

THE INFLUENCE OF RELIGIOUS COPING ON
PSYCHOLOGICAL ADJUSTMENT IN
OLDER ADOLESCENTS AND
YOUNG ADULTS WITH
ASTHMA

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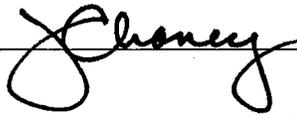
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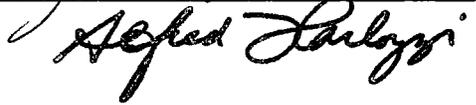
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CHAPTER 1

INTRODUCTION

Asthma, a chronic respiratory disease, is characterized by intermittent and uncontrollable episodes of wheezing and shortness of breath (Eiser, 1985). It holds the distinction of being the most common chronic illness in children (Creer & Bender, 1995a). Asthma episodes are known to occur under a variety of conditions (Eiser, 1985), and hallmark characteristics of the disease include the intermittent, variable, and reversible nature of these exacerbations (Creer & Bender, 1995a). Despite substantial advances in treatment for asthma, prevalence, morbidity, mortality, and disease severity continue to rise (Creer & Bender, 1995a). As the impact of asthma has grown, it has become increasingly clear that the disease is much less benign than is often believed or portrayed in mainstream society. Further, asthma is not only common in childhood but also persists through adolescence and young adulthood in many cases (Oosaki, Mizushima, Kawasaki, Hoskino, & Kobayashi, 1994).

Beyond the physiological and financial impact of asthma, researchers in recent years have also noted that individuals with asthma seem to be at increased risk for psychological adjustment difficulties (e.g., Bennett, 1994; MacLean, Perrin, Gortmaker, & Pierre, 1992). For example, several studies have noted increased prevalence of depression in individuals with asthma, as well as substantial elevations in other markers of psychological maladjustment (e.g., Badoux & Levy, 1994; Chaney et al., 1999; Mullins et al., 1997). Unfortunately, relatively little is known about the potential long-term adjustment and management difficulties that may be experienced by older adolescents and young adults with asthma (e.g., Chaney et al., 1999).

A number of variables potentially influence psychological adjustment in individuals with chronic illness and, more specifically, those with asthma. In particular, cognitive appraisal mechanisms have received increasing attention. Specific cognitive appraisal mechanisms that have been found to characterize the chronic illness experience and appear to impact psychological adjustment across a variety of conditions are illness intrusiveness and illness uncertainty (e.g., Devins et al., in press; Mishel, 1988). The construct of illness intrusiveness reflects the extent to which a disease and/or its treatment interferes with activities in important life domains, including relationships and personal development, intimacy, and activities of daily living (Devins et al., in press). Across a number of studies and disease groups, illness intrusiveness has been found to predict adjustment problems, often even after statistically controlling for other variables believed to be important in predicting adjustment (e.g., Mullins et al., 2001).

In addition to interference in psychologically important activities, chronic illness may also impact adjustment through illness uncertainty, or the difficulty an individual experiences in assigning value to illness-related events or difficulty in accurately predicting outcomes of events (Mishel, 1988). Illness uncertainty occurs when an individual is faced with unpredictable, ambiguous, unfamiliar, or inconsistent information in relation to their illness (Mishel, 1984). The asthma experience, by its very nature, is characterized by unpredictable, inconsistent exacerbations that may be preceded by ambiguous or unfamiliar stimuli. This is particularly important because events in which uncertainty occurs, including illness uncertainty surrounding a condition such as asthma, may be experienced as particularly stressful, thereby contributing to the potential for psychological adjustment difficulties (Mishel, 1984). Mishel (1988) notes that, beyond

the experience of uncertainty, managing illness uncertainty appears to play a vital role in individual adjustment.

For many individuals, religion or religious coping potentially offers a means for managing the impact of the chronic illness experience thought to contribute to psychological distress. The available literature, although relatively small, indicates that religious involvement is favorably associated with measures of physical health and may serve to buffer the impact of stress on physical and mental health (McCullough et al., 2000). In addition, religious coping appears to be relatively common in health-related situations, perhaps due in part to the historic role of religion in questions of health, healing, and mortality (Dein & Stygall, 1997). In one of the few studies of its kind, Koenig and his colleagues (1992) found a robust relationship between higher levels of religious coping and lower levels of depression in hospitalized elderly men. Despite the limited literature addressing religious coping and adjustment in chronic illness, it does appear that further study of the construct and its associations with psychological distress is warranted.

The current study explored the relationship of illness intrusiveness, illness uncertainty, and religious coping to psychological distress in a sample of older adolescents and young adults with asthma. This study extended previous research regarding psychological distress in individuals with asthma to older adolescents and young adults in a number of ways. Particular attention was paid to the independent influence of religious coping, in addition to illness intrusiveness and illness uncertainty, in predicting psychological distress for this subgroup of individuals with asthma. Religious coping was expected to make a significant contribution to the prediction of

psychological distress independent of the effects of illness intrusiveness and illness uncertainty. Because the previous literature suggested that religious coping may facilitate resilience in the face of challenging situations such as asthma, the proposed study also used an experimental learned helplessness induction task to compare the potential influence of religious coping activities on susceptibility to learned helplessness.

The remainder of this paper will examine the relevant background literature, detail the specific purposes and hypotheses, discuss the methodology employed, and present and discuss the results of the current study.

CHAPTER II

LITERATURE REVIEW

Nature of Asthma

Asthma is the most common chronic illness in children (Creer & Bender, 1995a) and, together with other respiratory diseases, accounts for approximately one-fourth of all limitations of activity in childhood (Newacheck, Budetti, & Halfon, 1986). Asthma, which may continue into adulthood, is a lung disease in which airway inflammation is present, airways are hyperresponsive to a variety of stimuli, and airway obstruction or narrowing is at least partially reversible either spontaneously or with treatment (Creer & Bender, 1995a). The disease is considered to be chronic and is characterized by intermittent, uncontrollable episodes of wheezing and shortness of breath (Eiser, 1985). Asthma episodes may occur in a variety of circumstances. For example, allergy-induced spasm of the smooth muscle in the wall of the smaller airways of the lungs may cause profound constriction of these airways, excess secretion of thick mucus may lead to plugging of the airways, or inflammation and histamine-induced edema may cause thickening of the walls of the airways (Sherwood, 1997). It is not uncommon for asthma events to be preceded by exposure to allergens such as bacteria, pollen, certain foods, dust, animal dander, or many others (Eiser, 1985). Although the cause of asthma remains unknown (Creer & Bender, 1995a), several key features of the disorder are well known and widely recognized by individuals with asthma and by those who treat it. Specifically, the intermittent, variable, and reversible nature of asthma are considered to be hallmark characteristics (Creer & Bender, 1995a) and may influence psychological adjustment in individuals with the disease.

Despite substantial advances over the previous 25 years in treatment for asthma, prevalence of the disease continues to rise (Creer & Bender, 1995a). For example, the prevalence of asthma in individuals under the age of 18 years in the United States rose from 3.2% in 1981 to 4.3% in 1988, representing an increase of almost 40% in the prevalence of asthma among American children (Weitzman, Gortmaker, Sobol, & Perrin, 1992). As the prevalence of asthma increases, so, too, does the impact of the disease. For example, the economic effects of asthma, including both direct and indirect costs, were estimated at \$6.2 billion in 1990 (Weiss, Gergen, & Hodgson, 1992). More alarming, however, is mortality data indicating that the age-adjusted death rate for asthma as the underlying cause of death increased 45% between 1980 and 1989, to a rate of 1.9 per 100,000 (Centers for Disease Control, 1992); the most current figure stands at 2.0 per 100,000 (Centers for Disease Control, 2000). Sadly, this may be an underestimate due to the nature of determining mortality rates from death certificate data (Creer & Bender, 1995a).

Thus, recent years have witnessed increases in prevalence, morbidity, and mortality (Chaney et al., 1999; Creer & Bender, 1993). This is particularly true for minority youth or those from low socioeconomic status backgrounds (e.g., Janson & Reed, 2000; Simeonsson, Lorimer, Shelley, & Sturtz, 1995). Thus, as others have noted, asthma continues to pose many challenges as a disease that is not only difficult to manage but is also potentially life-threatening (Chaney et al., 1999; Weitzman, Gortmaker, Sobol, & Perrin, 1992). It becomes clear, then, that asthma is much less benign than is often believed by mainstream society.

In addition to being more severe, asthma also persists much longer in many cases than previously believed, with 30% to 80% of adults with childhood onset asthma continuing to experience symptoms (Roordan, 1996). In fact, asthma is almost as prevalent in adolescents as in young children and is more prevalent during adolescence than later adulthood (Price, 1996). The impact of asthma does not escape adolescents and young adults. Death rates for asthma are 3.7 per 1,000,000 in children between 5 and 14 years of age and rise to 5.4 per 1,000,000 in individuals between 15- and 34-years-old (Mannino et al., 1998). Some researchers have even advanced the argument that asthma may remain in many individuals who appear to be symptom free in the form of subclinical but significant airway obstruction and bronchial hyperresponsiveness (Roordan, 1996). To complicate matters, medical care for older adolescents and young adults with asthma is often found to be inadequate, perhaps because they are typically viewed as too old to be seen by a pediatrician and too young to be treated by an adult medicine physician (Perez-Yarza, 1996). Roordan (1996) reviewed the literature and found that 80% of adolescents with asthma do not receive regular medical supervision of the illness despite numerous symptoms. In a study of college students with asthma, 40% of the sample reported not seeking medical attention due to a variety of factors despite believing that symptoms were severe enough to warrant medical care (Jolicoeur et al., 1994). Sadly, older adolescents and young adults have been largely ignored in the scientific community (e.g., Jolicoeur et al., 1994; Perez-Yarza, 1996).

To summarize, asthma is the most common chronic illness in childhood and involves a variety of upper respiratory symptoms. Symptoms may range from mild to severe and may be exacerbated under a variety of conditions, many of them unidentified.

Although the cause of asthma remains unknown, the intermittent, variable, and reversible nature of asthma are considered to be hallmark features. Recent years have witnessed dramatic increases in asthma prevalence, morbidity, mortality, and severity, despite advances in treatment. One group that has received little medical or research attention is older adolescents and young adults with asthma, despite evidence that 30% to 80% of individuals with childhood onset asthma experience symptoms into adulthood. Further, individuals in this age group do not appear to escape the impact of asthma, which continues to pose many challenges with regard to management and even survival.

Psychological Adjustment in Asthma

Just as the physiological and financial impacts of asthma are becoming better understood and more widely recognized, researchers are also noting high comorbidities of asthma with emotional/psychological adjustment difficulties (Creer et al., 1988; Lehrer, Isenberg, & Hochron, 1993). Importantly, not only do psychosocial variables appear to be associated with increased morbidity and mortality in asthma (Lehrer, Isenberg, & Hochron, 1993; Miller, 1987), but it also seems clear that individuals with asthma are at increased risk for psychological adjustment difficulties (e.g., Bennett, 1994; Kashani, Koenig, Shepperd, Wilfley, & Morris, 1988; MacLean, Perrin, Gortmaker, & Pierre, 1992). For example, individuals with asthma may demonstrate increased anxious behavior regarding their illness, in part because of the high level of vigilance required in monitoring and responding to internal cues such as tightness in the chest (Celano & Geller, 1993). Asthma has also been associated with behavioral and school-related problems, social competency difficulties, and lower self-esteem in children (Hambley, Brazil, Furrow, & Chua, 1989). In another study, individuals with asthma scored

significantly higher in areas such as somatization, obsession/compulsion, interpersonal sensitivity, hostility, paranoid ideation, psychoticism, anxiety, and depression (Badoux & Levy, 1994).

Perhaps not unexpectedly, several studies have noted the presence of depression in individuals with asthma (e.g., Badoux & Levy, 1994; Chaney et al., 1999; Miller, 1987; Mullins et al., 1997; Silverglade, Tosi, Wise, & D'Costa, 1994). Prevalence rates of depression for individuals with asthma have been reported to be between 21 and 25%, much higher than that expected for the general population (Chaney et al., 1999; Miller, 1987). Even more important, however, may be the reported prevalence of global distress in individuals with asthma. Prevalence rates for global distress, which typically accounts for depression, anxiety, hostility, and other markers of psychological maladjustment, have been reported to be approximately 40% in individuals with asthma (Badoux & Levy, 1994; Mullins et al., 1997), whereas the prevalence for significant global distress in the general nonpatient population is expected to be approximately 10% at any point in time (Derogatis, 1994). Thus, it would appear that individuals with asthma are indeed at increased risk for adjustment difficulties.

Of particular note is the fact that the psychological adjustment problems seen in individuals with asthma parallel similar difficulties observed in other chronic illnesses, especially those that are difficult to control or predict. A substantial body of literature documents increased risk for psychological symptoms such as decreased self-esteem, higher levels of depression, and greater anxiety in individuals with various chronic illnesses (e.g., Ireys, Werthamer-Larsson, Kolodner, & Gross, 1994; Patterson, 1988; Chaney et al., 1996; Chaney et al., 1999); each of these adjustment markers may be

related to the levels of controllability or predictability that individuals experience in their lives. For example, Andersen and Lyon (1987) examined the role of inevitable, uncontrollable negative outcomes in the formation of psychological symptomatology in individuals with chronic illness. Results indicated that the contingencies present in chronic illness (i.e., inevitable, uncontrollable negative outcomes) were related to increases in anxiety and in depressive symptomatology, which often co-occurred. Such findings may have important implications not only for increased risk of psychological maladjustment but also for identifying adaptive coping responses or other protective cognitive appraisal factors.

When considering both the physical and psychological risks associated with asthma, it is important to note that asthma may begin during childhood and continue into adulthood, begin during childhood and remit until adulthood, or begin during adulthood (Oosaki, Mizushima, Kawasaki, Hoskino, & Kobayashi, 1994). Though much is understood about the role of emotional and behavioral adjustment in pediatric asthma, much less is known about the potential long-term adjustment and management difficulties that may be experienced by older adolescents and young adults with the disease (Chaney et al., 1999; Jolicoeur, Boyer, Reeder, & Turner, 1994; Kelly, Hudson, Phelan, Pain, & Olinsky, 1987; Mullins, Chaney, Pace, & Hartman, 1997). The emerging literature that does exist suggests that further study of this subset of individuals with asthma is warranted. For example, Mullins and his colleagues (1997) documented elevated levels of distress in their sample of older adolescents and young adults with asthma. Importantly, 37% of this sample evidenced clinically significant levels of psychological distress. Similarly, in another study of older adolescents and young adults

with asthma, Chaney and his colleagues (1999) found that a significantly greater proportion of individuals with asthma met DSM-IV diagnostic criteria for current major depression than did those in the group of healthy controls. Thus, it appears that psychological sequelae of asthma do not end with childhood, but indeed continue into young adulthood. It becomes important, then, to examine factors that may influence psychological adjustment in older adolescents and young adults with the disease.

Factors Affecting Psychological Adjustment for Individuals with Asthma

Illness Intrusiveness

Illness intrusiveness is believed to be a consistent element of the chronic illness experience (Devins et al., in press). Illness intrusiveness reflects the extent to which a disease and/or its treatment interfere with activities in important life domains, such as relationships and personal development, intimacy, and activities of daily living (Devins et al., in press). This construct may serve as a fundamental determinant of health-related quality of life, especially since chronic medical conditions often interfere with participation in psychologically meaningful activity (Devins et al., in press). Areas in which the impact of chronic illness may be most salient include work, active and passive recreation, intimate relationships, social relationships, family relations, self-expression, religious participation, and community involvement, among others (Devins et al., in press). Importantly, it has been postulated that psychological and social factors may influence the magnitude of illness intrusiveness experienced, as well as the degree to which illness intrusiveness compromises quality of life (Devins et al., in press).

The relationship of illness intrusiveness to quality of life and psychological adjustment has been demonstrated in research across a number of chronic illness

conditions. For example, in one study of adults with Type 2 diabetes, researchers found that illness intrusiveness was related both directly and indirectly to increased depressive symptomatology, operating primarily by reducing personal control over health outcomes (Talbot, Nouwen, Gingras, Belanger, & Audet, 1999). Illness intrusiveness was also found to predict adjustment problems in individuals with multiple sclerosis, even after statistically controlling for the influence of age, education, and objective indices of psychological and cognitive impairment (Mullins, Cote, Fuemmeler, Jean, Beatty, & Paul, 2001). In the only available study exploring the psychosocial impact of illness intrusiveness moderated by age, Devins and his colleagues (1996) found that increased illness intrusiveness was associated with decreased psychological well-being and increased emotional distress among young as compared with older individuals with multiple sclerosis. Thus, research supports that notion that illness intrusiveness is a common element of chronic illness and plays an important role in determining the psychosocial impact of the disease experience. Further, the impact of illness intrusiveness may be greater for younger rather than older individuals.

Illness Uncertainty

Another aspect of the chronic illness experience that should be considered is illness uncertainty. Indeed, it is likely that the majority of patients with chronic illnesses experience some degree of uncertainty regarding the course and outcome of their illnesses. In brief, illness uncertainty has been defined as difficulty assigning value to illness-related events or difficulty in accurately predicting outcomes of events (Mishel, 1988). These difficulties result in an inability to determine the implications or meaning of illness-related events (Mishel, 1988). Many chronic illnesses may generate uncertainty

because they are by their very nature unpredictable, ambiguous, unfamiliar, or inconsistent, thereby increasing an individual's risk of psychological adjustment difficulties (Mishel, 1984). Indeed, the asthma experience is characterized by many of these qualities.

Research with a number of disease groups demonstrates that increased levels of illness uncertainty are associated with increased levels of mood disturbance and feelings of anxiety (Bennett, 1993; Christman et al., 1988), decreased quality of life (Braden, 1990; Padilla, Mishel, & Grant, 1992), and perceiving less hope (Christman, 1990; Mishel, 1984). An exhaustive review of the extensive literature in this area is beyond the scope of this paper; however, some key findings should be noted. In a series of studies of women with gynecological cancer, Mishel and her colleagues found that higher levels of uncertainty were related to more adjustment problems (Mishel, Hostetter, King, & Graham, 1984; Mishel, Padilla, Grant, & Sorenson, 1991; Mishel & Sorenson, 1991). Padilla and colleagues (1992) documented that illness uncertainty was the key predictor of quality of life scores for women in treatment for gynecological cancer. In a study involving patients who experienced myocardial infarction, results demonstrated that individuals who reported greater uncertainty also experienced higher levels of emotional distress (Christman et al., 1988). Importantly, levels of uncertainty and emotional distress remained consistent over a four week time period following hospital discharge. In a study of individuals with postpolio syndrome, illness uncertainty was found to contribute unique and significant variance to the prediction of psychological distress beyond that predicted by illness severity and demographic variables (Mullins et al., 1995).

Collectively, these findings suggest that illness uncertainty is a robust contributor to the level of psychological distress experienced in the context of chronic illness.

The potential contribution of illness uncertainty to long-term psychological adjustment for individuals with asthma certainly warrants further consideration, as illness uncertainty and unpredictability are primary features of asthma (Mullins, Chaney, Pace, & Hartman, 1997). Indeed, upon examining psychological adjustment in young adults with histories of childhood asthma, Mullins and his colleagues (1997) found that greater illness uncertainty was associated with poorer adjustment, even after controlling for demographic and disease variables such as age, gender, socioeconomic status, illness duration, and treatment status. The authors speculated that the intermittent nature of asthma fosters an increased sense of illness uncertainty for important events, including asthma management, that over time becomes associated with aversive outcomes (e.g., poorer disease control) and subsequently leads to increases in emotional distress. Chaney and his colleagues (1999) extended these findings to an experimental examination of learned helplessness in older adolescents and young adults with asthma. Although they did not assess illness uncertainty per se, the researchers argued that repeated experiences with the unpredictable nature of asthma may result in helplessness by fostering the belief that treatment adherence is not necessarily predictive of disease outcome. Thus, older adolescents and young adults with asthma seem to have a learning history that would facilitate heightened illness uncertainty, that is, an inability to predict disease course or outcomes despite management techniques. It appears, then, that the key features of the disease (i.e., the intermittent, unpredictable, and reversible nature) contribute to variable

expectations and significant uncertainty about the illness (Creer & Bender, 1995b).

Increased uncertainty may, in turn, precipitate adjustment difficulties.

Equally important may be the fact that the management of illness uncertainty potentially plays a vital role in individual adaptation to an event (Mishel, 1988). In other words, the ways in which individuals cope with the ambiguous symptoms and uncertain outcomes of asthma or other chronic illnesses may influence psychological adjustment. For many, religion may offer a set of strategies for managing the impact of illness uncertainty, thereby attenuating the impact of illness uncertainty on adjustment outcomes. Rothbaum, Weisz, and Snyder (1982) explain the role of religion in coping by proposing that religion is used as a means of gaining 'secondary control' in situations that are viewed as uncontrollable, so that individuals use religion to understand and thereby accept an event rather than focusing on ways to change it. Unfortunately, relationships between illness uncertainty and religious coping have not been studied to date, despite the conceptual link explicated here. Indeed, existing research indicates that religious coping may play an important role in psychological adjustment, but it is a construct that has not frequently been examined in traditional research regarding adjustment to chronic illness. In the section to follow, religious coping will be explored as a means of managing the impact of chronic illness.

Religious Coping

The term *religious coping* can best be defined as describing an approach in which individuals incorporate religious values and faith into their coping efforts for events ranging from daily hassles to catastrophic life events. Pargament (1997) notes that stressful situations may mobilize many coping resources, religious as well as

nonreligious. Religious coping resources incorporate religious beliefs, attitudes, and practices explicitly into the coping process. These may include, among other things, prayer, study of scripture, more frequent attendance at church services, or religiously oriented interpretations of the stressful situations (Pargament, 1997). Importantly, Bjorck and Cohen (1993) found that uncertainty is one element of stressful situations with particularly important implications for religious coping. Specifically, individuals were found to place more value on religious coping activities in situations with increased uncertainty.

Several studies document the importance of religion and spirituality to mainstream society, with the general population of the United States tending to be highly religious (Hoge, 1996). Several authors have theorized about and, to some extent, demonstrated the importance of religion in coping with negative life events. In their thorough review of the role of religion in the coping process, Hathaway and Pargament (1992) concluded that, despite the complexity of the relationship between religion and coping, it is evident that many people turn to faith and religion to cope with life's demands. A number of studies have also shown positive outcomes associated with the use of religious coping in stressful situations (Larson, 1998; Tix & Frazier, 1998; Pargament, 1977). Furthermore, there is evidence that religion is helpful in coping with minor situations such as daily hassles *and* with high stress situations related to major life events (Hathaway & Pargament, 1992).

Despite a growing body of literature documenting the influence of coping efforts on adjustment to chronic illness, information available regarding religious coping in particular is quite limited (Dein & Stygall, 1997; Ganzevoort, 1998). Interestingly,

several studies demonstrate that religion and spirituality are at least modestly associated with self-reported well-being and reduced morbidity and mortality (Walters & Bennett, 2000). The lack of attention to religious coping is troubling in light of the fact that religious coping strategies serve as additional and often complementary avenues of coping different from non-religious coping efforts or general religious lifestyles (Hathaway & Pargament, 1992). Additionally, across a number of studies, people dealing with major life events often indicate the use of religion as part of coping (McIntosh, 1995). McCullough and colleagues (2000) comment that, based on the available research, religious involvement appears to be favorably associated with measures of physical health and may serve to buffer the impact of stress on physical and mental health. Similarly, Fabricatore, Handal, and Fenzel (2000) note that individuals who use religion as a part of coping report less distress and retain greater well-being in the face of stressors. Thus, it appears that religious coping, though often neglected in research, is an important area in the study of coping.

Across different types of major life events, religion has been identified as an asset in coping with health difficulties (Holland et al., 1999; Walters & Bennett, 2000). Based on their review of the literature, Bickel and colleagues (Bickel, Ciarrocchi, Sheers, Estadt, Powell, & Pargament, 1998) noted that religious coping appears to be more common in health-related situations than in other circumstances. The use of religion when dealing with the uncertainty of chronic illness may be in part due to the historic role of religion in questions of health, healing, and mortality (Dein & Stygall, 1997). Although religious and secular views have often been conceptualized as mutually exclusive phenomena, it appears that these attitudes are not necessarily at odds with each

other. In fact, many physicians endorse a complementary view of religion and medicine (Ayele, Mulligan, Gheorghiu, & Reyes-Ortiz, 1999). Further, some authors have suggested that religious beliefs may be at least as important in the illness process as traditional psychological and secular social variables, especially in chronic and life-threatening illnesses (King, Speck, & Thomas, 1992).

Indeed, religious coping has been identified as a unique contributor to the adjustment process in chronic illness. Koenig and his colleagues (1992) studied a large sample of elderly, medically hospitalized veterans and found that higher levels of religious coping were associated with lower levels of depression. This relationship was maintained even after controlling for other potentially important predictors of depression, including functional status, history of psychiatric problems, social support, and age. These data are notable, given the fact that religious commitment appears to become significant in the face of illness and may be relied upon heavily as a coping strategy. Silberfarb and his associates (1991) found that 85% of their sample of patients with multiple myeloma reported that religious beliefs played an important role in their coping. Further, a number of researchers have found that those who endorse the use of religious means of coping with medical issues also tend to evidence better adjustment than those who do not use religious means of coping (Idler, 1987; Koenig et al., 1992; O'Brien, 1982; Oxman, Freeman, & Manheimer, 1995; Pargament, Ensing, Falgout, Olsen, Van Haitsma, & Warren, 1990; Saudia, Kinney, Brown, & Young-Ward, 1991; Williams, Larson, Buckler, Hechman, & Pyle, 1991). These studies provide evidence for the role of religious coping as a predictor of adjustment in individuals with a range of chronic illnesses.

In their review of the literature on the topic of religious commitment and health status, Matthews and his colleagues (1998) concluded that religious commitment appears to positively influence prevention of mental and physical illness, improve how individuals cope with mental and physical illness, and facilitate recovery from illness. Some have suggested that religious beliefs influence coping with illness through providing a way to lend coherence and meaning to the problem, a way to gain a sense of control over feelings of helplessness, and a way to relate to a source of support greater than oneself (Kass et al., 1991; O'Connell, 1995).

Further, religious coping appears to hold advantages for physical health issues that other coping strategies may not offer for individuals with chronic illnesses. For example, religious coping, unlike exercise or progressive muscle relaxation training, can be used in spite of the physical limitations of chronic pain or illness (Bush, Rye, Brant, Emery, Pargament, & Riessinger, 1999). In addition, religious coping involves strategies that are sustainable throughout the life cycle, regardless of age or ability level (Bush et al., 1999). This is not to suggest that other cognitive coping strategies do not hold similar advantages. It is important, though, that many individuals, especially those with religious backgrounds, turn to religious coping in addition to other forms of cognitive coping (Pargament, 1997), and these strategies are not only widely applicable across a variety of situations but also are easily adaptable specifically to health conditions (Dein & Stygall, 1997). In this way, religious variables may extend the individual's coping resources by offering additional coping strategies to their repertoire (Pargament et al., 1990).

The above-described research offers preliminary evidence for the importance of religious coping across a variety of health-related domains, but, unfortunately, this

research is flawed in significant ways. Dein and Stygall (1997) performed a comprehensive review of the research related to religion and coping with health problems, critically examining studies purporting to demonstrate relationships between spiritual beliefs, religious practices, and psychological prognoses in a range of chronic and potentially life-threatening chronic illnesses. Based on this review, the authors concluded that the existing research, while limited, indeed suggests that religion is a common coping mechanism and may positively influence adjustment in chronic illness. Unfortunately, as the authors point out, the research in this area is limited not only by minimal attention given to the topic but also by methodological issues.

Methodological flaws inherent in previous studies of religious coping and adjustment in chronic illness include (1) poor definition and measurement of religious coping, (2) the focus on life-threatening rather than chronic illnesses or mortality rather than adjustment, and (3) the reliance on samples of elderly patients. First, a variety of constructs, all purported to represent religious coping, are measured in examinations of the topic as a result of the lack of definitional consensus by researchers. Constructs range from “religiosity” to “religious commitment” to “intrinsic” versus “extrinsic religiosity”, among others, and are sometimes confused with an equally broad range of spirituality-based constructs. This is despite the fact that religiosity and spirituality are believed to be very different constructs (Dein & Stygall, 1997). Throughout the literature, few authors offer operational definitions of the religious constructs they purport to measure and may confuse religious membership, participation, beliefs, and adherence (Dein & Stygall, 1997). When constructs are operationalized, the definitions are often broad or vague and vary widely from study to study. For example, in one study “religiosity” was defined as

“beliefs or behaviors related to a system of values and codes having a god or deity as a central figure” (page 254; Ayele, Mulligan, Gheorghiu, & Reyes-Ortiz, 1999). In another study, “religion” was defined by Ganzevoort (1998) as “experiences, cognitions, and actions seen (by the individual or community) as significant in relation to the sacred” (page 262). Second, previous studies tended to focus on life-threatening rather than chronic illnesses or on mortality rather than adjustment (Dein & Stygall, 1997). It seems intuitively obvious that coping processes might differ between life-threatening versus chronic illnesses; extrapolating findings for life-threatening illnesses to coping with chronic illnesses thus seems inappropriate. Further, distress or adjustment seem to be more useful outcome variables for psychological studies of coping than does mortality. Finally, as it concerns the study of religious coping, reliance in previous research on elderly medical patients does not allow broad generalizability of findings (Dein & Stygall, 1997). This approach falls prey to another widespread methodological flaw of simply creating downward extensions of older adult theoretical models to apply to young age groups, particularly older adolescents and young adults (Frank & Kendall, 2001).

Despite these methodological flaws, religious coping remains a viable construct for scientific examination. As Levin (1994) points out, “religion, as a social institution, and religiosity, as a component or dimension of our psychological make-up and interpersonal life, are real phenomena – or at least as real as any other psychosocial construct” (p. 1477). Although mainstream science seems reluctant to address potential associations between religious constructs and mental and physical health variables, existing studies on religion, variously defined, consistently suggest a salutary effect on health, regardless of outcomes, diseases, or types of rates that are examined (Levin &

Schiller, 1987). It seems logical, then, that religious constructs should be studied with as much attention and conscientiousness as any other psychosocial variable believed to influence adjustment in chronic illness.

In summary, the existing literature indicates that religious coping is not only common in chronic illness but also appears to be associated with more desirable adjustment outcomes. Further, religious coping seems to contribute to positive adjustment in unique ways beyond the effects accounted for by other psychological and secular variables. It appears that further study of associations between religious coping, more traditional psychological and secular variables, and adjustment is warranted. Questions regarding the contribution of religious coping to adjustment will likely be best answered through the use of experimental paradigms in addition to the correlational examinations more typical of this area of research.

Summary

Individuals with asthma may face many challenges related to their chronic illness. Despite advances in treatment, the physiological and financial impacts of the disease continue to rise (Creer & Bender, 1993; Creer & Bender, 1995a; Chaney et al., 1999). In addition, the intermittent, variable, and reversible nature that is considered by many to be a hallmark of the disease (Creer & Bender, 1995a) may influence psychological adjustment. Indeed, individuals with asthma appear to be at increased risk for psychological adjustment difficulties (e.g., Bennett, 1994; Kashani et al., 1988; MacLean et al., 1992). For example, prevalence rates for depression and for other markers of distress have been noted in several studies to be substantially higher for individuals with asthma than for individuals in the general population (e.g., Badoux & Levy, 1994;

Chaney et al., 1999; Miller, 1987; Mullins et al., 1997). Because psychosocial variables are associated with increased morbidity and mortality in asthma (Lehrer, Isenberg, & Hochron, 1993; Miller, 1987), it seems critical to explore variables that may play a role in psychological adjustment for individuals with asthma. Importantly, very little information regarding adjustment or factors influencing adjustment is available for older adolescents and young adults, in particular, with asthma (e.g., Chaney et al., 1999).

In exploring factors that may contribute to adjustment, the constructs of illness intrusiveness and illness uncertainty consistently emerge as significant cognitive predictors of psychological adjustment. Illness intrusiveness appears to play a role in individuals with chronic illness (Devins et al., 1996). In individuals with type 2 diabetes, illness intrusiveness was related both directly and indirectly to increased depressive symptomatology, operating primarily by reducing personal control over health outcomes (Talbot et al., 1999). The role of illness intrusiveness in adjustment to asthma in older adolescents and young adults has yet to be examined, but it is conceivable that illness intrusiveness has similar effects in individuals with asthma. Illness uncertainty also appears to be an important element of the chronic illness experience. For asthma in particular, key features of the disease (i.e., the intermittent, unpredictable, and reversible nature) appear to contribute to variable expectations and significant uncertainty about the illness (Creer & Bender, 1995b), which may in turn precipitate adjustment difficulties. Finally, a limited body of research suggests that religious coping is not only common in chronic illness (Dein & Stygall, 1997) but may also be a unique contributor to psychological adjustment in chronic illness (Koenig et al., 1992). Researchers have theorized that religious coping may serve as a means of gaining secondary control over

other aspects of chronic illness, including intrusiveness and uncertainty. Pargament (1997) explains this view, stating that “religion complements nonreligious coping, with its emphasis on personal control, by offering responses to the limits of personal powers” (p. 310). In other words, religious coping conceivably offers a way for individuals to attain some level of control over those cognitive predictors of adjustment to chronic illness.

Thus, the proposed study aimed to examine the contributions of illness intrusiveness, illness uncertainty, and religious coping to psychological adjustment in older adolescents and young adults with asthma. The remainder of this paper discusses the purposes and hypotheses of the current study, as well as methodology for carrying out the study and the results and implications for the current study.

CHAPTER III

PURPOSES AND HYPOTHESES

The current study was designed to examine three variables believed to facilitate adjustment to asthma in older adolescents and young adults. These variables included illness intrusiveness, illness uncertainty, and religious coping. Although the extant literature suggested that these constructs were involved in adjustment in chronic illness, research had not previously explored the interrelationships among these factors for older adolescents and young adults with asthma. The role of religious coping was highlighted, as this variable had been largely neglected in previous studies.

Thus, the present study aimed first to explore the potential relationships among illness intrusiveness, illness uncertainty, religious coping, and psychological adjustment. Based on existing literature, it was expected that higher levels of illness intrusiveness and higher levels of illness uncertainty would be associated with higher levels of psychological distress. It was believed that higher levels of religious coping would be related to lower levels of psychological distress. Particular attention was paid to the independent influence of religious coping.

In addition, this study employed an experimental learned helplessness induction task and a group of healthy control participants to conduct analyses regarding the potential influence of religious coping on susceptibility to learned helplessness induction. Indeed, the existing literature suggested that religious coping may facilitate resilience in the face of challenging situations, such as asthma. However, this hypothesis had not previously been examined empirically. Thus, the current study compared the potential buffering effects of religious coping for individuals with asthma as well as healthy

controls in order to explore whether such coping operates similarly in these two groups. It was expected that higher endorsement of religious coping would be associated with lower susceptibility to learned helplessness induction for all individuals in the sample. It was also speculated that religious coping would have a greater effect on learned helplessness susceptibility for individuals with asthma than for healthy controls.

The following hypotheses and research questions were examined in the present study:

Hypothesis 1: It was predicted that illness intrusiveness and illness uncertainty would be significantly associated with psychological distress and that religious coping would be significantly and inversely associated with distress for older adolescents and young adults with asthma.

Hypothesis 2: Religious coping was expected to make a significant contribution to the prediction of psychological distress even after controlling for the effects of any variables observed to covary with religious coping, including illness severity, illness intrusiveness, and illness uncertainty. Specifically, it was believed that greater use of religious coping would be associated with decreased ratings of psychological distress, independent of illness severity, illness intrusiveness, and illness uncertainty.

Research Question 1: Does religious coping decrease susceptibility to learned helplessness induction?

Research Question 2: Does the influence of religious coping on susceptibility to learned helplessness induction differ for individuals with asthma and healthy controls?

CHAPTER IV

METHODOLOGY

Participants

Two groups of participants, matched for age and sex, were recruited from undergraduate classes at Oklahoma State University. The first group of participants was comprised of individuals with asthma, and the second group consisted of healthy controls. More than 40 individuals, all between the ages of 18 and 22, were recruited for each group. Usable data was collected for 42 participants with asthma and for 39 healthy participants. Individuals were included in the asthma (AS) group only if they (1) reported experiencing their first asthma episode or receiving a diagnosis of asthma prior to the age of 12 years, (2) reported that they were receiving medical treatment (i.e., current prescription for asthma-related medication or an asthma-related physician visit within the previous six months) at the time of the study, and (3) reported no other chronic illnesses (e.g., diabetes, epilepsy). Individuals were eligible for inclusion in the healthy control (HC) group if they (1) reported no history of chronic illness, (2) had never been treated by a physician for any medical condition for more than three consecutive months in any given year (e.g., hypertension, hypothyroidism), and (3) had never been hospitalized continuously for a medical condition for more than one month. Again, the HC group was matched to the AS group on the basis of age and sex.

Procedures

Initial subject recruitment involved screening the available subject pool for individuals that met inclusion criteria for the AS group. Procedures were identical for AS and HC participants, with the exception of exclusion of the illness-related questions and

measures for HC participants. After potential participants were screened, eligible individuals were recruited for study participation, which occurred in two phases after participants gave informed consent. First, a battery of questionnaires assessing demographics, illness-related variables (AS group only), illness intrusiveness (AS group only), illness uncertainty (AS group only), religious coping, and psychological adjustment was administered. The questionnaire battery included other questionnaires that were part of a related but separate project. PEFR readings were also obtained for all participants at this time. Participants received instructions on how to use the peak flow meter and completed one practice trial. Following a two-minute rest period, the first PEFR measurement was taken. Two additional PEFR measurements were obtained as participants completed questionnaires, with a two-minute rest period between measurements.

Within four weeks of this administration, participants completed the experimental manipulation (learned helplessness induction task) required to address the exploratory research questions posed for the current study. Participants were randomly assigned to either response-contingent or response-noncontingent feedback conditions on a computerized concept-formation task prior to their appointment for this task. Four phases were involved in the experimental manipulation: (1) Pretreatment phase: participants completed mood state, performance expectancy, and task attribution measures (used in manipulation checks); (2) Treatment phase: participants completed a computerized concept-formation task on which they received either response-contingent or response-noncontingent performance feedback; (3) Posttreatment phase: participants again completed the measures completed in the pretreatment phase; and (4) Performance phase:

participants performed a computerized anagram-solving task. Finally, participants in both conditions were debriefed and informed of the experimental manipulation. To ensure that individuals understood the concept formation task, participants in the solvable condition were asked to write an explanation of the problem solving strategies they used during the task. Upon later examination of these explanations by researchers, it was determined that all participants in the solvable condition demonstrated adequate understanding of the concept formation.

Instruments

All instruments for the current study may be viewed in Appendix A.

Demographics

Participants completed a standard demographics questionnaire. In addition to pertinent demographic items, this questionnaire included illness-related items (e.g., age at diagnosis, current medications) for those individuals in the AS condition. Specifically, asthma participants were asked to report their age at asthma diagnosis, type of asthma (seasonal versus perennial), current treatment status, and self-ratings of asthma severity and controllability.

Illness Severity

Illness severity ratings were obtained for individuals in the AS condition. Illness severity was assessed with a series of questions designed to determine asthma severity stage (O'Hara, 1995), which included measurement of peak expiratory flow rate (PEFR). PEFR, measured in Liters/minute, 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 illness severity in combination with criteria that O'Hara (1995) delineated to stage asthma severity (i.e., mild, moderate, severe, or respiratory failure). The highest value is traditionally used to account for sometimes decreased deep-breath capabilities during PEFR measurement for people with asthma (O'Hara, 1995). Specific items, in addition to PEFR, included an objective rating of wheezing frequency and severity and self-report for the number of times the individual had to use an inhaler during the previous month. Endorsement of half or more of the items representative of a stage were considered as necessary for assignment to stage of illness severity.

Illness Intrusiveness

The *Illness Intrusiveness Ratings Scale* (IIRS; Devins et al., in press) is a 13-item self-report measure designed to assess the extent to which disease and/or its treatment interferes with activities in important life domains, namely, the Relationships and Personal Development, Intimacy, and Instrumental life domains. The IIRS has been used in studies with a variety of patient groups, including rheumatoid arthritis, diabetes, systemic lupus erythematosus, renal transplantation, multiple sclerosis, and insomnia, among others (e.g., Devins et al., in press; Mullins, Cote et al., 2001; Talbot et al., 1999). Respondents rate the degree to which illness and/or treatment interfere with a number of activities/domains on a 7-point Likert scale, ranging from "not very much" to "very

much.” Reliability for each of the three subscales and the total score is adequate, with all coefficients exceeding .80 for total scores (Devins et al., in press). Cronbach’s alpha for the measure in the current study was 1.00 (n = 42).

Illness Uncertainty

The *Mishel Uncertainty in Illness Scale-Community Form* (MUIS-C; Mishel & Braden, 1988) purports to measure the four components of illness uncertainty: ambiguity, uncertainty, lack of information, and unpredictability. The scale contains 23 items (e.g., “I don’t know what is wrong with me,” “I am unsure if my illness is getting better or worse”) that respondents are asked to rate on a 5-point scale ranging from very true to very false. A single composite score, in which a higher score reflects greater illness uncertainty, is obtained by summing responses to all items. The MUIS-C has demonstrated adequate reliability and validity across a number of chronic illnesses and disease states (Mishel & Braden, 1988; Mullins et al., 1995). The measure demonstrated adequate internal consistency in the present study ($\alpha = 0.88$, n = 42).

Religious Coping

Pargament and his colleagues (1990) developed the *Religious Coping Activities Scale* (RCAS) to assess the extent to which individuals facing stressful life circumstances utilize religiously-based coping responses. The 29-item self-report questionnaire asks respondents to rate the extent to which they use several religious coping activities, with responses ranging from 1 (“not at all”) to 4 (“a great deal”). Six subscales emerge in factor analysis, and all demonstrate adequate internal reliabilities (Watson, 1999). Because the scale contained only 29 items, the total score was used in primary analyses

rather than subscale scores. Cronbach's alpha for the overall religious coping score in the current study was 0.95 (N = 74).

Psychological Distress

The *Brief Symptom Inventory* (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. 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 ranging from .71 to .85, and possesses high test-retest reliability ranging from .68 to .91 (Derogatis, 1993). Respondents are 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 psychological distress. Internal consistency for the current sample was 0.97 (N = 74).

The BSI also allows researchers to examine *T* scores in terms of caseness criteria, that is, the extent to which an individual manifests clinically significant distress. Caseness is defined as a GSI *T* score ≥ 63 or two or more subscale scores ≥ 63 (Derogatis, 1993). 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, 1985; Thompson, Gustafson, Hamlett, & Spock, 1992).

Manipulation Check Instruments

Several instruments were employed to assess whether the experimental manipulation (i.e., contingent versus noncontingent feedback) in successfully inducing transient mood states, modifying performance expectancies, and altering task attributions. They included the following.

The *Multiple Affect Adjective Checklist* (MAACL; Zuckerman & Lubin, 1965) is a 132-item checklist that contains words describing three different mood states (i.e., anxiety, depression, and hostility). It is a self-report measure designed to assess transient mood states by asking respondents to check mood adjectives that apply to them at the moment. Scores on the three mood states will be used to examine the effectiveness of the experimental manipulation in inducing transient anxiety, depression, or hostility. Previous studies utilizing experimental induction procedures have shown the MAACL to be sensitive to transient mood changes (e.g., Cairns & Norton, 1988; Nagata & Trierweiler, 1988).

The *Visual Analog Scale* (VAS) consists of a single-item, 10-centimeter line on which participants are to place an “X” according to how well they expect to perform the upcoming computer task in relation to other people, from “much worse” to “much better than other people”. Consistent with previous research (e.g., Chaney et al., 1999), VAS performance ratings were used to evaluate the effects of the experimental manipulation on outcome expectancies as a function of experiencing contingent or noncontingent feedback on the computerized concept-formation task.

A single item was used to assess subjects’ internal versus external attributions for their performance on the computer task. *Task attribution ratings* (ATTRIB) were obtained by asking subjects the following question: “Do you think that your level of

success on the computer task (will be/was) due to something about you or due to other circumstances?” The format of the scale is similar to items on the Attributional Style Questionnaire (Peterson et al., 1982). Responses can range from 1 (“totally due to other circumstances”) to 7 (“totally due to me”), with higher scores reflecting more internal attributions for task performance. Scores were used to examine the effects of the experimental manipulation, with previous studies indicating that internal attributions tend to increase following response-contingent success on experimental tasks and to decrease in response to failure or response-noncontingent aversive experimental conditions (e.g., Cohen, Dowling, Bishop, & Maney, 1985).

Experimental Task and Anagram Performance

Experimental Task

The experimental task employed in the present study was patterned after the one used by Chaney et al. (1999) in their examination of learned helplessness in older adolescents and young adults with asthma. The experimental manipulation procedure was a computerized version of a standard concept-formation task (e.g., Levin, 1971), similar to the task originally used by Hiroto and Seligman (1975) and others (e.g., Benson & Kennelly, 1976). Participants were seated at a computer terminal in a private room and given the following standardized instructions:

In this experiment, 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 has two patterns: one on top and one on bottom. Each pattern contains a letter Y and a letter Z. You will also notice that one letter is surrounded by a square and the other by a circle, and that one background is red and the other 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 patterns, either the top one or the bottom one, has been chosen to be correct. For each display I want you to indicate which of these two (top or bottom) you think is correct and I'll tell you whether you are right or wrong. Then, go on to the next display. Again, you make a choice, and again I'll tell you whether you are right or wrong.

In this way you can learn the reason for my saying "right" or "wrong." The reason may be because of the position of the letter, the surrounding shape, or the background color. The object for you is to figure the pattern out as fast as possible so that you can choose correctly as often as possible. Press the keyboard letter T if you think the top pattern is correct, or press the keyboard letter B if you think the bottom pattern is correct.

Participants were given examples of how the task is to be performed. Then participants were presented with a series of 40 stimulus patterns on the computer screen; the patterns were grouped into four sets of problems, with 10 trials for each problem. At the end of each tenth trial, the stimulus dimension (e.g., the letter Y) associated with a correct response changed automatically, requiring participants to determine the new correct stimulus dimension (e.g., the color blue).

As part of the standardized instructions, all participants were given the perception that the task was solvable and that determining the correct dimension (i.e., letter, color, shape) of the stimulus pattern was attainable. However, only approximately half of the participants in each group received solvable problems with response-contingent correct and incorrect feedback on their performance. In other words, randomly assigned participants in this experimental condition were given feedback that allowed them to

eventually discover the correct stimulus pattern. Participants randomly assigned to the response-noncontingent condition received unsolvable problems with response-noncontingent correct and incorrect feedback on their performance. Participants in this condition were thus unable to determine the correct stimulus pattern due to random performance feedback and, subsequently, were not be able to correctly identify any of the patterns across the four blocks of 10 trials.

Anagram Performance

As with the experimental task, the computerized anagram-solving task used in the current study is like that previously used by Chaney and his colleagues (1999). The task contained 20 anagrams, each consisting of five letters. All anagrams were presented in the same scrambled order (i.e., 3-4-2-5-1) and were solvable using a 5-3-1-2-4 solution sequence (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 onto the computer keyboard. Notice that there ay be a pattern or principle 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 limit is up. If you want to make a correction, use the backspace key.

Participants were then presented with 20 anagrams on the computer screen; they were given 100 seconds in which to solve each anagram. The primary outcome measure for this task in the current study was the number of anagrams correctly identified (i.e., those solved in less than 100 seconds) out of the 20 trials on the anagram-solving task (e.g., Alloy et al., 1984).

CHAPTER V

RESULTS

Asthma Participants

Descriptive statistics for all variables of interest for participants with asthma can be viewed in Table 1 in Appendix B. The asthma sample included 42 participants with a mean age of 19.43 years ($SD = 1.25$). It was comprised primarily of females (69%). The majority of participants endorsed Caucasian racial affiliation (88.1%), with the remainder of participants endorsing African American, Asian, Biracial, Hispanic, and Native American/American Indian affiliations (2.4% each). Mean illness duration was 11.49 years ($SD = 3.67$). Most participants reported that they had never been married (97.6%); one participant (2.4%) reported being married at the time of the study.

Mean illness severity, using the previously described criteria delineated by O'Hara (1995) was 1.64 ($SD = 0.66$) on a scale ranging from 1 to 4. Thus, the obtained mean illness severity rating lies between mild and moderate classifications. Participants were also asked to provide a self-rating of asthma severity for the previous year, where 1 represented minimal severity and 7 represented maximum severity. The mean score for this asthma self-rating was 2.10 ($SD = 1.19$), again indicating that the present sample experienced relatively mild asthma severity. Other indicators of illness severity also indicated relatively mild disease exacerbations in the sample. For example, the mean number of physician visits within the previous 6 months was 1.42 ($SD = 1.50$), and the mean self-report of asthma controllability was 4.81 ($SD = 2.02$) on a scale ranging from 1 to 7. Although most participants reported having a current prescription for asthma medication (85.7%), the majority of these prescriptions were to be taken as needed rather

than on a daily or even weekly basis. Finally, only 35.7% of the sample endorsed medical treatment for their asthma symptoms within the previous six months. This was broadly defined as physician visits or other medical intervention such as hospitalization that was related to asthma symptoms.

For the purpose of further describing the sample, the number of participants with asthma who met caseness criteria for distress (i.e., BSI Global Severity Index T score \geq 63 or two or more subscale scores \geq 63; Derogatis, 1993) was computed. The caseness criteria serve as a means of defining clinically significant levels of distress, thereby indicating a potential need for clinical intervention. The caseness criteria for distress were met by 16 (38.1%) asthma participants. This is similar to the percentage of participants meeting caseness criteria in a similar sample of college students with asthma who completed an expanded version of the BSI, the Symptom Checklist-90-Revised (Mullins et al., 1997). Normative data suggest that only 10% of the population should meet caseness criteria at any given point in time (Derogatis & Spencer, 1982). Thus, the current sample contained a fairly high number of individuals who could be considered to be at risk for psychological adjustment problems.

Healthy Participants

The present study also included a comparison group of healthy participants (see Table 2 in Appendix B for descriptive statistics). Healthy participants were matched to participants with asthma on the basis of age and gender. The entire matched sample will be described at a later point.

The sample of healthy participants included 39 individuals with a mean age of 19.62 years (SD = 1.29). Females comprised the majority of this sample (69.2%). The

majority of participants endorsed Caucasian racial affiliation (82.1%), with the remainder of participants endorsing Native American/American Indian (10.3%), Asian (2.6%), Biracial (2.6%), and Other (2.6%) affiliations. The majority of this sample reported that they were never married (94.9%). The remainder of healthy participants reported that they were married or cohabitating (2.6% each).

The number of healthy participants who met caseness criteria for distress was computed for informational purposes. Caseness criteria for distress were met by 13 (33.3%) healthy participants. This is again noticeably higher than the 10% rate of the general population expected to meet caseness criteria (Derogatis & Spencer, 1982).

Matched Sample

In analyses for each research question, participants with asthma were matched with healthy participants based on age and gender. Descriptive statistics for this sample can be viewed in Table 3 in Appendix B.

Complete and usable data was available for 37 matched dyads, or 74 individuals. Thus, descriptive statistics vary somewhat for this group of participants when compared to the samples of asthma or healthy control participants. The mean age for the matched sample was 19.54 years ($SD = 1.27$). Of the 74 participants, 50 (67.6%) were female. The majority of the matched sample identified themselves as Caucasian (83.8%), with others endorsing Native American/American Indian (6.8%), Asian (2.7%), Biracial (2.7%), African American (1.4%), Hispanic (1.4%), and Other (1.4%) racial affiliations. Participants also reported their marital status, with most (96.0%) participants reporting that they were “never married.” Other participants in the matched sample reported that they were married (2.7%) or cohabitating (1.4%).

The number of participants in the matched sample who met the criteria for BSI caseness was computed. A total of 28 (37.8%) participants in the matched sample met the caseness criteria.

Preliminary Analyses

It was also of interest to examine whether variables concerned with religion differed significantly between participants with asthma and healthy participants. No significant differences between participants with asthma and healthy participants emerged for religious coping ($t = 1.39, p > .05$), role of religion in daily life ($t = 1.00, p > .05$), or whether one is more or less religious than other people ($t = -0.24, p > .05$; see Table 4 in Appendix B).

Correlations

For preliminary examination of relationships between variables, zero-order correlations were computed for the primary variables of interest for asthma participants (please refer to Table 5), healthy participants (see Table 6), and the matched sample (see Table 7). All tables can be found in Appendix B. It should be noted that higher scores on the psychological distress measure (i.e., BSI GSI) represent poorer adjustment. Please note that several measures (i.e., Illness Severity, IIRS, and MUIS-C) in the present study applied only to participants with asthma; these measures were thus not included in correlational analyses for the healthy participants and the matched sample.

Asthma Participants

For participants with asthma, a number of statistically significant zero-order correlations were observed. The number of participants for each of these analyses was 42. Age demonstrated significant associations with illness duration ($r = 0.38, p < .05$) and

with adjustment ($r = 0.57, p < .01$) such that older participants were more likely to demonstrate longer disease duration and poorer adjustment. Gender was correlated with illness intrusiveness ($r = 0.37, p < .01$) and illness uncertainty ($r = 0.36, p < .05$), such that females endorsed higher levels of illness intrusiveness and illness uncertainty. A significant relationship was also observed between illness duration and adjustment ($r = 0.36, p < .05$), with longer illness duration being associated with poorer adjustment. The illness severity rating derived using the O'Hara (1995) classification system demonstrated a significant association with self-report of asthma severity ($r = 0.48, p < .01$); higher illness severity was associated with increased self-report ratings of asthma severity within the previous year.

Healthy Participants

Zero-order correlations were also computed for healthy participants ($n = 39$). The only statistically significant correlation to emerge for this sample was between gender and religious coping ($r = 0.35, p < .05$). Females tended to endorse higher levels of religious coping.

Matched Sample

Finally, zero-order correlations were computed for the matched sample with 74 participants. Age and adjustment demonstrated the only statistically significant correlation ($r = 0.32, p < .01$), with older participants being more likely to demonstrate greater psychological distress than younger participants. Age was therefore controlled for in all subsequent analyses.

Primary Analyses

Primary analyses were conducted for the sample of participants with asthma ($N = 42$). In all subsequent analyses, only the asthma severity rating using the O'Hara (1995) criteria was used. This type of rating was considered to be more objective and was therefore preferred in analyses over self-report ratings of illness severity.

Hypothesis One

The first hypothesis predicted that illness intrusiveness, illness uncertainty, and religious coping would be significantly associated with adjustment for older adolescents and young adults with asthma. Specifically, it was hypothesized that higher levels of illness intrusiveness and illness uncertainty would be significantly associated with poorer adjustment, while it was hypothesized that higher levels of religious coping would be significantly related to lower levels of psychological distress.

Results from zero-order correlational analyses are presented in Table 5 (see Appendix B). As predicted, illness uncertainty was significantly correlated with psychological distress, such that higher levels of uncertainty were associated with higher distress ($r = 0.35, p < .05$) among older adolescents and young adults with asthma. Neither illness intrusiveness ($r = 0.16, p > .05$) nor religious coping ($r = -0.06, p > .05$) was observed to demonstrate a statistically significant zero-order correlation with psychological distress.

Partial correlations were also conducted to control for the effects of age and illness severity in relationships between illness intrusiveness, illness uncertainty, religious coping, and psychological distress (see Table 8 in Appendix B). Significant partial correlations emerged between gender and illness intrusiveness ($pr = 0.44, p < .01$)

and between gender and illness uncertainty ($pr = 0.44, p < .01$), with females demonstrating a tendency to endorse higher levels of illness intrusiveness and illness uncertainty. The relationship between illness intrusiveness and illness uncertainty remained statistically significant ($pr = 0.50, p < .01$) after controlling for age and illness severity, as did the partial correlation between illness uncertainty and adjustment ($pr = 0.48, p < .01$). No other significant partial correlations emerged. Interestingly, the association for religious coping with illness uncertainty increased after age and illness severity were covaried out. This relationship approached significance ($pr = -.27, p = .069$) and was in the predicted direction, with higher religious coping scores associated with lower levels of illness uncertainty.

Hypothesis Two

The second hypothesis proposed that religious coping would make a significant contribution to the prediction of psychological distress after controlling for demographic variables or other variables related to religious coping, including illness uncertainty and illness intrusiveness, for participants with asthma. Specifically, it was believed that greater use of religious coping strategies would be predictive of lower ratings of psychological distress in this group.

Hierarchical multiple regression was used to evaluate this hypothesis, with psychological distress (represented by the Global Severity Index score of the BSI) serving as the criterion variable. The effects of illness duration and illness severity (step 1) and age and gender (step 2) were controlled for by entering them into the equation prior to the primary variable of interest, religious coping (see Table 9 in Appendix B).

Illness uncertainty and illness intrusiveness were entered in step 3 of the equation, followed by religious coping on step 4. Results of this analysis indicated that religious coping did not make a statistically significant contribution to the prediction of overall psychological distress ($b^* = -0.05, p > .05$).

Research Question One

It was also of interest to assess whether religious coping influenced susceptibility to learned helplessness induction for all participants regardless of illness status. Data for these analyses was from the matched sample ($N = 74$) and was collected during the second study session. This session included random assignment to response-contingent or response-noncontingent conditions on a computerized concept formation task.

Manipulation checks were performed through statistical analyses to determine whether the experimental manipulation was effective in producing transient mood, expectancy, and attribution changes for participants in the response-noncontingent condition.

First, a one-way Analysis of Variance (ANOVA) demonstrated that there were no statistically significant differences between experimental groups prior to task administration (see Table 10 in Appendix B). Prior to administration of the concept formation task, participants who were assigned to the contingent-feedback group did not differ from those who were assigned to the noncontingent-feedback group on MAACL Anxiety [$F(1, 72) = 0.17, p > .05$], MAACL Depression [$F(1, 72) = 0.05, p > .05$], MAACL Hostility [$F(1, 72) = 1.15, p > .05$], VAS performance expectancy ratings [$F(1, 72) = 0.00, p > .05$], and ATTRIB task attributions [$F(1, 72) = 0.47, p > .05$].

Next, a $2 \times 2 \times 2$ (illness status \times experimental condition \times time) Multiple Analysis of Variance (MANOVA) procedure was used to determine the effectiveness of

the experimental task in learned helplessness induction. Variables of interest for the manipulation check included MAACL mood states, VAS performance expectancy ratings, and ATTRIB task attributions. The results of these analyses can be found in Table 10 in Appendix B. Significant effects emerged for VAS performance expectancy ratings for experimental condition [$F(1, 72) = 19.52, p < .01$] and time [$F(1, 72) = 11.73, p < .01$]. These differences occurred such that participants in the response-noncontingent feedback condition rated themselves as having lower performance expectancies; as well, all performance expectancies were reduced between Time 1 and Time 2. As expected, significant condition x time differences emerged for a number of variables, including MAACL Anxiety [$F(1, 72) = 5.16, p < .05$], MAACL Depression [$F(1, 72) = 4.77, p < .05$], MAACL Hostility [$F(1, 72) = 3.86, p < .05$], and VAS performance expectancy ratings [$F(1, 72) = 32.45, p < .01$]. Following the experimental manipulation, participants who received response-noncontingent feedback demonstrated significantly higher levels of anxiety, depression, and hostility and lower expectancies for their performance on a subsequent task than did participants who received response-contingent feedback. However, the condition x time difference for ATTRIB task attributions was not significant [$F(1, 72) = 0.21, p > .05$]. No other significant effects were found for illness status, condition, time, illness status x condition, illness status x time, or condition x time. Thus, the experimental manipulation was effective in producing transient mood changes and altering performance expectancies for participants in the study. Participants who received noncontingent feedback demonstrated increases in negative mood states and decreases in performance expectancies. However, participants in the noncontingent-feedback group were not more likely than participants in the contingent-feedback group

to attribute poor performance to themselves versus external factors. Additionally, participants tended to respond similarly to the experimental manipulation regardless of illness status.

After it was determined that the experimental condition produced the desired mood and expectancy effects, a hierarchical multiple regression was employed to examine whether religious coping influenced learned helplessness induction (measured by performance on a subsequent anagram task) for the matched sample. ANOVA procedures were initially planned to address this question, but regression procedures were used instead to maximize the power level and ability to detect any contribution of religious coping to anagram task performance.

The criterion variable for the regression equation was performance on the anagram task, or number of correct solutions. Illness status was disregarded for this analysis because the primary objective of this question was to determine whether religious coping could affect susceptibility to learned helplessness induction for the entire sample of college students. Experimental condition was entered on step 1 to control for the effects of contingent versus noncontingent feedback on the induction task. Age and gender were entered on step 2. Finally, religious coping was entered on step 3. As can be seen in Table 9 in Appendix B, religious coping was not significantly predictive of anagram performance ($b^* = 0.07, p > .05$) after controlling for the effects of experimental condition, age, and gender.

Research Question Two

The second research question was designed to explore whether the effect of religious coping in susceptibility to learned helplessness induction differed for

individuals with asthma and healthy controls. Thus, this research question was concerned with whether religious coping differentially affected learned helplessness induction based on illness status. Hierarchical multiple regression was again used to maximize the ability to detect significant contributions of religious coping.

The criterion variable was performance on the anagram task. Experimental condition was entered on step 1 to control for the effects of the experimental manipulation. Step 2 included age and gender. The third step was illness status, and step 4 was religious coping. The results are presented in Table 9 (found in Appendix B). Illness status emerged as a significant predictor of anagram task performance following the learned helplessness induction ($b^* = -0.22, p < .05$), but religious coping did not ($b^* = 0.04, p > .05$). Thus, it appears that anagram task performance following learned helplessness induction differed significantly for participants with asthma and age- and gender-matched healthy controls, with individuals with asthma demonstrating a tendency to perform better on the anagram task following learned helplessness induction. However, religious coping did not contribute directly to this relationship.

Another regression equation was then constructed, using the interaction term for illness status and religious coping, to explore a possible moderation effect. Similar to the original equation, step 1 included experimental condition and step 2 included age and gender. The third step included the interaction term for illness status by religious coping. This interaction term did not emerge as a significant predictor of anagram task performance ($b^* = -0.12, p > .05$; see Table 9 in Appendix B), failing to support an indirect contribution of religious coping to differential susceptibility to learned helplessness induction across illness groups.

Exploratory Analyses

A number of exploratory analyses were performed in an effort to gather more information about the nature of the previously reported results. First, BSI subscale scores were compared between participants with asthma and healthy controls to determine whether types and levels of distress differed between the groups. Next, a median split for illness severity (O'Hara, 1995) was performed and used to examine religious coping scores for individuals with asthma to determine whether those with higher illness severity ratings differed in their use of religious coping. Correlations were examined between RCAS subscales and BSI subscales for participants with asthma. Based on these results, an additional regression equation was constructed for participants with asthma to predict adjustment. The results of these exploratory analyses are as follows.

Differences in BSI Subscale Scores for Asthma versus Healthy Participants

A series of t-tests were performed to determine whether mean BSI subscale scores differed between participants with asthma and healthy participants. As can be seen in Table 11 (in Appendix B), the only statistically significant difference between participant groups occurred for the Somatization subscale ($t = 3.49, p < .01$). Examination of mean scores reveals that participants with asthma scored significantly higher than healthy participants on this subscale, which measures distress arising from physical complaints (Derogatis, 1993).

Illness Severity Median Split

A median split for illness severity (determined using criteria from O'Hara, 1995) was performed. The median score for illness severity was 2 (on a scale from 1 to 4); twenty-three participants had scores at or above this level. To determine whether

religious coping differed between groups, an independent-samples t-test was conducted. Participants with asthma who had higher illness severity ratings endorsed higher levels of religious coping than did those with lower illness severity ratings ($t = -2.04, p < .05$).

Correlations Between RCAS and BSI Subscales

Relationships between RCAS subscales and BSI subscales for asthma participants ($n = 42$) were examined using zero-order correlations. Please refer to Table 12 in Appendix B for the complete correlation matrix. The RCAS Total and Spiritually Based Activities subscale scores were not significantly correlated with any of the BSI subscale scores. The RCAS Good Deeds subscale score, measuring the extent to which individuals attempt to cope by increasing conformity to religious commitments, was significantly associated with a number of BSI subscales, including Interpersonal Sensitivity ($r = -0.30, p < .05$), Depression ($r = -0.37, p < .05$), Hostility ($r = -0.34, p < .05$), and Psychoticism ($r = -0.26, p < .05$). Participants with asthma who endorsed higher Good Deeds subscale scores on the RCAS tended to score lower on BSI measures of feelings of personal inadequacy, clinical depression, negative affect and anger, and withdrawal associated with interpersonal alienation or psychosis.

Notably, RCAS Discontent subscale scores, measuring the presence of an angry and alienated reaction to God and church, were significantly associated with all subscale scores on the BSI, including Somatization ($r = 0.41, p < .01$), Obsessive-Compulsive ($r = 0.44, p < .01$), Interpersonal Sensitivity ($r = 0.36, p < .01$), Depression ($r = 0.43, p < .01$), Anxiety ($r = 0.29, p < .05$), Hostility ($r = 0.42, p < .01$), Phobic Anxiety ($r = 0.45, p < .01$), Paranoid Ideation ($r = 0.49, p < .01$), Psychoticism ($r = 0.50, p < .01$), and GSI ($r = 0.53, p < .01$). Higher RCAS Discontent subscale scores were thus associated with higher

levels of distress over physical complaints, obsessive-compulsive thoughts and behaviors, feelings of personal inadequacy, clinical depression, nervousness and tension, negative affect and anger, disproportionate and persistent fear responses, paranoid thinking, withdrawal associated with interpersonal alienation or psychosis, and higher overall scores of psychological maladjustment.

Other significant correlations with BSI subscales occurred for the RCAS Interpersonal Religious Support, Plead, and Religious Avoidance subscales. Scores on the RCAS Interpersonal Religious Support subscale, believed to measure the tendency to seek support from clergy and church members, demonstrated significant relationships with the Interpersonal Sensitivity ($r = -0.39, p < .01$) and Hostility ($r = -0.33, p < .01$) subscales of the BSI. Higher levels of interpersonal religious support were related to decreased levels of maladjustment on these BSI subscales. The RCAS Plead subscale, which assesses the tendency to question and bargain with God in hopes of obtaining solutions to personal problems, was significantly related to scores on the BSI Phobic Anxiety subscale ($r = 0.28, p < .05$) such that higher levels of religious pleading were associated with increased levels of phobic anxiety. Finally, a significant correlation was observed between the RCAS Religious Avoidance subscale, believed to measure religiously-based attempts to avoid difficult situations, and the BSI Hostility subscale ($r = -0.29, p < .05$), with a tendency for participants who endorsed higher levels of religious avoidance to rate themselves as having less hostility on the BSI.

RCAS Discontent

Because the RCAS Discontent subscale consistently demonstrated significant associations with all subscales of the BSI, including the GSI or overall measure of

psychological distress, a hierarchical multiple regression equation was constructed to examine the contribution of religious discontent to the prediction of overall psychological distress in participants with asthma ($n = 42$). The criterion variable was BSI GSI, or overall psychological distress. Illness duration and illness severity were entered on step 1, with age and gender being entered on step 2. Finally, religious discontent was entered on step 3. Analyses revealed that religious discontent made a significant and unique contribution to the prediction of psychological distress ($b^* = 0.37, p < .01$), even after controlling for the effects of illness duration, asthma severity, age, and gender (refer to Table 12 in Appendix B). In fact, religious discontent accounted for a significant 11% increase in incremental variance in psychological distress. This particular result should be interpreted with caution because of the low number of items (three) on the RCAS Discontent subscale. Internal consistency for this subscale was .76 in the current study.

CHAPTER VI

DISCUSSION

The current study sought primarily to explore the relationships of illness uncertainty, illness intrusiveness, and religious coping to psychological distress in older adolescents and young adults with asthma. Specifically, it was predicted that higher levels of illness intrusiveness and illness uncertainty would be significantly correlated with higher overall psychological distress, while it was thought that higher levels of religious coping would be significantly related to better adjustment. Statistical analyses supported only part of this hypothesis. As predicted, higher levels of illness uncertainty were associated with higher levels of psychological distress among older adolescents and young adults with asthma. However, neither illness intrusiveness nor religious coping was significantly correlated with psychological distress. After controlling for the effects of age and illness severity, the relationship between illness uncertainty and adjustment remained significant. Associations for illness intrusiveness and religious coping with adjustment remained nonsignificant.

The significant association of higher levels of illness uncertainty, or difficulty assigning value to or predicting outcomes for illness-related events (Mishel, 1988), with increased psychological distress is similar to that found in an extensive body of research across a number of disease groups and age groups (Christman et al., 1988; Mishel, Hostetter, King, & Graham, 1984; Mishel, Padilla, Grant, & Sorenson, 1991; Mishel & Sorenson, 1991; Mullins et al., 1995). In a sample similar to the one in the present study, Mullins and his colleagues (1997) found that greater illness uncertainty was associated with poorer adjustment in young adults with childhood asthma, even after controlling for

demographic and disease variables such as age, gender, socioeconomic status, illness duration, and treatment status. Notably, mean illness uncertainty scores in the Mullins et al. (1997) study and the present study were quite similar. Thus, current findings support previous research suggesting that, across a variety of chronic illness populations, illness uncertainty shares a robust association with psychological distress.

Illness intrusiveness, on the other hand, did not demonstrate a significant association with psychological distress as predicted. Illness intrusiveness, or the extent to which a disease and/or its treatment interfere with activities in important life domains, is generally believed to be a consistent element of the chronic illness experience (Devins et al., in press). Previous findings by other researchers have demonstrated that illness intrusiveness was related to quality of life and psychological adjustment for several chronic illnesses, including Type 2 diabetes (Talbot, Nouwen, Gingras, Belanger, & Audet, 1999) and multiple sclerosis (Mullins et al., 2001). Relationships between increased illness intrusiveness and poorer adjustment have been found to be particularly strong in young versus older individuals with multiple sclerosis (Devins et al., 1996). The fact that participants in the current study experienced relatively mild exacerbations of their disease may account for the divergent findings of the current study. In other words, the asthma experiences of participants in the current study may not have begun to limit their participation in valued life activities, particularly since illness severity in the current sample was relatively mild.

Interestingly, illness intrusiveness was positively related to illness uncertainty, with higher levels of illness intrusiveness being significantly associated with increased levels of illness uncertainty. The mild level of illness severity for participants in the

current study may have prevented the detection of a direct relationship between illness intrusiveness and overall psychological distress, but illness intrusiveness continued to share a relationship with another important aspect of the chronic illness experience, namely, illness uncertainty. Illness uncertainty, in turn, shared a direct and significant relationship with psychological distress in the current study. Thus, it remains important to continue studying the illness intrusiveness – illness uncertainty relationship with regard to adjustment.

Another unexpected finding was the lack of a significant association between religious coping and overall psychological distress for older adolescents and young adults with asthma. Indeed, existing literature has suggested that individuals may use religious coping purposely to control uncertainty in stressful situations (Bjorck & Cohen, 1993). Additionally, religious coping has been reported to be at least modestly associated with self-reported well-being in various chronic illnesses (e.g., Walters & Bennett, 2000). The current findings, then, appear to contradict many of the findings in past research. However, the lack of a relationship between religious coping and adjustment in the current study should be viewed in the context of certain sample characteristics unique to the current study. First, the target sample in the current study differed substantially from previous research, which had focused primarily on religious coping and adjustment in samples of elderly medical patients (Dein & Stygall, 1997). Thus, previous research supporting a significant relationship between religious coping and adjustment may not be directly comparable to the current study, which utilized a substantially younger population. Researchers agree that religion often serves as a powerful cultural force for

older medical patients (Dein & Stygall, 1997), but this issue remains largely unexplored with younger individuals, especially older adolescents and young adults.

There is also evidence that, regardless of age, the value of religious coping methods for adjustment may depend in part on the perceived stress or severity of a situation, including an illness experience (Bickel et al., 1998). As previously mentioned, the present sample experienced relatively mild illness severity. Brown (2000) has speculated that the primary functions of religion in managing chronic illness include protective, control, and coping mechanisms that would, in turn, influence overall adjustment. When the illness has only minimal impact on physical and psychological functioning, as in the current sample, these mechanisms may not be employed specifically to manage illness-related stressors, which would result in a minimal direct association between religious coping and overall adjustment. Further, religious coping may become more useful and may be increasingly employed as individuals become more aware of their own limitations (Pargament, 1997). This has been demonstrated in at least one study where the relationship between religious commitment or coping and adjustment was found to be most substantial among those people with chronic illnesses who experienced relatively high levels of disability (Matthews et al., 1998). Given the comparatively low levels of illness severity observed in the current sample, it is not surprising that religious coping and overall adjustment did not share a statistically significant relationship. This is also consistent with the observed trend for a possible relationship between higher levels of religious coping and lower ratings of illness uncertainty after the effects of illness severity and age were controlled for. Notably, at least one other study found no relationship between religious beliefs and levels of distress

for patients with malignant melanoma who endorsed relatively low levels of physical, psychological, and emotional distress (Holland et al., 1999).

Although a substantial number of participants with asthma met the BSI caseness criterion for distress, this rate was not substantially different from that of age- and sex-matched healthy participants. Thus, all participants in the current study evidenced some increased risk for psychological maladjustment, regardless of illness condition. This is important to consider, as it may have impacted the obtained results. Higher levels of distress than expected among healthy participants may have resulted in increased religious coping scores that approximated those of individuals with asthma, as observed in the current results. Such similarity in both distress and religious coping levels may have thus prevented the detection of coping and adjustment differences between the participants with asthma and healthy participants.

The second hypothesis proposed that religious coping would make a significant contribution to the prediction of psychological distress for individuals with asthma. Although it was predicted that greater use of religious coping strategies would be predictive of lower ratings of psychological distress, religious coping did not make a significant or unique contribution to the prediction of overall psychological distress. Again, given the low levels of illness severity observed in the current sample, it is perhaps not surprising that overall religious coping did not make a significant contribution to overall adjustment. An additional analysis with a median split for illness severity revealed that religious coping was significantly higher for those participants with higher levels of illness severity. This subsample was too small to perform additional regression analyses for the prediction of overall adjustment but does suggest that

religious coping may become increasingly utilized or more important to the individual as illness severity increases.

Additionally, these findings may again be better understood when considering the nature of the current sample, which was comprised solely of older adolescents and young adults. Harrison and colleagues (2001) note that findings regarding the role of religious coping in adjustment are much less consistent for college student samples when compared with older samples. For example, one study of the association between strength of religious faith and psychological functioning found mixed results between three separate samples of college students (Plante, Yancey, Sherman, & Guertin, 2000), suggesting that inconsistent results in this area of research may not be unusual in such samples. Few explanations have been offered thus far to explain the tendency for inconsistent results regarding religious coping and adjustment in college student samples. One potential explanation, though, lies in the nature of changing religious beliefs during late adolescence and early adulthood; this will be discussed in greater detail at a later point.

To better understand the nature of associations between religious coping and adjustment for older adolescents and young adults, relationships between separate dimensions of religious coping and various aspects of adjustment were also explored for participants with asthma. A number of significant associations emerged that potentially contribute to understanding the current results. For example, individuals who endorsed coping by increasing their conformity to religious commitments also demonstrated decreased feelings of personal inadequacy, clinical depression, negative affect and anger, and withdrawal. A tendency to seek support from clergy and church members was related

to decreased feelings of personal inadequacy and lower levels of anger. Higher levels of pleading, or questioning and bargaining with God in hopes of obtaining solutions to personal problems, were related to disproportionate and persistent fear responses. Additionally, greater reliance on religiously-based attempts to avoid difficult situations was related to lower levels of negative affect and anger.

Further, lower levels of religious discontent, or angry and alienated reactions toward God and church, were consistently associated with increased levels of adjustment across all areas examined. These findings are consistent with other research linking higher ratings of religious discontent with increased health risks (Harrison, Koenig, Hays, Eme-Akwari, & Pargament, 2001). Additionally, these findings provide some level of support for speculation that negative religious views may have a greater impact on overall adjustment than do positive religious views (Bickel et al., 1988; Bush et al., 1999). This is especially important to consider in light of evidence that negative religious views may be more common for adolescents than for individuals in other age groups (Frank & Kendall, 2001). Atwater (1988) argued that many individuals experience a religious crisis in adolescence as they begin to reevaluate their personal views and may question or even reject God and religion. Though this crisis might be considered to be developmentally normative, difficulty resolving the religious crisis may impair an individual's ability to cope with future stressful situations (Atwater, 1988). It seems appropriate, then, that many older adolescents and young adults would experience relatively high levels of religious discontent. However, the association between lower levels of religious discontent and better adjustment across a variety of areas of

psychological functioning offers support for the argument that religious beliefs impact adjustment, even for older adolescents and young adults.

Because of the strength and consistency of the associations between religious discontent and adjustment in the group of participants with asthma, a regression analysis was performed to explore the contribution of religious discontent to adjustment after controlling for illness duration, illness severity, age, and sex. Analyses revealed that religious discontent made a significant and unique contribution to the prediction of psychological distress. This finding is consistent with the notion that specific religious beliefs may indeed influence adjustment for older adolescents and young adults. Some caution is warranted, however, in the interpretation of this finding. Because the period of adolescence and young adulthood tends to be associated with more religious questioning, the items used to measure religious discontent may have been more in keeping with the experiences of the participants in this sample. Further, this subset of items was quite small in relation to the larger measure from which it originated. Such results, then, need to be replicated using other samples and additional items assessing discontent.

Because previous literature suggested that religious coping might facilitate resilience in the face of challenging situations such as asthma (Matthews et al., 1998), the present study also employed an experimental paradigm for induction of learned helplessness. This allowed the exploration of the potential influence of religious coping activities on susceptibility to learned helplessness induction.

The first research question examined whether religious coping influenced susceptibility to learned helplessness induction, measured by performance on a subsequent task requiring solution of several anagram puzzles, for the combined samples.

Religious coping was not significantly predictive of anagram performance after controlling for the effects of experimental condition, age, and sex. The second research question considered individuals with asthma and age- and sex-matched healthy controls separately to explore whether the influence, if any, of religious coping on susceptibility to learned helplessness induction differed for individuals with and without chronic illness. Illness status, but not religious coping, made a unique and significant contribution to the prediction of anagram performance following the learned helplessness induction task. In other words, healthy participants appeared to be more susceptible to learned helplessness induction than were participants with asthma, but religious coping did not directly account for this difference. An additional regression equation was then constructed to evaluate a possible moderation effect for illness status by religious coping; no evidence was found for such an effect. Thus, the effects of religious coping on learned helplessness induction did not appear to differ between college students with asthma and age- and sex-matched healthy college students.

These findings for the learned helplessness induction should be viewed with caution because a methodological flaw may have mitigated the strength of the learned helplessness effect, in turn reducing the ability to detect differences between groups. Specifically, an additional task was included as a separate part of the research between the learned helplessness induction task and the anagram performance task. This created a 20- to 30-minute delay between the first and final tasks for the learned helplessness paradigm, providing temporal distance between tasks that likely resulted in better anagram performance than expected for individuals who received noncontingent feedback on their initial task performance. In other words, individuals in the experimental

condition for learned helplessness induction may have approximated the anagram task performance of other participants not because of reduced susceptibility to learned helplessness effects, but because of greater temporal distance between tasks than is typical of the paradigm.

Overall, relatively little evidence emerged to support the notion that religious coping contributes substantially to decreased psychological distress or to resilience to induction of learned helplessness. In addition to the reasons previously described, some more general possible explanations of these results bear noting. First, there is some suggestion from existing literature that the effects of religious coping on adjustment may operate through indirect effects rather than the direct pathways that were examined in the current study. For example, Bickel and colleagues (1998) found that religious coping styles had no direct effect on the prediction of depression, but instead interacted with perceived stress levels to contribute significantly to the prediction of depression among adult members of Presbyterian churches. Religious coping demonstrated no significant relationship with negative affect in another study but was, however, related to positive affect (Bush et al., 1999), a dimension of mental health that was not assessed in the current study. Based on their findings, Bush and colleagues suggested that religious coping strategies serve to maintain or restore positive mood rather than directly impacting negative affect per se.

Other researchers (Fabricatore, Handal, & Fenzel, 2000) have examined personal spirituality, a construct closely related to religious beliefs, as a moderator of the relationship between stressors and subjective well-being. Individuals who were more spiritually involved reported increased positive appraisal of their lives when compared

with those who were less spiritually involved. Personal spirituality did not contribute to the prediction of objective measures of adjustment in that study but instead made a significant contribution to the prediction of subjective well-being. One possible mechanism for indirect effects of religion suggests that religion may lead to the development and use of healthy rather than unhealthy coping mechanisms which, in turn, contribute directly to adjustment (Frank & Kendall, 2001). Again, such indirect effects could provide some explanation for variable findings of religion and adjustment in a number of chronic illnesses and studies (Dein & Stygall, 1997).

As previously alluded to, the results of the current study should also be considered in the context of the development of religious beliefs and varying levels of importance across the lifespan. Unfortunately, little is currently understood about how religion operates in the lives of adolescents, especially as it relates to psychological and physical measures of adjustment (Frank & Kendall, 2001). Discussion of the role of religion in the lives of older adolescents and young adults is rare in the available literature, with the few existing conceptualizations of religion for this age group being simply downward extensions of older adult theoretical models (Frank & Kendall, 2001). Some theorists have sporadically acknowledged the need for more sophisticated and applicable models of adolescent religiosity, especially since this period is widely recognized as one that gives rise to a great deal of changes in the individual's belief systems and expression of individuality (Fowler, 1981; Frank & Kendall, 2001). As part of the normal developmental process during adolescence and young adulthood, many individuals can be expected to progress through a period of religious crisis where they question and may ultimately reject a variety of personal, interpersonal, and societal religious values

(Atwater, 1988). Thus, religious views may vary more widely for individuals in this age group than for older adult populations. With less stable religious views, the role of religion in daily life may also fluctuate substantially for this age group. College students in general, and those with asthma specifically, may therefore not have well-defined and stable religious coping strategies that operate consistently in all areas of their lives. Such speculation is certainly suggested by the inconsistency of findings across samples of older adolescents and young adults.

Along these lines, some important limitations of the current study should be noted. First, as previously alluded to, the measurement of religious coping remains crude (Dein & Stygall, 1997). This is due in part to the fact that religious constructs have only recently begun to gain legitimacy as research variables in psychological studies (Frank & Kendall, 2001). As a result, a number of measures purporting to measure religious constructs are cited in existing literature, but few are used consistently or offer data regarding their construction or psychometric properties (Dein & Stygall, 1997). The measure used in the current study, the Religious Coping Activities Scale (RCAS; Pargament et al., 1990), is one of the few available measures offering operational definitions of its constructs or data on its psychometric properties (Watson, 1999). Unfortunately, this instrument was not designed for the particular age group used in the current study, despite indications that adolescents and young adults may experience religion and its role in their lives very differently from middle-aged and older adults (e.g., Frank & Kendall, 2001). Thus, the instrument may not have captured the construct of religious coping as desired, possibly leading to failure to appropriately detect relationships between religious coping and other study variables, including adjustment.

Another limitation of the current study lies in the homogeneity of the sample, especially among the participants with asthma. Ratings of illness severity were not only relatively restricted, but were also quite mild in the participants with asthma. Given that religion may become a more important factor in psychological distress as illness severity and/or stress increase, this seems particularly problematic (Bickel et al., 1998; Holland et al., 1999; Matthews et al., 1998). Additionally, the majority of the participants in the present study endorsed Caucasian racial affiliation. Other research indicates that religious beliefs may have a more direct (versus indirect) effect on well-being or adjustment for minority groups, especially for African Americans, than for Caucasian individuals (Brown, 2000; Brown, Parks, Zimmerman, & Phillips, 2001; Steffen, Hinderliter, Blumenthal, & Sherwood, 2001). A more culturally diverse sample would have increased the generalizability of the current findings and potentially detected a link between religious coping and adjustment.

Despite the acknowledged limitations of the current study, strengths of the research are also notable. Perhaps the most obvious strength of the present study lies in its exploration of a number of previously overlooked construct in a unique population. As previously noted, religious constructs and their relationships with other psychological variables, including adjustment, are under studied in psychological research. It is also important to note that the majority of samples include primarily adults; elderly populations are often the sample of choice in this area of research. Results from this and a handful of similar studies indicate that the study of religious coping may present different issues in older adolescents and young adults than in the more frequently used samples of older adults. Regardless of the unexpected findings, the current study achieved its

purposes of exploring an often-overlooked construct, religious coping, in a population unique in terms of both age and health status.

The present study provides a foundation for a variety of future research studies. First, research should continue to include adolescents and young adults and, more importantly, should emphasize the development of an understanding of the role of religious beliefs for this population and development of appropriate measures to assess religious constructs in this population. Next, the use of community samples with asthma would certainly be beneficial in obtaining a greater degree of heterogeneity in terms of illness severity and cultural or racial affiliations. This may be necessary to maximize the opportunity for detecting any existing relationships between religious coping and adjustment. Notably, future studies would certainly benefit from direct evaluation of whether and how religious coping is used specifically to cope with chronic illness, perhaps adding information regarding direct versus indirect effects of religious coping on adjustment.

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APPENDIX A:
Questionnaire Battery

Subject #: _____

BACKGROUND INFORMATION

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 Cohabiting/Living with Partner
 5 Widowed
 6 Other, please specify: _____
6. If married, spouse's occupation: _____
7. Parents' occupations: Father: _____ Mother: _____
8. Parents' highest levels 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 NO
1 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(s) 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 circle 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

Illness Intrusiveness Ratings Scale (IIRS)

The following items ask about how much your illness and/or its treatment interfere with different aspects of your life. **PLEASE CIRCLE THE ONE NUMBER THAT BEST DESCRIBES YOUR CURRENT LIFE SITUATION.** If an item is not applicable, please circle the number one (1) to indicate that this aspect of your life is not affected very much. Please do not leave any item unanswered. Thank you.

How much does your illness and/or its treatment interfere with your:

1. HEALTH

Not very much 1 2 3 4 5 6 7 *Very much*

2. DIET (i.e., the things you eat and drink)

Not very much 1 2 3 4 5 6 7 *Very much*

3. WORK

Not very much 1 2 3 4 5 6 7 *Very much*

4. ACTIVE RECREATION (e.g., sports)

Not very much 1 2 3 4 5 6 7 *Very much*

5. PASSIVE RECREATION (e.g., reading listening to music)

Not very much 1 2 3 4 5 6 7 *Very much*

6. FINANCIAL SITUATION

Not very much 1 2 3 4 5 6 7 *Very much*

7. RELATIONSHIP WITH YOUR SPOUSE (girlfriend or boyfriend if not married)

Not very much 1 2 3 4 5 6 7 *Very much*

8. SEX LIFE

Not very much 1 2 3 4 5 6 7 *Very much*

9. FAMILY RELATIONS

Not very much 1 2 3 4 5 6 7 *Very much*

10. OTHER SOCIAL RELATIONS

Not very much 1 2 3 4 5 6 7 *Very much*

11. SELF-EXPRESSION/SELF-IMPROVEMENT

Not very much 1 2 3 4 5 6 7 *Very much*

12. RELIGIOUS EXPRESSION

Not very much 1 2 3 4 5 6 7 *Very much*

13. COMMUNITY AND CIVIC INVOLVEMENT

Not very much 1 2 3 4 5 6 7 *Very much*

Mishel Uncertainty in Illness Scale – Community Form (MUIS-C)

Instructions: Please read each statement. Take your time and think about what each statement says. Then circle the number that most closely measures about how you are feeling TODAY. If you agree with a statement, then you would mark either “strongly agree” or “agree.” If you disagree with a statement, then mark either “strongly disagree” or “disagree.” If you are undecided about how you are feeling today, then mark “undecided” for that statement. Please respond to every statement.

1. I don't know what is wrong with me.

<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly</i>
<i>disagree</i>				
5	4	3	2	1

2. I have a lot of questions without answers.

<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly</i>
<i>disagree</i>				
5	4	3	2	1

3. I am unsure if my illness is getting better or worse.

<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly</i>
<i>disagree</i>				
5	4	3	2	1

4. The explanations they give me about my illness seem hazy to me.

<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly</i>
<i>disagree</i>				
5	4	3	2	1

5. My symptoms continue to change unpredictably.

<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly</i>
<i>disagree</i>				
5	4	3	2	1

6. I understand everything explained to me.

<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly</i>
<i>disagree</i>				
1	2	3	4	5

7. The doctors say things to me that could have many meanings.

<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly</i>
<i>disagree</i>				
5	4	3	2	1

8. I can predict how long my illness will last.

<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly</i>
<i>disagree</i>				
1	2	3	4	5

9. My treatment is too complex to figure out.

<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly</i>
<i>disagree</i>				

5	4	3	2	1
10. It is difficult to know if the treatments or medications I am getting are helping.				
<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly disagree</i>
5	4	3	2	1
11. Because of the unpredictability of my illness, I cannot plan for the future.				
<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly disagree</i>
5	4	3	2	1
12. The course of my illness keeps changing. I have good and bad days.				
<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly disagree</i>
5	4	3	2	1
13. It is not clear what is going to happen to me.				
<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly disagree</i>
5	4	3	2	1
14. I usually know if I am going to have a good or bad day.				
<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly disagree</i>
1	2	3	4	5
15. The effectiveness of the treatment is undetermined.				
<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly disagree</i>
5	4	3	2	1
16. I can generally predict the course of my illness.				
<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly disagree</i>
1	2	3	4	5
17. Because of the treatment, what I can do and cannot do keeps changing.				
<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly disagree</i>
5	4	3	2	1
18. They have not given me a specific diagnosis.				
<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly disagree</i>
5	4	3	2	1
19. My physical distress is predictable. I know when it is going to get better or worse.				
<i>Strongly agree</i>	<i>Agree</i>	<i>Undecided</i>	<i>Disagree</i>	<i>Strongly disagree</i>
1	2	3	4	5

20. My diagnosis is definite and will not change.

Strongly agree *Agree* *Undecided* *Disagree* *Strongly disagree*

1 2 3 4 5

21. The seriousness of my illness has been determined.

Strongly agree *Agree* *Undecided* *Disagree* *Strongly disagree*

1 2 3 4 5

22. I'm certain they will not find anything else wrong with me.

Strongly agree *Agree* *Undecided* *Disagree* *Strongly disagree*

1 2 3 4 5

23. The doctors and nurses use everyday language so I can understand what they are saying.

Strongly agree *Agree* *Undecided* *Disagree* *Strongly disagree*

1 2 3 4 5

Religious Coping Activities Scale (RCAS)

Please read the statements listed below and for each statement please indicate **to what extent each of the following was involved in your coping** with a recent, stressful event. This may be a chronic illness, if you have one. If you do not have a chronic illness, please choose a stressful event from your recent past. Circle the appropriate answer for each item.

- | | | | | |
|--|------------|----------|-------------|--------------|
| 1. Trusted that God would not let anything terrible happen to me. | Not at all | Somewhat | Quite a bit | A great deal |
| | 1 | 2 | 3 | 4 |
| 2. Experienced God's love and care. | Not at all | Somewhat | Quite a bit | A great deal |
| | 1 | 2 | 3 | 4 |
| 3. Realized that God was trying to strengthen me. | Not at all | Somewhat | Quite a bit | A great deal |
| | 1 | 2 | 3 | 4 |
| 4. In dealing with the problem, I was guided by God. | Not at all | Somewhat | Quite a bit | A great deal |
| | 1 | 2 | 3 | 4 |
| 5. Realized that I didn't have to suffer since Jesus suffered for me. | Not at all | Somewhat | Quite a bit | A great deal |
| | 1 | 2 | 3 | 4 |
| 6. Used Christ as an example of how I should live. | Not at all | Somewhat | Quite a bit | A great deal |
| | 1 | 2 | 3 | 4 |
| 7. Took control over what I could and gave the rest to God. | Not at all | Somewhat | Quite a bit | A great deal |
| | 1 | 2 | 3 | 4 |
| 8. My faith showed me different ways to handle the problem. | Not at all | Somewhat | Quite a bit | A great deal |
| | 1 | 2 | 3 | 4 |
| 9. Accepted the situation was not in my hands but in the hands of God. | Not at all | Somewhat | Quite a bit | A great deal |
| | 1 | 2 | 3 | 4 |
| 10. Found the lesson from God in the event. | Not at all | Somewhat | Quite a bit | A great deal |
| | 1 | 2 | 3 | 4 |
| 11. God showed me how to deal with the situation. | Not at all | Somewhat | Quite a bit | A great deal |
| | 1 | 2 | 3 | 4 |

12. Used my faith to help me decide how to cope with the situation.
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4
13. Tried to be less sinful.
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4
14. Confessed my sins.
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4
15. Led a more loving life.
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4
16. Attended religious services or participated in religious rituals.
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4
17. Participated in church groups (support groups, prayer groups, Bible studies).
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4
18. Provided help to other church members.
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4
19. Felt angry with or distant from God.
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4
20. Felt angry with or distant from the members of the church.
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4
21. Questioned my religious beliefs and faith.
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4
22. Received support from the clergy.
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4
23. Received support from other members of the church.
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4
24. Asked for a miracle.
 Not at all Somewhat Quite a bit A great deal
 1 2 3 4

25. Bargained with God to make things better.

Not at all	Somewhat	Quite a bit	A great deal
1	2	3	4

26. Asked God why it happened.

Not at all	Somewhat	Quite a bit	A great deal
1	2	3	4

27. Focused on the world-to-come rather than the problems of this world.

Not at all	Somewhat	Quite a bit	A great deal
1	2	3	4

28. I let God solve my problems for me.

Not at all	Somewhat	Quite a bit	A great deal
1	2	3	4

29. Prayed or read the Bible to keep my mind off my problems.

Not at all	Somewhat	Quite a bit	A great deal
1	2	3	4

Brief Symptom Inventory (BSI)

Below is a list of problems that people sometimes have. Please read each one carefully and circle the number to the right that best describes HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU IN THE PAST 7 DAYS, INCLUDING TODAY. Circle only one number for each problem, and do not skip any items. If you change your mind, erase your first mark carefully.

HOW MUCH WERE YOU DISTRESSED BY:	NOT AT ALL	A LITTLE BIT	MODERA TELY	QUITE A BIT	EXTREM ELY
1. Nervousness or shakiness inside	1	2	3	4	5
2. Faintness or dizziness	1	2	3	4	5
3. The idea that someone else can control your thoughts	1	2	3	4	5
4. Feeling others are to blame for most of your troubles	1	2	3	4	5
5. Trouble remembering things	1	2	3	4	5
6. Feeling easily annoyed or irritated	1	2	3	4	5
7. Pains in heart or chest	1	2	3	4	5
8. Feeling afraid in open spaces	1	2	3	4	5
9. Thoughts of ending your life	1	2	3	4	5
10. Feeling that most people cannot be trusted	1	2	3	4	5
11. Poor appetite	1	2	3	4	5
12. Suddenly scared for no reason	1	2	3	4	5
13. Temper outbursts that you could not control	1	2	3	4	5
14. Feeling lonely even when you are with people	1	2	3	4	5
15. Feeling blocked in getting things done	1	2	3	4	5
16. Feeling lonely	1	2	3	4	5
17. Feeling blue	1	2	3	4	5
18. Feeling no interest in things	1	2	3	4	5
19. Feeling fearful	1	2	3	4	5
20. Your feelings being easily hurt	1	2	3	4	5
21. Feeling that people are unfriendly or dislike you	1	2	3	4	5
22. Feeling inferior to others	1	2	3	4	5
23. Nausea or upset stomach	1	2	3	4	5
24. Feeling that you are watched or talked about by others	1	2	3	4	5
25. Trouble falling asleep	1	2	3	4	5
26. Having to check and double check what you do	1	2	3	4	5
27. Difficulty making decisions	1	2	3	4	5
28. Feeling afraid to travel on buses, subways, or trains	1	2	3	4	5
29. Trouble getting your breath	1	2	3	4	5
30. Hot or cold spells	1	2	3	4	5
31. Having to avoid certain things, places, or activities because they frighten you	1	2	3	4	5
32. Your mind going blank	1	2	3	4	5
33. Numbness or tingling in parts of your body	1	2	3	4	5
34. The idea that you should be punished for your sins	1	2	3	4	5
35. Feeling hopeless about the future	1	2	3	4	5
36. Trouble concentrating	1	2	3	4	5
37. Feeling weak in parts of your body	1	2	3	4	5
38. Feeling tense or keyed up	1	2	3	4	5
39. Thoughts of death or dying	1	2	3	4	5

40. Having urges to beat, injure, or harm someone	1	2	3	4	5
41. Having urges to break or smash things	1	2	3	4	5
42. Feeling very self-conscious with others	1	2	3	4	5
43. Feeling uneasy in crowds	1	2	3	4	5
44. Never feeling close to another person	1	2	3	4	5
45. Spells of terror or panic	1	2	3	4	5
46. Getting into frequent arguments	1	2	3	4	5
47. Feeling nervous when you are left alone	1	2	3	4	5
48. Others not giving you proper credit for your achievements	1	2	3	4	5
49. Feeling so restless you couldn't sit still	1	2	3	4	5
50. Feelings of worthlessness	1	2	3	4	5
51. Feeling that people will take advantage of you if you let them	1	2	3	4	5
52. Feelings of guilt	1	2	3	4	5
53. The idea that something is wrong with your mind	1	2	3	4	5

Multiple Affective Adjective Checklist (MAACL)

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

* To be obtained in original format.

Visual Analog Scale (VAS)

TIME 1

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

VAS

Time 2

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 B

PEAK EXPIRATORY FLOW RATE (PEFR) RECORD FORM

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 C:

Tables

Table 1

Descriptive Statistics for Variables of Interest for Asthma Participants (n=42)

Variable	Mean	Standard Deviation	Internal Consistency (Cronbach's alpha)
Age	19.43	1.25	
Illness Duration	11.49	3.67	
Illness Severity (O'Hara, 1995)	1.64	0.66	
Asthma Severity (Self-Rating)	2.10	1.19	
Illness Intrusiveness (IIRS Total Score)	23.22	9.12	1.00
Illness Uncertainty (MUIS-C Score)	51.5	8.47	0.88
Religious Coping (RCAS Total Score)	68.83	18.72	0.95
Adjustment (BSI GSI Score)	53.57	11.25	0.97

Variable	Frequency	Percentage
Gender		
Female	29	69.0
Male	13	31.0
Race		
Caucasian	37	88.1
African American	1	2.4
Asian	1	2.4
Biracial	1	2.4
Hispanic	1	2.4
Native American	1	2.4
Religious Affiliation		
Agnostic	1	2.4
Baptist	13	31.0
Catholic	3	7.1
Church of Christ	4	9.5
Latter Day Saints	1	2.4
Lutheran	1	2.4
Methodist	7	16.7
Non-Denominational	5	11.9
None	1	2.4
Pentecostal/Evangelical	3	7.1
Presbyterian	2	4.8
Wiccan	1	2.4
BSI Caseness		
Met criteria	16	38.1
Did not meet criteria	26	61.9

Table 2

Descriptive Statistics for Variables of Interest for Healthy Participants (n=39)

Variable	Mean	Standard Deviation	Internal Consistency (Cronbach's alpha)
Age	19.62	1.29	
Religious Coping (RCAS Total Score)	64.82	17.89	0.95
Adjustment (BSI GSI Score)	49.64	10.62	0.96

Variable	Frequency	Percentage
Gender		
Female	27	69.2
Male	12	30.8
Race		
Caucasian	32	82.1
Native American	4	10.3
Asian	1	2.6
Biracial	1	2.6
Other	1	2.6
Religious Affiliation		
Baptist	10	25.6
Catholic	6	15.4
Church of Christ	4	10.3
Disciples of Christ	1	2.6
Lutheran	1	2.6
Methodist	6	15.4
Native American Religion	1	2.6
Non-Denominational	3	7.7
None	5	12.8
Pentecostal/Evangelical	1	2.6
Presbyterian	1	2.6
BSI Caseness		
Met criteria	13	33.3
Did not meet criteria	26	66.7

Table 3

Descriptive Statistics for Variables of Interest for the Matched Sample (N=74)

Variable	Mean	Standard Deviation	Internal Consistency (Cronbach's alpha)
Age	19.54	1.27	
Religious Coping (RCAS Total Score)	66.16	18.23	0.95
Adjustment (BSI GSI Score)	51.66	11.43	0.97

Variable	Frequency	Percentage
Gender		
Female	50	67.6
Male	24	32.4
Race		
Caucasian	62	83.8
Native American	5	6.8
Asian	2	2.7
Biracial	2	2.7
African American	1	1.4
Hispanic	1	1.4
Other	1	1.4
Religious Affiliation		
Agnostic	1	1.4
Baptist	22	29.7
Catholic	9	12.2
Church of Christ	8	10.8
Disciples of Christ	1	1.4
Latter Day Saints	1	1.4
Lutheran	2	2.7
Methodist	10	13.5
Native American Religion	1	1.4
Non-Denominational	7	9.5
None	6	8.1
Pentecostal/Evangelical	3	4.1
Presbyterian	2	2.7
Wiccan	1	1.4
BSI Caseness		
Met criteria	28	37.8
Did not meet criteria	46	62.2

Table 4

Differences on Religion Variables Between Participants with Asthma and Healthy Participants

Variable	Illness Group	Mean	SD	<i>t</i>	<i>p</i> (2-tailed)
RCAS Total				1.39	0.09
	Asthma	68.83	18.72		
	Healthy	64.82	17.89		
Role of Religion in Daily Life				1.00	0.16
	Asthma	6.40	2.33		
	Healthy	6.21	2.74		
More or Less Religious Than Other People				-0.20	0.41
	Asthma	5.68	2.35		
	Healthy	5.58	2.56		

Table 5

Zero-order Correlations for Variables of Interest for Asthma Participants (n = 42)

	Gender	Illness Duration	Illness Severity (O'Hara, 1995)	Asthma Severity (Self-Report)	Illness Intrusiveness (IIRS Total Score)	Illness Uncertainty (MUIS-C Total Score)	Religious Coping (RCAS Total Score)	Adjustment (BSI GSI)
Age	-0.14	0.38*	0.10	0.20	-0.09	-0.14	-0.05	0.57**
Gender		0.26	-0.05	0.1	0.37**	0.36*	-0.15	0.03
Illness Duration			0.10	0.19	0.10	0.03	-0.03	0.36*
Illness Severity (O'Hara, 1995)				0.48**	0.24	0.18	0.35*	0.24
Asthma Severity (Self-Report)					0.30*	0.23	0.19	0.07
Illness Intrusiveness (IIRS Total Score)						0.59**	0.08	0.16
Illness Uncertainty (MUIS-C Total Score)							-0.05	0.35*
Religious Coping (RCAS Total Score)								-0.06

* significant at the $p < .05$ level (one-tailed)** significant at the $p < .01$ level (one-tailed)

Table 6

Zero-Order Correlations for Variables of Interest for Healthy Participants (n = 39)

	Gender	Religious Coping (RCAS Total Score)	Adjustment (BSI GSI)
Age	-0.11	-0.16	0.12
Gender		0.35*	0.15
Religious Coping (RCAS Total Score)			0.14

* significant at the $p < .05$ level (one-tailed)

** significant at the $p < .01$ level (one-tailed)

Table 7

Zero-Order Correlations for Variables of Interest for the Matched Sample (N = 74)

	Gender	Religious Coping (RCAS Total Score)	Adjustment (BSI GSI)
Age	-0.16	-0.08	0.32**
Gender		0.10	0.63
Religious Coping (RCAS Total Score)			0.06

* significant at the $p < .05$ level (one-tailed)

** significant at the $p < .01$ level (one-tailed)

Table 8

Partial Correlations for Variables of Interest for Asthma Participants (n = 42), Controlling for Age and Illness Severity

	Illness Duration	Illness Intrusiveness (IRS Total Score)	Illness Uncertainty (MUIS-C Total Score)	Religious Coping (RCAS Total Score)	Adjustment (BSI GSI)
Gender	0.28	0.44**	0.44**	-0.08	0.15
Illness Duration		0.13	0.06	-0.03	0.16
Illness Intrusiveness (IRS Total Score)			0.50**	0.02	0.18
Illness Uncertainty (MUIS-C Total Score)				-0.27	0.48**
Religious Coping (RCAS Total Score)					-0.20

* significant at the $p < .05$ level (one-tailed)

** significant at the $p < .01$ level (one-tailed)

Table 9

Hierarchical Multiple Regression Analyses Examining Contributions of Religious Coping

Equation	Step	Predictor Variable(s)	b*	t for Within-Step Predictors	R ² Change for Step	F Change for Step	Partial Correlation
PRIMARY ANALYSIS -- Criterion Variable: Psychological Distress							
1 (n = 42)	1	Illness Duration	0.12	0.74	0.16	3.10	0.11
		Illness Severity	0.21	1.37			0.20
	2	Age	0.49	3.09**	0.22	5.35**	0.44
		Gender	0.11	0.71			0.10
	3	Illness Uncertainty	0.43	2.42*	0.14	3.95*	0.33
		Illness Intrusiveness	-0.05	-0.28			-0.04
	4	Religious Coping	-0.05	-0.32	0.02	0.94	-0.04
RESEARCH QUESTIONS -- Criterion Variable: Anagram Performance							
1 (N = 74)	1	Experimental Condition	-0.21	-1.83	0.03	2.23	-0.20
	2	Age	0.37	3.23**	0.13	5.22**	0.36
		Gender	0.08	0.71			0.08
	3	Religious Coping	0.07	0.58	0.004	0.34	0.07
2a (N = 74)	1	Experimental Condition	-0.21	-1.86	0.03	2.23	-0.20
	2	Age	0.37	3.36**	0.13	5.22**	0.37
		Gender	0.08	0.74			0.08
	3	Illness Status	-0.22	-2.00*	0.05	4.26*	-0.22
4	Religious Coping	0.04	0.40	0.002	0.16	0.04	
2b (N = 74)	1	Experimental Condition	-0.22	-1.91	0.03	2.23	-0.21
	2	Age	0.36	3.19**	0.13	5.22**	0.35
		Gender	0.10	0.86			0.10
3	Illness Status x Religious Coping	-0.12	-1.06	0.01	1.13	-0.12	

* significant at the $p < .05$ level** significant at the $p < .01$ level

Table 10

Manipulation Checks for Experimental Learned Helplessness Induction (N=74)

Variable	Degrees of Freedom (Between, Within)	F	p
ANOVA			
Time 1 Differences			
MAACL Anxiety	(1, 72)	0.17	0.68
MAACL Depression	(1, 72)	0.05	0.83
MAACL Hostility	(1, 72)	1.15	0.29
VAS Performance	(1, 72)	0.00	0.99
Expectancy			
ATTRIB Task	(1, 72)	0.47	0.50
Attributions			
MANOVA			
(Illness Status x Experimental Condition x Time)			
Illness Status			
MAACL Anxiety	(1, 72)	0.08	0.78
MAACL Depression	(1, 72)	0.27	0.61
MAACL Hostility	(1, 72)	0.03	0.87
VAS Performance	(1, 72)	3.71	0.06
Expectancy			
ATTRIB Task	(1, 72)	0.20	0.65
Attributions			
Experimental Condition			
MAACL Anxiety	(1, 72)	1.63	0.20
MAACL Depression	(1, 72)	2.02	0.16
MAACL Hostility	(1, 72)	0.36	0.55
VAS Performance	(1, 72)	19.52	0.00**
Expectancy			
ATTRIB Task	(1, 72)	0.26	0.61
Attributions			
Time			
MAACL Anxiety	(1, 72)	0.30	0.58
MAACL Depression	(1, 72)	0.75	0.39
MAACL Hostility	(1, 72)	4.27	0.41
VAS Performance	(1, 72)	11.73	0.001**
Expectancy			
ATTRIB Task	(1, 72)	1.59	0.21
Attributions			
Illness Status x Experimental Condition			
MAACL Anxiety	(1, 72)	0.69	0.41
MAACL Depression	(1, 72)	0.02	0.90
MAACL Hostility	(1, 72)	0.13	0.72
VAS Performance	(1, 72)	3.46	0.07
Expectancy			
ATTRIB Task	(1, 72)	0.53	0.47
Attributions			
Illness Status x Time			
MAACL Anxiety	(1, 72)	0.06	0.80
MAACL Depression	(1, 72)	0.01	0.91
MAACL Hostility	(1, 72)	0.12	0.91
VAS Performance	(1, 72)	0.00	0.99
Expectancy			
ATTRIB Task	(1, 72)	0.01	0.94
Attributions			

Table 10, Continued

Manipulation Checks for Experimental Learned Helplessness Induction (N=74)

Variable	Degrees of Freedom (Between, Within)	F	p
MANOVA			
Experimental Condition x Time			
MAACL Anxiety	(1, 72)	5.26	0.03*
MAACL Depression	(1, 72)	4.89	0.03*
MAACL Hostility	(1, 72)	3.96	0.05*
VAS Performance	(1, 72)	32.58	0.00**
Expectancy			
ATTRIB Task	(1, 72)	0.22	0.85
Attributions			

* significant at the $p \leq .05$ level* significant at the $p < .01$ level

Table 11

Differences in BSI Subscale Scores for Asthma versus Healthy Participants

BSI Subscale	Illness Group	Mean	Standard Deviation	<i>t</i>	<i>p</i>
Somatization	Asthma	56.07	12.06	3.49**	.001
	Healthy	47.94	8.43		
Obsessive-Compulsive	Asthma	55.31	13.15	0.91	.367
	Healthy	52.97	9.60		
Interpersonal Sensitivity	Asthma	54.00	11.47	0.49	.626
	Healthy	52.77	11.12		
Depression	Asthma	51.24	9.94	0.12	.903
	Healthy	50.97	9.43		
Anxiety	Asthma	49.45	10.68	0.66	.513
	Healthy	48.03	8.66		
Hostility	Asthma	53.83	10.98	1.24	.219
	Healthy	51.05	9.03		
Phobic Anxiety	Asthma	49.40	9.47	0.42	.676
	Healthy	48.56	8.52		
Paranoid Ideation	Asthma	51.79	12.83	0.49	.627
	Healthy	50.56	9.30		
Psychoticism	Asthma	54.24	10.99	0.21	.833
	Healthy	53.74	10.02		
Global Severity Index (GSI)	Asthma	53.57	11.25	1.61	0.11
	Healthy	49.64	10.62		

** significant at the $p < .01$ level (two-tailed)

Table 12

Correlations Between RCAS and BSI Subscales for Participants with Asthma (n=42)

	BSI som	BSI o-c	BSI i-s	BSI dep	BSI anx	BSI hos	BSI pho	BSI par	BSI psy	BSI GSI
RCAS tot	0.16	0.04	-0.19	-0.19	0.12	-0.22	0.06	0.06	-0.10	-0.06
RCAS sba	0.14	-0.02	-0.16	-0.17	0.10	-0.20	-0.01	0.00	-0.10	-0.08
RCAS gd	0.10	-0.01	-0.30*	-0.37*	0.03	-0.34*	0.06	-0.01	-0.26*	-0.14
RCAS dc	0.41**	0.44*	0.36**	0.43**	0.29*	0.42**	0.45**	0.49**	0.50**	0.53**
RCAS irs	-0.13	-0.15	-0.39**	-0.24	-0.05	-0.33*	-0.06	-0.04	-0.18	-0.2
RCAS ple	0.13	0.24	0.04	0.43	0.25	0.07	0.28*	0.19	0.12	0.17
RCAS ra	0.05	-0.03	-0.25	-0.17	-0.01	-0.29*	-0.17	-0.06	-0.15	-0.21

* significant at the $p < .05$ level (one-tailed)

** significant at the $p < .01$ level (one-tailed)

Note. RCAS tot = RCAS Total, RCAS sba = RCAS Spiritually Based Activities, RCAS gd = RCAS Good Deeds, RCAS dc = RCAS Discontent, RCAS irs = RCAS Interpersonal Religious Support, RCAS ple = RCAS Plead, RCAS ra = RCAS Religious Avoidance, BSI som = BSI Somatization, BSI o-c = BSI Obsessive-Compulsive, BSI i-s = BSI Interpersonal Sensitivity, BSI dep = BSI Depression, BSI anx = BSI Anxiety, BSI hos = BSI Hostility, BSI pho = BSI Phobic Anxiety, BSI par = BSI Paranoid Ideation, BSI psy = BSI Psychoticism, BSI GSI = BSI Global Severity Index.

Table 13

Hierarchical Multiple Regression Analysis Examining Religious Discontent Contribution to Psychological Distress (Exploratory Analysis)

Equation	Step	Predictor Variable(s)	b*	t for Within-Step Predictors	R ² Change for Step	F Change for Step	Part Correlation
1 (n = 42)	1	Illness Duration	0.15	1.00	0.16	3.10	0.13
		Illness Severity	0.14	1.06			0.14
	2	Age	0.36	2.25*	0.22	5.35*	0.30
		Gender	0.11	0.77			0.10
	3	Religious Discontent	0.37	2.56**	0.11	6.54**	0.34

* significant at the $p < .05$ level

** significant at the $p < .01$ level

APPENDIX D:

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

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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

2

Misty Lynn Boyd

Candidate for the Degree of

Doctor of Philosophy

Dissertation: THE INFLUENCE OF RELIGIOUS COPING ON PSYCHOLOGICAL ADJUSTMENT
IN OLDER ADOLESCENTS AND YOUNG ADULTS WITH ASTHMA

Major Field: Psychology

Biographical:

Personal Data: Born July 23, 1976 in the city of Platte, Charles Mix County, South Dakota, the daughter of Peggy Dean Bultsma (Atwood) and Larry D. Bultsma, and granddaughter of Joseph Bailey Dean, Jr. and Margaret Elizabeth (Fisher) Dean, and Jessie T. Bultsma. Married B.J. Boyd in June, 1996, in the town of Gore, Sequoyah County, Oklahoma.

Education: Graduated class salutatorian from Byng High School in Ada, Oklahoma in May, 1994; received Bachelor of Science University Honors Degree, with departmental honors in psychology, cum laude from Oklahoma State University in May, 1998; received Master of Science in Psychology from Oklahoma State University in May, 2001. Completed the requirements for the degree of Doctor of Philosophy in Psychology with emphasis in Clinical Psychology and specialization in Child Clinical Psychology at Oklahoma State University in December 2003.

Experience: Worked as a volunteer and coach for Oklahoma Special Olympics from 1999 through 2002; worked in the Oklahoma State University Psychology Department as an undergraduate and graduate research assistant from 1996 to 2002; worked as a therapist and researcher at the Center on Child Abuse and Neglect, University of Oklahoma Health Science Center, in Oklahoma City, Oklahoma, from 2000 to 2002; completed Internship in Professional Psychology at the University of Tennessee Health Science Center in Memphis, Tennessee, from 2002 to 2003.

Professional Memberships: Including American Psychological Association, Society of Indian Psychologists, and others.