for success, or internal attributions for success prior to the manipulation. However, following the manipulation, participants in the non-contingent condition evidenced higher levels of transient depression, anxiety, and hostility, suggesting that they found the task aversive and were temporarily distressed by the experience. Further, the participants in the non-contingent condition did not expect to do as well on the second task following their experience with non-contingency, suggesting that the participants understood that they had performed poorly on the previous task. However, contrary to the predictions of the study, the effect of the experimental manipulation did not affect the participants' performance on the anagram task. Further, contrary to the predictions of the study, the experimental manipulation did not appear to have a differential effect on the AS participants in the non-contingent condition when compared to HC participants in the same condition and all participants in the contingent condition on any of the dependent variables (e.g., anagram performance, negative affect, and internal attributions). Thus,

while it appears that the experimental manipulation was successful, the differential effects on the AS participants in the non-contingent condition were not observed, which indicates no support for the second hypothesis.

Hypothesis 3. The third hypothesis of the study predicted that AS participants in the non-contingent condition would make more references to themselves during a sentence completion task following their experience with non-contingency when compared to healthy control participants in the same condition and all participants in the contingent condition. Prior to testing this hypothesis, the participants' responses to the sentence completion task were categorized into one of three categories by three undergraduate research assistants. Each response was categorized as referring to the self (e.g., I was happiest *when I was alone*), referring to a specific external object or person (e.g., I was happiest *when I was with Mary*), or as an "other" response meaning that the response did not refer to the self or a specific external object (e.g., I was happiest when *the sun was shining*). The research assistants received training with the coding system, a modified version of the system presented by Exner (1973), until they reached an acceptable level of inter-rater reliability ($\alpha = .80$). Once this level of reliability was reached, two coders were assigned to each participant's responses. The coders independently categorized each of the participant's responses. After the coding process, the inter-rater reliability level remained acceptable ($\alpha = .82$). The coders then discussed responses on which they disagreed and came to a consensus regarding the final classification of reach response.

In order to test the third hypothesis, a series of 2 (AS vs. HC) X 2 (contingent feedback vs. non-contingent feedback) ANOVAs were conducted. The number of

sentences referencing the self, external objects, and other responses were used as the dependent variables. See Table 8 in Appendix P for relevant means and standard deviations. The first ANOVA utilized the number of references to the self as the dependent variable. The analysis yielded no significant main effect of feedback condition ($F(1, 76) = 1.08, p = .30$), no significant main effect of health status ($F(1, 76) = 1.08, p = .30$), and no significant feedback condition by health status interaction ($F(1, 76) = .11, p = .75$).

The second ANOVA utilized the number of references to specific external objects or people as the dependent variable. The analysis yielded a significant main effect of health status ($F(1, 76) = 10.14, p < .01$). This result suggests that the AS participants made more references to specific external objects and people than HC participants, regardless of their feedback condition. No significant main effect of feedback condition ($F(1, 76) = .30, p = .59$) and no significant feedback condition by health status interaction ($F(1, 76) = .39, p = .54$) were found.

The third ANOVA utilized the number of other references as the dependent variable. The analysis yielded a significant main effect of health status ($F(1, 76) = 6.24$, $p = .02$). This result suggests that the HC participants made more references that could not be classified as references to the self or an external object than AS participants, regardless of their feedback condition. No significant main effect of feedback condition ($F(1, 76) = 1.17, p = .28$) and no significant feedback condition by health status interaction ($F(1, 76) = .07, p = .80$) were found.

Taken together, the results related to hypothesis three indicate that the AS participants in the non-contingent condition did not make more references to themselves

following a failure experience than HC participants in the same condition and all participants in the contingent condition. The results do suggest that the AS participants were more likely to make references to specific external objects and people than HC participants, regardless of feedback condition. Conversely, HC participants provided more responses to the sentence stems that could not be classified as a reference to the self or a specific external object than AS participants, regardless of feedback condition.

CHAPTER VI

DISCUSSION

The purpose of the present study was to examine differences in dispositional self-focus, reactions to failure, and the tendency to be self-focused in a sample of college-aged individuals with a history of childhood onset asthma. Participants with asthma and a matched sample of healthy peers were exposed to a failure task and subsequently evaluated on measures of transient affect, self-focus, and problem-solving ability. It was believed that the results of the present study could help distinguish between two explanations for previous findings in which a sample of college-aged individuals with asthma demonstrated poorer performance on a cognitive task following failure when compared to individuals with no chronic illness history, as well as to individuals with and without asthma who did not experience failure prior to the cognitive task (Chaney et al., 1999). The first explanation for these findings posited that individuals with asthma experience repeated exposure to behavior-outcome non-contingency due to the variable and unpredictable nature of asthma, resulting in increased vulnerability to the effects of environmental non-contingency (Chaney et al., 1999). The second explanation argues that because asthma management requires a high degree of self-monitoring, individuals develop a tendency to be habitually self-focused, which may interfere with performance

on a subsequent cognitive task and increase psychological distress following failure (Chaney et al., 2000).

To distinguish between these two potential explanations, the present study gathered data related to dispositional self-focus, cognitive and emotional reactions to failure, and the tendency to be self-focused immediately following failure in a sample of college-aged students with and without a history of chronic illness. Specific predictions regarding each of these variables and the results from the present study will be discussed in the following sections.

Dispositional Self-Focus

The present study predicted that individuals with a history of childhood onset asthma would evidence higher scores on a measure of dispositional self-focus than individuals without a chronic illness history. The measure of dispositional self-focus used in the present study included a measure of private self-consciousness, or the tendency to focus on one's inner thoughts and feelings, public self-consciousness, or the tendency to be aware of oneself as a social object that has an effect on others, and social anxiety (Fenigstein et al., 1975). The results of the study indicated that the asthma participants demonstrated significantly higher scores on the private self-focus subscale than the healthy participants. However, no significant differences were observed on the public self-consciousness or social anxiety subscales or the total scale score.

The finding that individuals with asthma scored higher on a measure of private self-consciousness is consistent with aspects of the asthma self-management hypothesis.

Specifically, self-management of asthma symptoms often involves a high degree of self-monitoring during which the individual scans the internal and external environment for stimuli that may trigger an asthma attack. The individual then determines the probability that this stimulus will result in an asthma attack based on previous interactions with the stimulus. Because an individual with asthma may experience an asthma attack at any given time, the need for self-monitoring is constant (Creer & Bender, 1993, 1995). Given the need for a high degree of self-monitoring, it seems logical that individuals with asthma would develop a habitual tendency to reflect not only on their internal state as it relates to their asthma, but also on the myriad of other aspects of their internal thoughts and feelings.

The tendency to be dispositionally self-focused may have both positive and negative consequences for individuals with asthma. An individual's attribution for why a particular behavior occurs tends to be consistent with the orientation of their attention. Thus, if an individual is internally focused, he is likely to make an internal causal attribution; conversely, if his attention is externally focused, he is likely to make an external causal attribution. If individuals with asthma are habitually internally focused, they are likely to make internal attributions both following success and following failure experiences (Duval & Wicklund, 1973; Fenigstein & Levine, 1984; Fenigstein et al., 1975). Although making an internal attribution following success may potentially bolster self-efficacy, making internal attributions for failure has been associated with negative affect and decreased self-esteem (Pyszczynski & Greenberg, 1985). If individuals with asthma are habitually internally focused, they are hypothetically at risk for making internal attributions for failure, which may thereby increase their risk for psychological

distress. The finding that approximately one-third of the asthma participants in this study experienced clinically significant levels of distress is consistent with the notion that a habitual internal focus may be associated with psychological distress. However, this interpretation of the study's findings is made with caution given that the rate of psychological distress in the healthy control sample was approximately equal to the asthma sample, while the healthy control participants evidenced lower scores on the private self-consciousness scale.

Such results are preliminary, and additional research is needed to replicate this finding in a larger sample of individuals with asthma. It is important that such research involve individuals with more severe asthma, who may have a higher need for self-monitoring of asthma symptoms than the participants in the present study. If additional research indicates that individuals with asthma are more likely to be habitually self-focused than individuals without asthma, the inclusion of attribution training into the psychological management of asthma may be necessary. Specifically, individuals with asthma may benefit from interventions that help them evaluate potential external explanations for failure, thereby preventing unnecessary or erroneous internal attributions for failure.

Cognitive and Emotional Reactions to Failure

The present study adopted the methodology used by Chaney et al. (1999) to explore the effects of presenting college-aged individuals with and without a history of childhood onset asthma with feedback that either facilitated or interfered with successful problem solving. In the Chaney et al. (1999) study, individuals with asthma who

received feedback about a puzzle task that was not contingent on their actual performance performed more poorly on a subsequent cognitive task than healthy individuals who also received non-contingent feedback and individuals with and without a history of asthma who received contingent feedback. The present study predicted the same pattern of results. However, the results of the present study failed to find that participants with asthma in the non-contingent condition made more errors on an anagram task following the contingency manipulation than healthy control participants in the same condition and all participants in the contingent condition.

The present study also hypothesized that the asthma participants would demonstrate higher levels of negative affect following their experience with non-contingency than healthy participants in the same condition and all participants in the contingent condition. The results indicated, however, that while all participants in the non-contingent condition had higher levels of depression, anxiety, and hostility following the contingency manipulation than participants in the contingent condition, the manipulation did not appear to have a differential effect on the asthma participants in the non-contingent condition as was predicted. The finding that all participants in the non-contingent condition had higher levels of negative affect compared to the participants in the contingent condition following the contingency manipulation is important because it suggests that the experimental manipulation was effective. Specifically, the fact that the participants in the non-contingent condition experienced negative affect following the contingency manipulation suggests that they were frustrated by the task and that they found the situation aversive. The increased level of negative affect within the non-contingent condition is consistent with other research that has utilized a similar

methodology (e.g., Brier, Albus, Pickar, Zahn, Wolkowitz, & Paul, 1987; Gatchel, Paulus, & Maples, 1975). Thus, it appears that the experimental manipulation utilized in the present study was effective in producing the transient affect effects associated with experimentally induced learned helplessness, but the differential effects that were predicted for the asthma participants in the non-contingent condition did not materialize.

The study also predicted that participants with asthma in the non-contingent condition would evidence more internal attributions for failure following the contingency manipulation than healthy control participants in the same condition and all participants in the contingent condition. This hypothesis was explored with two variables. First, participants' ratings of how much they expected to succeed on an upcoming task were analyzed. The results indicated that participants in the non-contingent condition did not expect to perform as well on the second task as they expected to perform on the first task. However, there was no differential effect for the asthma participants in the non-contingent condition as predicted. The second variable explored the participants' attributions regarding the cause of their performance on an upcoming task. Specifically, participants indicated if they believed that their performance on the upcoming task would be due to something about themselves, or, something about the circumstances. The results indicated that as all participants moved from the contingency task to the anagram task, regardless of health status or feedback condition, they believed that their performance on the second task was due more to something about the circumstances rather than due to something about themselves. The differential effects predicted for the asthma participants were not observed.

Several explanations for the failure to obtain the expected results for the asthma participants in the non-contingent condition regarding their anagram performance, emotional reactions to the contingency manipulation, and their attributions are possible. First, it is possible that a methodological problem contributed to the failure to obtain the expected results and the failure to replicate the Chaney et al. (1999) study. Specifically, participants in the Chaney et al. (1999) study completed the same contingency manipulation utilized in this study followed by the same mood measure utilized in this study, which takes approximately three to five minutes to complete, followed immediately by the anagram task. In the present study, the same order of tasks was used except that a measure of self-focus was inserted between the completion of the mood measure and the anagram task. The self-focus task involved completing thirty sentence stems in any way that the participant chose. The self-focus measure was inserted at this point in the procedure in order to obtain a measure of the extent to which the participants were self-focusing immediately following failure, which was one of the primary hypotheses of the present study. However, the self-focus sentence completion task took approximately twenty- to thirty-minutes to complete. Thus, the time delay between the contingency manipulation and the anagram task may have negated the negative arousal and possible induced learned helplessness created by the contingency manipulation.

Indeed, previous research has demonstrated that experimentally induced learned helplessness effects are time-limited, although the parameters of how quickly the effect fades are not well understood (Peterson, Maier, & Seligman, 1993). In one of the few experimental paradigms focusing on the time course of experimentally induced learned helplessness in humans, Young and Allin (1986) demonstrated that the effects persisted

across a thirty-minute delay between the non-contingency manipulation and an anagram test task. The helplessness effects, however, dissipated across both a two- and six-hour delay such that the performance of participants in the long delay conditions was similar to individuals who received contingent feedback. The Young and Allin (1986) findings might suggest that the effects in the present study should have persisted across the half-hour delay; however, it is unclear from Young and Allin's (1986) report of their methodology if their participants completed an intervening task between the learned helplessness induction and the anagram test task. Indeed, in the present study, the nature of the intervening task may have negated the effects of the learned helplessness induction.

The nature of the self-focus sentence completion task itself may also have served to ameliorate learned helplessness deficits. Specifically, several of the sentence stems prompted the participants to think about positive situations, such as when they are happiest and relationships with friends and family members. Participants also may have generated statements that brought to mind times when they were successful (e.g., I am at my best *when I am playing sports*). Dweck, Goetz, and Strauss (1980) note that if a meaningful change occurs between an uncontrollable event and a subsequent test task that allows the individual to regain the belief that he is able to affect the outcome of the second event, learned helplessness effects are unlikely to transfer to a second task. Gatchel et al. (1975) demonstrated that individuals who experienced non-contingent feedback had higher levels of depression, anxiety, and hostility following the contingency manipulation when compared to individuals who received contingent feedback. However, these mood differences were not evident following an anagram test task.

Gatchel et al. (1975) suggested that an intervening task in which an individual experiences success may reverse the negative cognitive set caused by the induced helplessness. In the present study, the opportunity to write about positive situations and situations that may have reminded the individual of his personal efficacy may have functioned as a success experience sufficient enough to negate the induced learned helplessness effects.

Taken together, the time delay between the contingency manipulation and the test task, as well as the nature of the task that was utilized, may have allowed the participants in the non-contingent condition to have sufficient time and cognitive distraction to over come any induced helplessness. Thus, the participants in the non-contingent condition may not have shown differential performance compared to the participants in the contingent condition on the anagram task. This change in methodology may account for why the participants in the non-contingent condition experienced the expected negative arousal following the contingency manipulation, but failed to demonstrate the expected cognitive deficits on the anagram task. Further, the time delay and cognitive distraction may have negated any differential effects of the non-contingent feedback on the asthma versus healthy control participants.

Another potential explanation regarding the current results is related to the nature of the sample used in this study. First, the majority of the participants with asthma did not appear to have a severe disease course. Indeed, the majority of the asthma participants indicated that they found their asthma to be somewhat to mostly controllable and appeared to have mild to moderate asthma. Thus, the participants in this sample may not have had a sufficient number of non-contingent disease-related events to have

developed a vulnerability to non-contingency. Further, in the current sample, the asthma and healthy control groups evidenced an approximately equal rate of psychological distress as measured by both the Brief Symptom Inventory and the Inventory to Diagnose Depression. However, in the Chaney et al. (1999) study, the asthma participants evidenced higher rates of distress on the IDD than the healthy control participants. Thus, it appears that the healthy control sample utilized in the present study may have been qualitatively different than the healthy control sample utilized in the Chaney et al. (1999) study.

Self-Focus Following Failure

The present study also sought to explore differences in self-focus immediately following the contingency manipulation. The study predicted that asthma participants in the non-contingent condition would evidence higher levels of self-focus following failure than healthy control participants in the same condition and all participants in the contingent condition. Immediately following the contingency manipulation, participants completed thirty sentence stems. Their responses to the sentence stems were coded for references to the self, references to a specific, external object, and references that could not be categorized into either of these groups. The results of the analysis revealed that there were no differences related to feedback condition or health status regarding the number of references to the self. However, the analysis did reveal that asthma participants, regardless of feedback condition, made more references to external objects while healthy control participants, regardless of feedback condition, made more

references that could not be categorized as a reference to the self or a specific external object.

The primary variable of interest from this analysis for the present study was the number of references to the self. Given that the asthma and healthy control groups did not differ in the number of references to the self following failure, it does not appear that individuals with asthma in this sample are more likely to self-focus immediately following failure than individuals without a chronic illness history. Although the results did indicate a tendency for asthma participants to be more dispositionally self-focused in regards to private self-consciousness, this tendency did not manifest itself in terms of differences in the number of references to the self following failure. As noted earlier, the majority of asthma participants in the present study did not experience a severe disease course. Thus, they may not have had a need to frequently self-monitor their internal and external states, and may not have subsequently developed a tendency to be highly dispositionally self-focused. Consequently, following failure, the asthma participants may be expected to respond in a similar fashion to their healthy control peers in regards to references to the self.

Limitation and Strengths of the Current Study

As noted earlier, several important limitations are acknowledged in the current study. First, the majority of the individuals with asthma in the current study did not evidence a severe disease course. Consequently, they many not have had a sufficient number of non-contingent disease-outcome experiences to have developed a vulnerability to helplessness. Further, the mild to moderate nature of their illness may not have

necessitated high levels of self-monitoring for disease-related symptoms and potential attack triggers. Thus, the asthma participants in this sample may not have developed a habitual self-focus that was being assessed in the present study. Overall, the lack of disease severity may have significantly interfered with the ability to detect the relationships under investigation in this study.

Further, as noted earlier, the present study contained a methodological problem that may have interfered with the ability to obtain the desired results. The time delay between the contingency manipulation and the test task, as well as the nature of the task employed during the delay, may have negated the effects of the contingency manipulation. Thus, the participants in the non-contingent condition may no longer have been experiencing the effects of the experimental manipulation when they completed the anagram task, and, therefore, would be expected to perform in a manner similar to the participants in the contingent condition. Although the placement of the self-focus sentence task immediately after the contingency manipulation was necessary to answer one of the research questions posed in the present study, such methodology may have inadvertently interfered with answering other research questions posed by the study.

Despite these two limitations, several strengths are notable. First, the present study sought to investigate a population of individuals with asthma that have been largely ignored to date. Although it was once believed that children outgrew asthma as they aged, increasing evidence suggests that many children with asthma continue to experience asthma into adolescence and young adulthood (Price, 1996; Roordan, 1996). Indeed, this population appears to be largely ignored in terms of both medical care and psychological treatment of the disorder (Perez-Yarza, 1996). Thus, the present study

represents a unique effort to document the unique psychological experience of adolescents and young adults with asthma. Further, the present study is one of a limited number of studies that attempted to utilize an experimental paradigm within the field of pediatric psychology. These types of studies are limited, but are an important effort to uncover the causal mechanisms that may explain how specific disease variables lead to psychological distress.

Conclusions and Future Directions

Overall, the present study found relatively limited support for its hypotheses. The results do suggest, however, that individuals with a history of childhood onset asthma may have a greater tendency to focus more on their internal thoughts and feelings than individuals without a history of childhood onset asthma. Such findings have important implications, as individuals with asthma are at risk for making internal attributions for failure experiences as a result of their constant inward focus. However, the evidence for this finding in the present study is preliminary and warrants additional research. If future research replicates these results, practioners who work with individuals with asthma may need to provide training to help individuals with asthma make appropriate attributions for failure in order to decrease the risk for psychological distress.

Notably, it appears that methodological changes in the current study offer a partial explanation for the failure to find the expected results. Thus, future research may attempt to replicate the Chaney et al. (1999) study using a more similar methodology. This may involve a direct replication of the Chaney et al. (1999) methodology without the modifications utilized in this study. In addition, future attempts to replicate the Chaney et

al. (1999) study should include an aggressive attempt to recruit individuals with a more severe disease course to increase the amount of variability in illness severity. Regardless of the form the modifications in methodology take, continued research in this area is important in order to document formally the unique psychological experiences of adolescents and young adults with asthma.

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APPENDIXES

APPENDIX A

DESCRIPTION OF ASTHMA AND HEALTHY CONTROL PARTICIPANTS

Table 1

Descriptive Statistics for Variables of Interest for Asthma Participants (n = 40)

Variable		Frequency	Percentage
Gender			
	Female	27	67.5%
	Male	13	32.5%
Race			
	Caucasian	35	87.5%
	African-American	1	2.5%
	Asian	1	2.5%
	Biracial	1	2.5%
	Hispanic	1	2.5%
	Native American	1	2.5%
Asthma type			
	Seasonal	14	35.0%
	Perennial	24	60.0%
	Not Reported	2	5.0%
Number of asthma medications			
	None	5	12.5%
	One	23	57.5%
	Two	4	10.0%
	Three	8	20.0%
Frequency of medication use			
	Daily	12	30.0%
	As needed	23	57.5%
	No medications	5	12.5%

Variable	Mean	Standard Deviation
Current age	19.46	1.28
Age at first attack	7.64	3.35
Age at diagnosis	7.82	3.44
Self-rated disease severity	2.10	1.23
Self-rated disease controllability	4.67	2.01
Asthma severity (O'Hara, 1995)	1.60	0.63
No. of physician visits for asthma in last 6 mos.	1.50	1.50

Table 2

Descriptive Statistics for Variables of Interest for Healthy Control Participants (n = 40)

Variable		Frequency	Percentage
Gender			
	Female	27	67.5%
	Male	13	32.5%
Race			
	Caucasian	33	82.5%
	Native American	4	10.0%
	Asian	1	2.5%
	Biracial	1	2.5%
	Other	1	2.5%

APPENDIX B

BACKGROUND INFORMATION

Subject #: _____

BACKGROUND INFORMAITON

1. Age: _____

2. Sex: M F
   1 2

3. Race
   1 African-American
   2 Native American/American-Indian
   3 Caucasian
   4 Hispanic
   5 Asian
   6 Biracial, please specify: _____
   7 Other, please specify: _____

4. Highest Level of Education Obtained:
   1 Middle School
   2 High School
   3 College (please indicate highest year completed)
      a. Freshman
      b. Sophomore
      c. Junior
      d. Senior
   4 College Degree
   5 Post-Graduate Degree

5. Marital Status:
   1 Never Married
   2 Married
   3 Divorced
   4 Cohabitating/Living with Partner
   5 Widowed
   6 Other, please specify:
   _____

6. If married, spouse's occupation: _____

7. Parent's occupation: Father: _____ Mother: _____

8. Parent's highest level of education obtained:
Father: _____ Mother: _____

9. Do you live with your parents even part-time (including weekends or summers)?
_____

10. Are you currently taking any psychoactive medication (e.g., antidepressants, anti-anxiety)?

YES	NO
1	2

11. Have you ever been treated by a physician for a medical condition for more than three consecutive months in any given year? (For example: May, June, and July, 1999)

YES	NO
1	2

12. Have you ever been hospitalized continuously for a medical condition for more than one month?

YES	NO
1	2

13. Do you have a chronic illness?

YES (1)

NO (2)

IF NO, PLEASE ANSWER 13B AND THEN GO ON TO THE NEXT QUESTIONNAIRE IN YOUR PACKET. THANK YOU. IF YES, PLEASE GO ON TO QUESTION 14.

→ 13B. Please estimate the number of school and/or work days you missed during the last academic (2000-2001) ***for medical reasons***. (If you are a freshman in college and you were in high school during the 2000-2001 academic year, please refer to your senior year of high school. If you were not in school during the 2000-2001 academic year, please list days missed from work only.)

SCHOOL: _____

WORK: _____

14. Do you have asthma?

YES	NO
1	2

If you have another chronic illness in addition to asthma, please specify the type or types of condition(s):_____

15. Have you or another family member ever received any type of psychological counseling or therapy?

YES	NO
1	2

If yes, was your counseling related to your asthma?

YES	NO
1	2

16. Are you currently taking any medications for your asthma?

YES	NO
1	2

If yes, please specify the type of medication(s) and how frequently you take the medication(s):

Type	Frequency
a. _____	_____
b. _____	_____
c. _____	_____

17. At what age did you have your first asthma attack?

_____

18. At what age were you diagnosed with asthma?

_____

19. Are you presently receiving any medical treatment from a physician for your asthma?

YES	NO
1	2

If yes, please indicate the number of visits to your physician in the past 6 months.

_____

20. Do you have asthma attacks only during a certain season (SEASONAL) or all-year round (PERENNIAL)?

SEASONAL	PERENNIAL
1	2

21. How **severe** do you think your asthma has been in the past year?

1	2	3	4	5	6	7
Mild	Moderate		Severe		Respiratory Failure	

Mild = 1 or 2 attacks per week; as many as two episodes of nighttime cough a month; good exercise tolerance; no symptoms between attacks; bronchospasm responds to bronchodilator

Moderate = More than 2 attacks per week; symptoms between attacks; symptoms affect sleep, activity level, or work performance; bronchospasm responds to bronchodilator; reduced exercise tolerance; coughing; chest tightness, wheezing; seeking emergency room treatment more than three times per year.

Severe = Daily wheezing; sudden, severe attacks; limited exercise tolerance and activity level; sleep is disrupted; bronchospasm does not always respond to bronchodilator; poor work attendance; mild tachycardia (excessively rapid heartbeat); tachypnea (excessively rapid breathing); difficulty speaking in complete sentences; seeking emergency care more than 3 times per year.

Respiratory Failure = Increased tachycardia (excessively rapid heartbeat); tachypnea (excessively rapid breathing); wheezing; reduced, poor air exchange; uses accessory muscles (e.g., arms) to sit up, with perspiration; confusion; lethargy; altered consciousness

22. How **controllable** do you think your asthma is?

1	2	3	4	5	6	7
Entirely Uncontrollable		Somewhat Controllable	Mostly Controllable			Entirely Controllable

23. Please estimate the number of school and/or work days you missed during the last academic year (e.g., 2000-2001) ***as a result of your asthma or asthma-related symptoms***. (If you are a freshman in college and you were in high school during the 2000-2001 academic year, please refer to your senior year of high school. If you were not in school during the 2000-2001 academic year, please list days from work only.)

SCHOOL: _____

WORK: _____

24. Please estimate the number of school and/or work days you missed during the last academic (2000-2001) ***for medical reasons other than asthma***. (If you are a freshman in college and you were in high school during the 2000-2001 academic year, please refer to your senior year of high school. If you were not in school during the 2000-2001 academic year, please list days from work only.)

SCHOOL: _____

WORK: _____

25. During the 2000-2001 academic year, did you ever attend class when you had asthma symptoms?

YES	NO
1	2

If yes, please estimate the number of days you did attend class when you had asthma symptoms?

_____

If yes, please the number that indicates how much the asthma symptoms interfered with your normal daily class routine (i.e., taking notes, taking an exam, participating in a laboratory).

1	2	3	4	5	6	7
No Interference	Mild Interference		Moderate Interference			Interfered a Great Deal

26. During the 2000-2001 academic year, did you ever attend work when you had asthma symptoms?

YES	NO
1	2

If yes, please estimate the number of days you did attend work when you had asthma symptoms?

_____

If yes, please circle the number that indicates how much the asthma symptoms interfered with your normal work routine (i.e., getting to work on time; completing job tasks efficiently).

1	2	3	4	5	6	7
No Interference		Mild Interference		Moderate Interference		Interfered a Great Deal

27. During the 2000-2001 academic year, do you feel that your asthma interfered with your social life?

YES	NO
1	2

If yes, please circle the number that indicates how much your asthma symptoms interfered with your social life.

1	2	3	4	5	6	7
No Interference		Mild Interference		Moderate Interference		Interfered a Great Deal

APPENDIX C

INVENTORY TO DIAGNOSE DEPRESSION (IDD)

Subject # _____

INSTRUCTIONS

1. On this questionnaire are groups of 5 statements.

2. Read each group of statements carefully. Then pick the one statement in each group that best describes the way you have been feeling the PAST TWO WEEKS. Circle the number next to the statement you picked.

1.	0	I do not feel sad or depressed.
	1	I occasionally feel sad or down.
	2	I feel sad most of time, but I can snap out of it.
	3	I feel sad all the time, and I cannot snap out of it.
	4	I am so sad or unhappy that I can't stand it.
2.	0	My energy level is normal.
	1	My energy level is occasionally a little lower than normal.
	2	I get tired more easily or have less energy than usual.
	3	I get tired from doing almost anything.
	4	I feel tired or exhausted almost all of the time.
3.	0	I have not been feeling more restless and fidgety than usual.
	1	I feel a little more restless or fidgety than usual.
	2	I have been very fidgety, and I have some difficulty sitting still in a chair.
	3	I have been extremely fidgety, and I have been pacing a little bit almost every day.
	4	I have been pacing more than an hour per day, and I cannot sit still.
4.	0	I have not been talking or moving more slowly than usual.
	1	I am talking a little slower than usual.
	2	I am speaking slower than usual, and it takes me longer to respond to questions, but I can still carry on a normal conversation.
	3	Normal conversations are difficult because it is difficult for me to start talking.
	4	I feel extremely slowed down physically, like I am stuck in mud.
5.	0	I have not lost interest in my usual activities.
	1	I am a little less interested in 1 or 2 of my usual activities.
	2	I am less interested in several of my usual activities.
	3	I have lost most of my interest in almost all of my activities.
	4	I have lost interest in all of my usual activities.

IDD pg. 2, Subj. # _____

6.	0	I get as much pleasure out of my usual activities as usual
	1	I get a little less pleasure from 1 or 2 of my usual activities.
	2	I get less pleasure from several of my usual activities.
	3	I get almost no pleasure from most of the activities that I usually enjoy.
	4	I get no pleasure from any of the activities, which I usually enjoy.
7.	0	I have not been feeling guilty.
	1	I occasionally feel a little guilty.
	2	I often feel guilty.
	3	I feel quite guilty most of the time.
	4	I feel extremely guilty most of the time.
8.	0	I do not feel like a failure.
	1	My opinion of myself is occasionally a little low.
	2	I feel I am inferior to most people.
	3	I feel like a failure.
	4	I feel I am totally a worthless person.
9.	0	I haven't had any thought of death or suicide.
	1	I occasionally think life is not worth living.
	2	I frequently think of dying in passive ways (such as going to sleep and not waking up), or that I'd be better off dead.
	3	I have frequent thoughts or killing myself, but I would not carry them out.
	4	I would kill myself if I had the chance.
10.	0	I can concentrate as well as usual.
	1	My ability to concentrate is slightly worse than usual.
	2	My attention span is not as good as usual and I am having difficulty collecting my thoughts, but this hasn't caused any problems.
	3	My ability to read or hold a conversation is not as good as it usually is.
	4	I cannot read, watch TV, or have a conversation without great difficulty.
11.	0	I make decisions as well as I usually do.
	1	Decision-making is slightly more difficult than usual.
	2	It is harder and takes longer to make decisions, but I do make them.
	3	I am unable to make some decisions.
	4	I can't make any decisions at all.
12.	0	My appetite is not less than normal.
	1	My appetite is slightly worse than usual.
	2	My appetite is clearly not as good as usual, but I still eat.
	3	My appetite is much worse now.
	4	I have no appetite at all, and I have to force myself to eat even a little.

13.
0 I haven't lost any weight.
1 I've lost less than 5 pounds.
2 I've lost between 5-10 pounds.
3 I've lost between 11-25 pounds.
4 I've lost more than 25 pounds.

14.
0 My appetite is not greater than usual.
1 My appetite is slightly greater than normal.
2 My appetite is clearly greater than normal.
3 My appetite is much greater than usual.
4 I feel hungry all the time.

15.
0 I haven't gained any weight.
1 I've gained less than 5 pounds.
2 I've gained between 5-10 pounds.
3 I've gained between 11-25 pounds.
4 I've gained more than 25 pounds.

16.
0 I am not sleeping less than normal.
1 I occasionally have slight difficulty sleeping.
2 I clearly don't sleep as well as usual.
3 I sleep about half my normal amount of time.
4 I sleep less than 2 hours per night.

17.
0 I am not sleeping more than normal.
1 I occasionally sleep more than normal.
2 I frequently sleep at least 1 hour more than usual.
3 I frequently sleep at least 2 hours more than usual.
4 I frequently sleep at least 3 hours more than usual.

APPENDIX D

BRIEF SYMPTOM INVENTORY (BSI)

Subject #_____

	NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY	HOW MUCH WERE YOU DISTRESSED BY:
1	⓪	①	②	③	④	Nervousness or shakiness inside
2	⓪	①	②	③	④	Faintness or dizziness
3	⓪	①	②	③	④	The idea that someone else can control your thoughts
4	⓪	①	②	③	④	Feeling others are to blame for most of your troubles
5	⓪	①	②	③	④	Trouble remembering things
6	⓪	①	②	③	④	Feeling easily annoyed or irritated
7	⓪	①	②	③	④	Pains in heart or chest
8	⓪	①	②	③	④	Feeling afraid in open spaces or on the streets
9	⓪	①	②	③	④	Thoughts of ending your life
10	⓪	①	②	③	④	Feeling that most people cannot be trusted
11	⓪	①	②	③	④	Poor appetite
12	⓪	①	②	③	④	Suddenly scared for no reason
13	⓪	①	②	③	④	Temper outbursts that you could not control
14	⓪	①	②	③	④	Feeling lonely even when you are with people
15	⓪	①	②	③	④	Feeling blocked in getting things done
16	⓪	①	②	③	④	Feeling lonely
17	⓪	①	②	③	④	Feeling blue
18	⓪	①	②	③	④	Feeling no interest in things
19	⓪	①	②	③	④	Feeling fearful
20	⓪	①	②	③	④	Your feelings being easily hurt
21	⓪	①	②	③	④	Feeling that people are unfriendly or dislike you
22	⓪	①	②	③	④	Feeling inferior to others
23	⓪	①	②	③	④	Nausea or upset stomach
24	⓪	①	②	③	④	Feeling that you are watched or talked about by others
25	⓪	①	②	③	④	Trouble falling asleep
26	⓪	①	②	③	④	Having to check and double-check what you do
27	⓪	①	②	③	④	Difficulty making decisions
28	⓪	①	②	③	④	Feeling afraid to travel on buses, subways, or trains
29	⓪	①	②	③	④	Trouble getting your breath
30	⓪	①	②	③	④	Hot or cold spells
31	⓪	①	②	③	④	Having to avoid certain things, places, or activities because they frighten you
32	⓪	①	②	③	④	Your mind going blank
33	⓪	①	②	③	④	Numbness or tingling in parts of your body
34	⓪	①	②	③	④	The idea that you should be punished for your sins
35	⓪	①	②	③	④	Feeling hopeless about the future
36	⓪	①	②	③	④	Trouble concentrating
37	⓪	①	②	③	④	Feeling weak in parts of your body
38	⓪	①	②	③	④	Feeling tense or keyed up
39	⓪	①	②	③	④	Thoughts of death or dying
40	⓪	①	②	③	④	Having urges to beat, injure, or harm someone
41	⓪	①	②	③	④	Having urges to break or smash things
42	⓪	①	②	③	④	Feeling very self-conscious with others
43	⓪	①	②	③	④	Feeling uneasy in crowds, such as shopping or at a movie
44	⓪	①	②	③	④	Never feeling close to another person
45	⓪	①	②	③	④	Spells of terror or panic
46	⓪	①	②	③	④	Getting into frequent arguments
47	⓪	①	②	③	④	Feeling nervous when you are left alone
48	⓪	①	②	③	④	Others not giving you proper credit for your achievements
49	⓪	①	②	③	④	Feeling so restless you couldn't sit still
50	⓪	①	②	③	④	Feelings of worthlessness
51	⓪	①	②	③	④	Feeling that people will take advantage of you if you let them
52	⓪	①	②	③	④	Feelings of guilt
53	⓪	①	②	③	④	The idea that something is wrong with your mind

APPENDIX E

MAACL

Subject # _____

INSTRUCTIONS: Please check the words that you feel apply to you ***right now, at this moment***.

1	active	45	fit	89	peaceful
2	adventurous	46	forlorn	90	pleased
3	affectionate	47	frank	91	pleasant
4	afraid	48	free	92	polite
5	agitated	49	friendly	93	powerful
6	agreeable	50	frightened	94	quiet
7	aggressive	51	furious	95	reckless
8	alive	52	gay	96	rejected
9	alone	53	gentle	97	rough
10	amiable	54	glad	98	sad
11	amused	55	gloomy	99	safe
12	angry	56	good	100	satisfied
13	annoyed	57	good-natured	101	secure
14	awful	58	grim	102	shaky
15	bashful	59	happy	103	shy
16	bitter	60	healthy	104	soothed
17	blue	61	hopeless	105	steady
18	bored	62	hostile	106	stubborn
19	calm	63	impatient	107	stormy
20	cautious	64	incensed	108	strong
21	cheerful	65	indignant	109	suffering
22	clean	66	inspired	110	sullen
23	complaining	67	interested	111	sunk
24	contented	68	irritated	112	sympathetic
25	contrary	69	jealous	113	tame
26	cool	70	joyful	114	tender
27	cooperative	71	kindly	115	tense
28	critical	72	lonely	116	terrible
29	cross	73	lost	117	terrified
30	cruel	74	loving	118	thoughtful
31	daring	75	low	119	timid
32	desperate	76	lucky	120	tormented
33	destroyed	77	mad	121	understanding
34	devoted	78	mean	122	unhappy
35	disagreeable	79	meek	123	unsociable
36	discontented	80	merry	124	upset
37	discouraged	81	mild	125	vexed
38	disgusted	82	miserable	126	warm
39	displeased	83	nervous	127	whole
40	energetic	84	obliging	128	wild
41	enraged	85	offended	129	willful
42	enthusiastic	86	outraged	130	wilted
43	fearful	87	panicky	131	worrying
44	fine	88	patient	132	young

APPENDIX F

SELF-CONSCIOUSNESS SCALE (SCS)

The Self-Consciousness Scale

Items on the private self-consciousness scale
I'm always trying to figure myself out. (1)
Generally, I'm not very aware of myself. (3)*
I reflect about myself a lot. (5)
I'm often the subject of my own fantasies. (7)
I never scrutinize myself. (9)*
I'm generally attentive to my inner feelings. (13)
I'm constantly examining my motives. (15)
I sometimes have the feeling that I'm off somewhere watching myself. (18)
I'm alert to changes in my mood. (20)
I'm aware of the way my mind works when I work through a problem. (22)

Items on the public self-consciousness scale
I'm concerned about my style of doing things. (2)
I'm concerned about the way I present myself. (6)
I'm self-conscious about the way I look. (11)
I usually worry about making a good impression. (14)
One of the last things I do before I leave the house is look in the mirror. (17)
I'm concerned about what other people think of me. (19)
I'm usually aware of my appearance. (21)

Items on the social anxiety scale
It takes me time to overcome my shyness in new situations. (4)
I have trouble working when someone is watching me. (8)
I get embarrassed very easily. (10)
I don't find it hard to talk to strangers. (12)*
I feel anxious when I speak in front of a group. (16)
Large groups make me nervous. (23)

The number in parentheses represents the order of the items on the original scale. Items with asterisks represent items that will be reverse scored.

APPENDIX G

VISUAL ANALOG SCALE AND INTERNAL-EXTERNAL ATTRIBUTIONS TIME 1 (VAS-TI)

Subject #:_____

VAS-T1

1. The scale below asks you to rate the extent to which you expect to succeed on the computer task that will be administered. The scale ranges from "Much worse than most people" to "Much better than most people." Please place an "X" on the line that indicates how you expect to perform on the task.

Much worse than most people — Much better than most people

_____

(For question 2, please circle one number for your answer. Please do not circle the words.)

2. Do you think that your performance on the upcoming task will be due to something about you or something about other circumstances?

Totally due to other Circumstances — Totally due to me

1 2 3 4 5 6 7

APPENDIX H

VISUAL ANALOG SCALE AND INTERNAL-EXTERNAL ATTRIBUTIONS TIME 2 (VAS-T2)

Subject #:_____

VAS-T2

1. The scale below asks you to rate the extent to which you expect to succeed on the next task that will be administered. The scale ranges from "Much worse than most people" to "Much better than most people." Please place an "X" on the line that indicates how you expect to perform on the task.

Much worse than most people — Much better than most people

_____

(For question 2, please circle one number for your answer. Please do not circle the words.)

2. Do you think that your performance on the upcoming task will be due to something about you or something about other circumstances?

Totally due to other Circumstances — Totally due to me

1 2 3 4 5 6 7

APPENDIX I

THE SELF-FOCUS SENTENCE COMPLETION TASK (SFSC)

Subject #:_____

Instructions: Please complete each sentence stem with the first idea that comes to mind.

1. I think:_____
2. I am happiest when:_____
3. It's fun to daydream about:_____
4. My father:_____
5. If only I could:_____
6. It's hardest for me:_____
7. I wish:_____
8. As a child I:_____
9. I am:_____
10. I am at my best:_____
11. Others:_____
12. When I look in the mirror:_____
13. If only I would:_____
14. At least I'm not:_____

SFSC pg.2, Subject #_____

15. My sex life:_____

16. It upsets me when:_____

17. The thing I like best about myself:_____

18. Friends:_____

19. I would like most to be photographed:_____

20. I guess I'm:_____

21. My mother:_____

22. I wonder:_____

23. The worst thing about me:_____

24. I always wanted:_____

25. I try hardest to please:_____

26. Someday I:_____

27. My appearance:_____

28. My parents:_____

29. If I had my way:_____

SFSC pg. 3, Subject #:_____

30. I like:_____

APPENDIX J

PEAK EXPIRATORY FLOW RATE RECORD FORM (PEFR)

Subject #:_____

PEFR Record Form

Subject's height in inches:_____

Practice Trial PEFR rating:_____

Trial One PEFR rating:_____

Trial Two PEFR rating:_____

Trial Three PEFR rating:_____

APPENDIX K

PERMISSION FOR FOLLOW-UP

PERMISSION FOR FOLLOW-UP

We are interested in gathering additional information about you in order to answer more of our research questions. You have the choice of whether or not to provide this additional information. Participation in this part of the experiment is voluntary and refusal to participate will not affect your course credit or compensation for completing the previous two phases of the experiment. Please consider each of the requests listed below.

Part One: Request to obtain GPA

We would like to obtain your grade point average (GPA) to use in our analyses. We would like to obtain your GPA for the most recent semester you completed as well as your cumulative GPA. IF this is your first semester in college, we will request your GPA from your last semester of high school as well as your cumulative high school GPA. In order to ensure accuracy, we would like to obtain this information from the registrar at Oklahoma State University. Please note that we will not use your individual GPA when reporting the results of the study. We will only report average GPA's for groups of participants in the study.

_____ I consent to allow Jill Van Pelt, Misty Boyd, or their authorized representatives to obtain my GPA for the most recent semester I completed in college and my cumulative college GPA. If this is my first semester in college, I understand they will request my GPA from my last semester of high school and my cumulative high school GPA.

_____ I DO NOT give permission for my GPA to be obtained from the Oklahoma State University Registrar.

_____	_____	_____
Signature of Participant	Social Security Number (for consenting participants)	Date and Time

_____	_____
Signature of Witness	Date and Time

_____	_____
Signature of Experimenter	Date and Time

Part Two: Permission to contact parent (Asthma participants only)

In order to ensure the highest level of accuracy for the data, we would like to contact one of your parents who can confirm the age at which you were diagnosed with asthma. We will only contact your parent to ask about confirming the age at which you were diagnosed with asthma.

_____ I consent to allow Jill Van Pelt, Misty Boyd, or their authorized representative to contact my parent, whose name is listed below, to confirm the age at which I was diagnosed with asthma.

_____ I DO NOT consent to allow my parent to be contacted to obtain this information.

_____ _____
Signature of Participant Date and Time

_____ _____
Signature of Witness Date and Time

_____ _____
Signature of Experimenter Date and Time

Name of parent to contact:
_____

Phone number of parent to contact:_____

Mailing address of parent to contact:_____

Part Three: Permission to contact physician for severity rating. (Asthma participants only)

We would like to ask you current physician to provide a rating of the severity of your asthma. This procedure would involve us a mailing a copy of this consent form to your physician along with a brief questionnaire assessing the severity of your asthma. You doctor will provide no additional information about your medical history other than the information assessed on the severity rating form.

_____ I consent to allow Jill Van Pelt, Misty Boyd, or the authorized representatives to contact my physician (listed below) to obtain a rating of the severity of my asthma.

_____ I DO NOT consent to allow my physician to be contact to obtain a rating of the severity of my asthma.

_____	_____	_____
Signature of Participant	Social Security Number (for consenting participants)	Date and Time

_____	_____
Signature of Witness	Date and Time

_____	_____
Signature of Experimenter	Date and Time

Name of physician to contact:

_____

Name of practice or hospital physician is affiliated with:

_____

Physician's City and State:

_____

Street Address:_____

Phone Number:

_____

Part Four: Permission for follow-up contact

We would like to speak with you again, once or twice within the next year. This follow-up would most likely involve asking you questions about the nature of your asthma during the time period between completing this study and the time of follow-up. We would most likely as you questions regarding how much school or work you had to miss due to your asthma (if any), how much your asthma has impacted your social life (if at all), and how severe your asthma has been during the intervening period. You would have the right to refuse to participate in follow-ups at the time of the follow-up contact even if you sign the consent form today.

_____ I consent for Jill Van Pelt, Misty Boyd, or an authorized representative to contact me for no more than two follow-up sessions within a year of the date on this form to ask me follow-up questions related to my asthma.

_____ I DO NOT consent to be contacted for follow-up sessions.

_____ _____
Signature of Participant Date and Time

_____ _____
Signature of Witness Date and Time

_____ _____
Signature of Experimenter Date and Time

Name:

_____

Phone Number (Home): _____ Work or Cell: _____

E-mail:_____

College
Address:_____

Permanent Address (if
applicable):_____

Name and phone of one individual who would know how to contact you if you have moved:

_____

APPENDIX L

INFORMED CONSENT

Consent Form

I, _____, (name of participant), voluntarily consent to participate in the investigation of cognitive abilities, the purposes of which have been explained to me by Jill Van Pelt, or Misty Boyd, or associates or assistants of their choosing. I thereby authorize Jill Van Pelt, or Misty Boyd, or associates or assistants to perform the following treatments or procedures:

I understand that the research requires the completion of several paper-and-pencil measures that address my perceptions of life events. In addition, I will be asked to complete computer tasks.

I understand that any data collected as part of my participation in this experiment will be treated as confidential and will receive a code number so that they will remain anonymous. In no case, will any use be made of these data other than as research results. If data from my participation are ever displayed, my identity will remain anonymous.

I understand that I will receive either two (2) research credits or the sum of $10 for two hours of participation. I understand that, although my participation may not be personally beneficial to me, the information derived from this project may have important implications for others. I realize that the information gained may contribute to better understanding of the cognitive abilities in individuals with and without asthma.

I understand that my participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time without penalty, after notifying the project director.

I may contact Dr. Larry Mullins, Psychology Department, 215 North Murray Hall, Oklahoma State University, at (405)-744-6951 should I wish further information about the research. I may also contact Sharon Bacher, IRB Executive Secretary, 203 Whitehurst, Oklahoma State University, Stillwater, Oklahoma, 74078, (405)-744-6501. Should any problems arise during the course of the study, I may take them to Dr. Maureen Sullivan, Psychology Department Head, 215 North Murray Hall, Oklahoma State University, at (405)-744-6027.

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

_____ _____

Signature of Participant Date and Time

_____ _____

Signature of Witness Date and Time

I certify that I have personally explained all elements of this form to the participant before requesting that he or she sign it.

_____ _____

Signature of Project Director (or authorized representative) Date and Time

NOTE: There are circumstances under which (a) some or all of the elements in the above form may be altered or waived and/or (b) the requirement for the consent form to be signed may be waived. See 45 CFR, Sections 46.116 and 46.117, or contact the IRB Executive Secretary at 744-6501.

APPENDIX M

DEBRIEFING STATEMENT

DEBRIEFING STATEMENT

The preceding experiment examined the relationship between self-focused attention and health status. During the computer task, some participants did not have control over solving the problems. Participants were manipulated to believe that they were capable of solving what was actually an unsolvable task. Any frustration or negative perceptions you may have experienced in response to the task were purely a function of the deceptive nature of the experiment. Your performance is not a reflection of you ability to perform this, or related, tasks.

Some of the questionnaires, in addition to the computer task, may have touched upon sensitive issues such as depression. The scores that you received on any of the questionnaires are not available to me. Thus, I do not know how you performed on any of these measures. Since these tasks might have elicited some introspection on your part, we are handing out a list of the services available in the area to everyone, in case they are interested in speaking with someone.

Finally, we ask that you do not tell anyone about any portion of this experiment. Do you have any questions?

APPENDIX N

RECORD OF HOW CONCEPT FORMATION TASK WAS SOLVED SOLVABLE CONDITION ONLY

Subject #_____

Experimenter: Please record the participant's explanation of how he or she went about solving the problems in the concept-formation task.

APPENDIX O

CAMPUS SERVICES

CAMPUS SERVICES

Psychological Services Center – (118 North Murray Hall, 744-5975)

The center provides assistance to any interested individual from Oklahoma State University or the surrounding area. The center is open Monday, Tuesday, and Thursday from 8 a.m. to 9 p.m. and Wednesday and Friday from 8 a.m. to 5 p.m. There is a graduate fee for those using this service. All appointments are confidential.

Personal Counseling Services – 310 Student Union, 744-5472 or 002 Student Health Center, 744-7007

The Personal Counseling Services supports the personal, social, and intellectual growth of members of the University community. They provide a broad spectrum of services to OSU students.

Counseling services include individual and group counseling relating to areas of career/life planning, study skills, and personal concerns including stress, anxiety, depression, relationships, eating disorders, and substance abuse. Counseling sessions are provided at a minimal fee. All appointments are confidential.

Reach-out Hotline – Oklahoma City, 1-800-522-9054

Crisis hotline in Oklahoma City.

APPENDIX P

RELEVANT RESULTS

Table 1

Means and Standard Deviations Comparing Participants on Psychological Distress Measures

Variable	Illness Group	N	Mean	SD	t	*p* (2-tailed)
Iventory to Diagnose Depression					1.48	0.14
	Asthma	40	9.35	6.85		
	Healthy Control	39	7.25	5.63		
BSI Global Severity Index					1.78	0.08
	Asthma	40	53.58	11.48		
	Healthy Control	40	49.20	10.47		
BSI Depression T-score					0.31	0.76
	Asthma	40	51.23	10.12		
	Healthy Control	40	50.58	8.80		
BSI Obsessive-Complusiveness T-Score					1.09	0.28
	Asthma	40	55.65	13.49		
	Healthy Control	40	52.80	9.66		
BSI Interpersonal Sensitivity T-Score					0.46	0.64
	Asthma	40	53.58	11.87		
	Healthy Control	40	52.38	11.18		
BSI Anxiety T-Score					1.00	0.32
	Asthma	40	49.73	10.52		
	Healthy Control	40	47.60	8.28		
BSI Hostility T-Score					1.42	0.16
	Asthma	40	53.95	11.20		
	Healthy Control	40	50.73	8.93		
BSI Phobic Anxiety T-Score					0.52	0.60
	Asthma	40	49.78	9.72		
	Healthy Control	40	48.70	8.67		
BSI Psychoticism T-Score					0.69	0.49
	Asthma	40	54.63	11.13		
	Healthy Control	40	53.00	9.97		
BSI Paranoid Ideation T-Score					0.80	0.43
	Asthma	40	51.88	13.13		
	Healthy Control	40	49.83	9.56		
BSI Somatization T-Score					3.30	<.01
	Asthma	40	55.65	12.35		
	Healthy Control	40	47.80	8.38		

Table 2

Frequency of BSI Caseness Classification for AS and HC Participants

BSI Caseness		Asthma	Healthy Control
	Met caseness	16	12
	Did not meet caseness	24	28

Frequency of IDD Caseness Classification for AS and HC Participants

IDD Caseness		Asthma	Healthy Control
	Met caseness	5	3
	Did not meet caseness	35	36

Table 3

Mean and Standard Deviations Comparing Participants on Lung Function Measures

Highest PEFR Measure		Mean	Standard Deviation
	Asthma	404.75	121.15
	Healthy Control	428.25	124.2

Table 4

Means and Standard Deviations Comparing Participants on Self-Conciousness Scale

Variable		Mean	Standard Deviation
Private Self-Consciousness Subscale			
	Asthma	24.24	5.97
	Healthy Control	22.16	4.88
Public Self-Consciousness Subscale			
	Asthma	18.57	5.95
	Healthy Control	17.68	4.92
Social Anxiety Subscale			
	Asthma	11.24	5.34
	Healthy Control	12.86	5.87
Total Self-Consciouness Scale			
	Asthma	54.05	12.59
	Healthy Control	52.70	12.41

Table 5

Means and Standard Deviations for Number of Anagrams Solved Incorrectly

Feedback Condition		Mean	Standard Deviation
Contingent			
	Asthma	3.45	2.93
	Healthy Contol	3.65	3.28
Non-contingent			
	Asthma	3.55	3.65
	Healthy Contol	5.35	3.39

Table 6

Means and Standard Deviations for MAACL Subscale Scores

Variable	Feedback Condition		Time 1 Mean	Time 1 SD	Time 2 Mean	Time 2 SD
Depression						
	Contingent					
		Asthma	11.80	5.35	10.70	5.71
		Healthy Control	12.95	4.45	12.55	4.62
	Non-contingent					
		Asthma	11.85	5.65	14.20	6.31
		Healthy Control	12.45	5.53	14.75	5.25
Anxiety						
	Contingent					
		Asthma	6.25	3.99	5.30	3.76
		Healthy Control	6.50	2.91	6.05	2.80
	Non-contingent					
		Asthma	5.90	3.35	7.05	3.65
		Healthy Control	6.35	2.83	7.80	2.44
Hostility						
	Contingent					
		Asthma	7.70	3.84	7.55	3.53
		Healthy Control	7.60	2.81	8.00	2.27
	Non-contingent					
		Asthma	6.95	3.33	9.30	3.16
		Healthy Control	7.25	2.90	9.20	3.38

Table 7

Means and Standard Deviations for VAS and Internal Attributions Scores

Variable	Feedback Condition		Time 1 Mean	Time 1 SD	Time 2 Mean	Time 2 SD
VAS						
	Contingent					
		Asthma	2.50		2.51	
		Healthy Control	2.12		2.28	
	Non-contingent					
		Asthma	2.24		1.62	
		Healthy Control	2.33		1.52	
Int. Attrib.						
	Contingent					
		Asthma	4.84		4.32	
		Healthy Control	4.60		4.40	
	Non-contingent					
		Asthma	4.40		4.25	
		Healthy Control	4.80		4.35	

Table 8

Means and Standard Deviations for References to Self, External Objects, and Other Responses

Variable	Feedback Condition		Mean	SD
References to self				
	Contingent			
		Asthma	15.45	3.56
		Healthy Control	16.00	3.55
	Non-contingent			
		Asthma	14.40	3.45
		Healthy Control	15.45	3.17
References to external objects				
	Contingent			
		Asthma	9.85	3.38
		Healthy Control	7.40	2.33
	Non-contingent			
		Asthma	9.10	3.48
		Healthy Control	7.45	2.06
Other references				
	Contingent			
		Asthma	4.70	2.92
		Healthy Control	6.55	3.97
	Non-contingent			
		Asthma	5.60	2.04
		Healthy Control	7.10	2.75

APPENDIX Q

INSTITUTIONAL REVIEW BOARD APPROVAL

Oklahoma State University
Institutional Review Board

Protocol Expires: 12/5/02

Date: Thursday, December 06, 2001 IRB Application No AS0226

Proposal Title: THE INFLUENCES OF SPIRITUALITY AND SELF-FOCUS ON PSYCHOLOGICAL ADJUSTMENT IN OLDER ADOLESCENTS AND YOUNG ADULTS WITH ASTHMA

Principal Investigator(s):

Jill Van Pelt
215 N. Murray
Stillwater, OK 74078

Misty L. Boyd
215 N. Murray
Stillwater, OK 74078

Larry Mullins
414 N Murray
Stillwater, OK 74078

Reviewed and Processed as: Expedited

Approval Status Recommended by Reviewer(s): Approved

Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of the expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved projects are subject to monitoring by the IRB. If you have questions about the IRB procedures or need any assistance from the Board, please contact Sharon Bacher, the Executive Secretary to the IRB, in 203 Whitehurst (phone: 405-744-5700, sbacher@okstate.edu).

Sincerely,

Carol Olson, Chair
Institutional Review Board

VITA

Jill Christine Van Pelt

Candidate for the Degree of

Master of Science

Thesis: DISPOSITONAL SELF-FOUCSING IN ADOLESCENTS AND YOUNG ADULTS WITH ASTHMA

Major Field: Psychology

Biographical:

Personal Data: Born in Lakewood, New Jersey, on August 21, 1976, daughter of Jeremy and Linda Van Pelt.

Education: Graduated from Plano Senior High School, Plano, Texas in May, 1994; received Bachelor of Arts degree in Psychology from Wake Forest University, Winston-Salem, North Carolina in May 1998; received Master of Arts degree in Experimental Psychology from Wake Forest University, Winston-Salem, North Carolina in May 2000. Completed the requirements for the Master of Science degree with a major in Clinical Psychology at Oklahoma State University in December 2002.

Experience: Employed by the Department of Pediatrics of Wake Forest University School of Medicine at Amos Cottage Rehabilitation Center as a student intern from 1998-2000; employed by Oklahoma State University as a research and/or teaching assistant from 2000 to the present.

Professional Memberships: American Psychological Association, Southwestern Psychological Association